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ENVIRONMENTAL REPORT
IN SUPPORT OF
APPLICATION FOR SITE CERTIFICATION
FOR
EXPANSION OF EXISTING PALATKA POWER PLANT

FLORIDA POWER & LIGHT COMPANY
P. O. BOX 3100
MIAMI, FLORIDA 33101

EXTRACTED PAGES

APRIL 12, 1974

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INTRODUCTION

An analysis of Florida Power & Light Company's (FP&L) projected 1975 generating capacity and service requirements indicate that additional generating capacity will be needed to meet expected peak demands. In 1975, the projected power load will be 9,000 mw. With all existing units on line, FP&L's generating capacity is only 9,369 mw; hence, a reserve of 396 mw (4.4 percent). This reserve is unacceptable. If the FP&L Turkey Point No. 3 generator (760 mw) should inadvertently have to be brought off line, FP&L would not be able to generate service equal to the demand.

In response to the projected power needs, FP&L made application (November, 1973) for permits to construct two, 280 mw gas turbine generating units at FP&L's Palatka Plant. In December, 1973, an additional 226 mw of steam electric generating capacity at the Palatka Plant was proposed. The inclusion of these generators would increase FP&L system capability to 9,916 mw, which would increase the reserve capability to 916 mw (10.2 percent).

The proposed steam generating facility will entail the addition of waste heat recovery boilers to the proposed gas turbines at the Palatka Plant. Steam produced in the waste heat recovery boilers will be used to drive steam turbine generators. The combined system will be the most efficient package, when coverting fuel energy to electrical energy, available to FP&L by April 1, 1975.

Engineering and environmental investigations and analyses indicate that this project can be designed, construction and operated so as to comply with all applicable Federal, state, and local environmental standards and regulations.

In accordance with the Florida Department of Pollution Control guidelines concerning steam generator siting, FP&L respectively submits this report entitled "Environmental Report in Support of Application for Site Certification for Expansion of Existing Palatka Power Plant".

1. PERTINENT APPLICANT INFORMATION

1. Company or Applicant's Official Name - Florida Power & Light Company

2. Address - P. O. Box 3100, Miami, Florida 33101

3. Address of Official Headquarters - P. O. Box 3100, Miami, Florida 33101

4. Business Entity (Corporation, Partnership, Co-op, Etc.) - Florida Power & Light Company is a corporation chartered in Florida in December, 1925.

5. Name and Title of Business Head - Company official directly responsible for obtaining certification is Dr. Donald D. Dunlop. He is Vice President of the Environmental Planning and Research Department. The Project Coordinator from the Environmental Planning and Research Department, Environmental Affairs section responsible for obtaining this certification is W. J. Barrow, Jr. Any questions pertaining to this application should be directed to him at Florida Power & Light Company, P. O. Box 3100, Miami, Florida 33101, Phone 305/446-3161 Ext. 288.

6. Site Location - Putnam County

7. Nearest Incorporated City - Palatka, Florida

8. Latitude and Longitude - Lat. $29^{\circ}37'43"$, Long. $81^{\circ}35'25"$
   UTM: East 443350 North 3277560

9. Initial Generating Capacity: 564 MW Gross
   552 MW Net

10. Proposed Generating Capacity: 564 MW Gross
    552 MW Net

11. Additional Remarks

3.7 Air Emissions

ESE (1974) estimated emissions of sulfur dioxide, particulate matter, and oxides of nitrogen from the new combined cycle units on the basis that the new units will average a 60 percent load. ESE also estimated the height and diameter of the gaseous discharge stacks as well as the temperatures and velocity of the gaseous discharges. In addition, ESE estimated the 1975 emissions from existing sources on the assumption that all existing sources would meet with Florida State emission standards and that they would be operating approximately as they were in 1972. These estimates are given in Table 3.1.

3.8 Associated Transmission Facilities

No associated transmission lines are necessary for this project. Existing transmission facilities have adequate capacity and will be utilized except from the proposed units to the adjacent switchyard.

TABLE 3.1. ESTIMATED 1975 EMISSION INVENTORY IN THE PALATKA AREA [a]

Source	Average Sulfur Dioxide Emissions, tons/day	Average Particulate Matter Emissions, tons/day	Nitrogen Oxides Emissions tons/day	Stack Dimensions		Gaseous Discharge	
				Height above ground, m	Diameter,m	Velocity, m/sec	Temp,C
Hudson Pulp and Paper							
No. 3 Recovery Boiler	0.0	0.4	-	40.5	3.0	7.3	90
No. 4 Recovery	0.0	0.3	-	40.0	1.4	19.0	71
No. 4 Lime Kiln	0.0	1.4	-	76.2	3.0	22.6	204
No. 4 Bark Boiler	1.7	0.4	-	48.2	3.0	15.5	57
No. 5 Power Boiler	4.3	0.6	-	48.2	2.7	15.1	232
Florida Power and Light							
Units No. 1 and 2	9.0	0.8	-	45.7	4.0	27.0	135
Total Combined Cycle Units	24.6	3.3	21.2	16.2	3.0	27.7	177

(a) Environmental Science and Engineering, Inc. 1974.

(b) Estimates for a 60 percent load.

5. ENVIRONMENTAL EFFECTS OF PLANT OPERATION

5.1 Effects of Operation of Heat Dissipation Systems

Aquatic. There will be no thermal effluent discharged into the St. Johns River; hence, there will be no thermal impact on the aquatic ecosystem.

Operation of the barge slip should have no detrimental impact on the aquatic environment. In fact, construction of the slip will reduce the potential for a major impact should an oil spill occur. The slip will be outfitted with a traveling boom which will be used to trap any oil released from oil transfer operations.

Entrainment of planktonic organisms and weak swimmers (phytoplankton, zooplankton, fish larvae, and fish fry) and the impingement of larger fishes on the traveling screens are potentially the most severe impacts that can occur affecting the aquatic community.

The plant will require about 4,500 gpm of water to be withdrawn from the St. Johns River. If the larger fishes (larger in diameter than the 3/8-inch mesh of the traveling screens) were randomly distributed in the river and could not avoid the intake structure, less than one-sixth of one percent of the fish population of that size would be caught by the traveling screens. However, fishes are not randomly distributed, and they can, by swimming, avoid the intake structure. The horizontal intake velocity is less than 0.5 fps. At intake velocities below 1.0 fps, adult fishes should be able to avoid being caught on the traveling screens; young fishes or weak adults swimming too near the intake could be impinged (Hays, 1970; Laurence, 1972). Also, two flush mounted fish passages will be located on either side of the intake structure which will aid in minimizing the number of fishes impinged on the traveling screens. Therefore, it is doubtful that even less than one sixth of one percent of the fish population will be impinged on the traveling screens.

The proposed peaking facility at the Palatka site will utilize deep-well injection for effluent discharge. This means that all organisms entrained in the plant cooling water will be removed from the St. Johns River and a mortality of 100 percent will occur. However, based on data being collected at the existing facility, a small percentage of organisms are actually entrained. Further studies are in progress which will more exactly determine the population percentage to be affected.

The possibility of fishes being attracted to the general area of the proposed intake structure by the existing thermal effluent from the present plant has been considered. This condition should not have any marked increased in the number of impinged fishes. Because the intake structure is located upstream of the present effluent and will be located adjacent to and south of the proposed barge slip, it is very unlikely that this warm-water plume will come close to the new intake structure. Also, the fish passages and the loss intake velocity should provide adequate protection against impingement of large numbers of fishes.

Terrestrial. No adverse effects to the terrestrial environment are expected to result from operation of the proposed facility.

To maintain tunnel utilites and allow safe crossing of Highway 17, stairs will be provided at each end of the tunnel. Also, the tunnel floor will be sloped to insure adequate drainage. The sumps will be outfitted with pumps and will pump drainage water to the oil-water separator located in the diked area for proper disposal.

Atmosphere. The effects of plume visibility, fog, and drift from the proposed cooling towers were evaluated by Ray L. Lyerly & Associates (RLL) consultants to FP&L. In their evaluation (see Appendix D) RLL cited experience with similar towers at Lake Worth and Gainesville and concluded that it was reasonable to expect no visible plume over 70 percent of the time. RLL also concluded that it would be extremely unlikely that a ground fog would develop as a result of the tower and that drift will not create any measurable environmental effects.

Blowdown from the cooling towers will be injected into a disposal well. Consequently, no surface environmental effects from the blowdown are expected.

5.2 Effects of Chemical and Biocide Discharges

All thermal and chemical effluents are to be deep-well injected, hence, no surface terrestrial or aquatic impacts are expected.

Based on available data (Section 3.5) deep-well injection will not result in a negative impact to the receiving waters.

5.3 Effects of Sanitary and Other Waste Discharges

No new sanitary discharges will occur from the proposed facility; existing FP&L facilities will be utilized for waste disposal. The addition of approximately 50 employees for the proposed facility will not overload the existing sanitary waste system.

5.4 Effects of Air Emissions

The 1975 air quality in the Palatka area was estimated by ESE (1974) using AQDM and short-term models plus the emission inventory and the stack parameters listed in Table 5.1. Considering only the existing sources and assuming that they meet the State emission standards, the highest annual average is estimated to be approximately 0.8 $\mu g/m^3$. The estimated incremental annual average sulfur dioxide levels due to the new combined cycle units indicate that the new units will contribute a maximum of approximately 5 $\mu g/m^3$. When considering all the sources, the maximum annual average will be approximately 5 $\mu g/m^3$. With or without the new units, the annual average sulfur dioxide concentrations will be well below the air quality standard of 60 $\mu g/m^3$. The short-term models were used to estimate the maximum 24-hour and 3-hour concentrations resulting from the new combined cycle gas turbine units. The meteorological conditions assumed are expected to yield a "worst-day" situation and were based upon ESE's experience with the short-term model in Jacksonville, Florida. Table 5.2 summarizes the results of the short-term model. As shown, the short-term model indicatesthat the State standard of 260 $\mu g/m^3$ maximum 24-hour concentration for sulfur dioxide may be exceeded. ESE indicates that,

TABLE 5.1. MAXIMUM SULFUR DIOXIDE AND SUSPENDED PARTICULATE MATTER[a] LEVELS WITHIN THREE MILES OF FLORIDA POWER AND LIGHT IN PALATKA[b]. LONG-TERM MODEL CALCULATIONS ($\mu g/m^3$)[c]

	Maximum Annual Concentrations		Maximum 24-Hour		Maximum 3-Hour
Control Strategy	Sulfur Dioxide Annual Average	Suspended Particulate Matter Annual Geometric Mean	Sulfur Dioxide	Suspended Particulate Matter	Sulfur Dioxide
All significant sources, 1972	1	41	15	110	40
All existing sources meeting the Florida allowable Emissions Standards and same operating rate as 1972	<1	31	10	35	30
All existing sources and new combined cycle units meeting the Florida allowable Emissions Standards	6	32	70	45	200
Florida Standards	60	60	260	150	1300

(a) Includes a background concentration of 30 $\mu g/m^3$.
(b) Environmental Science and Engineering, Inc. 1974.
(c) Short-term maximum concentrations are calculated on the conservative basis of a standard 24-hour geometric deviation of 3.0 for sulfur dioxide and 2.0 for suspended particulate matter.

TABLE 5.2. ESTIMATED MAXIMUM SHORT-TERM SULFUR DIOXIDE AND SUSPENDED PARTICULATE MATTER CONCENTRATIONS ($\mu g/m^3$) NEAR THE COMBINED CYCLE UNITS[a]. SHORT-TERM MODEL CALCULATIONS[b]

	Sulfur Dioxide Levels		Suspended Particulate Matter Levels[b]
	Maximum 24-Hour	Maximum 3-Hour	Maximum 24-Hour
Incremental impact of the combined cycle units	250	570	64
All sources (including the combined cycle units)	290	670	67
Florida Standards	260	1300	150

(a) Environmental Science and Engineering, Inc. 1974.
(b) ESE indicated that, based on their experience, the estimates may be overcalculated by at least a factor of four.
(c) This includes an estimated background level of 30 $\mu g/m^3$.

based on their experience, the estimates may be overcalculated by at least a factor of four. All other concentrations are expected to be well below any applicable standard. The short-duration downwash situation may occur, but was not considered by ESE.

5.5 Effects of Operation and Maintenance of the Associated Transmission System

New transmission facilities are not required for the proposed facility.

5.6 Other Effects

The effects of noise associated with the operation of the proposed facility are not included in this report. However, Battelle's Columbus Laboratories has work under way to collect and analyze the necessary data. The results of that study will be presented in a supplemental report within 30 days of submission of this report.

APPENDIX A

JUSTIFICATION OF JACKSONVILLE'S WEATHER DATA FOR AIR QUALITY CALCULATIONS

P.O. Box 13454 • UNIVERSITY STATION • GAINESVILLE, FLORIDA 32604 • 904/372-3318

environmental science and engineering, inc.

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WILDLIFE ECOLOGY
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REFERENCE _____

ENVIRONMENTAL ENGINEERING
AIR QUALITY MANAGEMENT
DISPERSION MODELING
OCEANOGRAPHY
COASTAL ENGINEERING
HYDROLOGY
GEOLOGY
GEOLOGICAL ENGINEERING
WASTEWATER MANAGEMENT
SOLID WASTE MANAGEMENT
OCCUPATIONAL SAFETY/HEALTH

March 13, 1974

Dr. Gilbert E. Raines
Battelle Corp.
Columbus Laboratories
505 King Ave.
Columbus, Ohio 43201

Dear Dr. Raines:

Please find enclosed one copy of the letter sent to Earl Weber on March 6.

If you have any questions or comments, please feel free to call me.

Sincerely,

ENVIRONMENTAL SCIENCE &
ENGINEERING, INC.

Bob Holden

Robert E. Holden
Associate Engineer

REH:peg

Enclosure

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environmental science and engineering, inc.

AN EQUAL OPPORTUNITY EMPLOYER

REFERENCE _____

March 6, 1974

Mr. Earl Weber, Consultant
Florida, Power and Light Company
Post Office Box 3100
Miami, Florida 33101

Dear Mr. Weber:

This letter is to confirm our telephone conversation of March 5, 1974.

At the time Environmental Science and Engineering, Inc. (ESE) was first awarded the contract to do the air quality impact study for the proposed new electrical generating units in Palatka, the meteorological data, utilized in the AQDM, was obtained from the nearest weather station for which the "star" data was available. This data was gathered at the Jacksonville Municipal airport in 1972.

Since that time, it has come to our attention that "star" data is available for the Daytona Beach area. Although Daytona Beach is several miles closer to Palatka than Jacksonville, it is still the opinion of the ESE staff that the data gathered in Jacksonville is more appropriate to the Palatka area than the Daytona Beach data. The reason is simple, a quick glance at a good map of Florida will show that the Jacksonville airport is at least ten miles further inland from the Atlantic Ocean than the Daytona Beach airport (the location of the Daytona Beach weather station). As this minimizes the localized "sea breeze" effect, it is felt that the Jacksonville meteorological data will more accurately reflect the Palatka area than the Daytona Beach data.

Sincerely,

ENVIRONMENTAL SCIENCE &
ENGINEERING, INC.

Bob

Robert E. Holden
Associate Engineer

REH:peg

AC

Date: 3/24/97 11:13:24 AM
From: Karen Skinner TAL
Subject: Putnam Power Plant
To: Clair Fancy TAL
To: Craig Diltz TAL
CC: Hamilton Buck Oven TAL
CC: Chip Collette TAL

Rich Piper from FP&L cc:ed you on a letter he sent to Buck/us re the proposed update/cleanup to the conditions we are proposing (Chip, I'll send you a copy through InterOffice mail). In that I don't think you saw the final draft we sent him, I am attaching it to this E-mail, so Rich's comments will make better sense. I suspect we will have to do a formal modification rather than a "technical revisition" to make all the changes he suggested -- many of the deletions and so forth can be construed as substantive versus our editorial changes, although I doubt they will be particularly objectionable.

State of Florida Department of Environmental Protection
Florida Power & Light Company, Putnam Plant ~~Palatka Station~~
Case No. PA-74-01
CONDITIONS OF CERTIFICATION

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State of Florida Department of Environmental Protection
Florida Power & Light Company, Putnam Plant ~~Palatka Station~~
Case No. PA 74-01
CONDITIONS OF CERTIFICATION

The permittee shall comply with the following conditions of certification:

1. Fuel

A. Auxiliary Boilers:

Fuel consumed should not contain more than 0.7% sulfur nor should stack emissions exce
rule 62-296, F.A.W. ~~chapter 17-2.600(6)~~

B. Combustion Turbines:

(i) Only fuel oil with not more than 0.7 percent sulfur content or natural gas may be f

(ii) Opacity shall not exceed 20 percent opacity except for one 6-minute period per
opacity shall not exceed 27 percent.

C. Heat Recovery Steam Generators

(i) Only the following fuels may be fired: (a) natural gas or (b) fuel oil with not more
sulfur content by weight.

(ii) Emissions shall not exceed the following limitations

(a) Opacity emissions shall not exceed 20 percent
(6-minute average), except for one 6-minute period per hour of not more than 27 percent.

(b) Excess opacity resulting from malfunctions is permitted provided that bes
practice to minimize emissions are adhered to and the duration of excess opacity shall be minimiz
exceed two hours in any 24-hour period unless specifically authorized by the Department for long

(c) Excess opacity resulting from startup or shutdown is permitted, provided t
operational practices to minimize emissions are adhered to and the duration of excess emissions

(d) Nitrogen oxides emissions shall not exceed 0.2 lb/ mmBtu heat input whe
distillate oil is combusted or 0.4 lb/mmBtu heat input when residual oil is combusted. The nitrogen
at all times, including periods of startup, shutdown, or malfunction.

(iii) To determine compliance with the emissions limit for sulfur dioxide, receipts fro
shall be maintained for each shipment which certify that the oil complies with the specifications fo
2, as defined by the American Society of Testing and Materials in ASTM D396-78, standard speci

Quarterly reports based on such receipts shall be submitted to the Northeast District Office certify containing no more than 0.5 weight percent sulfur or oil that has a sulfur dioxide emission rate eq 0.5 lb/mmBtu heat input and which meets the ASTM specifications was combusted in the duct bur preceding quarter. All quarterly reports shall be postmarked by the 30th day following the end of quarter.

(iv) To determine compliance with the opacity limit, Method 9 shall be used as requi s. 60.8 (July 1, 1990) Edition). The initial performance test shall be performed within 60 days afte production rate for the HRSGs, but not later than 180 days after initial startup. Annual complianc performed at least once during each federal fiscal year (October 1 - September 30). Thirty (30) d compliance test and fifteen (15) days prior to each annual compliance test, notice shall be provid District Office. The results of each test shall be submitted to the Northeast District Office within 45 completion. Other Department-approved methods may be used for compliance testing after prior

(v) To determine compliance with the nitrogen oxides emissions limit, FPL shall con test using EPA Reference Methods 7E and 3A, gas codified in 40 CFR part 60 Appendix A). The i shall be performed within 60 days after achieving the maximum production rate for the HRSGs, bu days after initial startup. Annual compliance tests shall be performed at least once during each fe (October 1-September 30). Thirty (30) days prior to the initial compliance test and fifteen (15) da annual compliance test, notice shall be provided to the Northeast District Office. The results of ea submitted to the Northeast District Office within 45 days of test completion.

(vi) FPL shall maintain records of opacity and must submit excess emissions report quarter during which there are excess emissions from the HRSGs. If there are no excess emissio quarter, FPL shall submit a report stating that no excess emissions occurred during the quarterly r quarterly reports shall be submitted to the Department's Northeast District Office.

(vii) FPL shall satisfy any applicable nitrogen oxides emissions records maintenanc forth in 40 CFR s. 60.49b(g) (July 1, 1990 Edition).

(viii) All records required under this condition shall be maintained by FPL for a per following the date of such record.

D. Wind Restrictions and Monitoring

(i) Wind Restriction

The permittee will burn fuel oil containing no more than 0.50% sulfur when sustaine miles per hour for any continuous period of three hours or longer.

(ii) Wind Monitoring

The permittee shall measure wind velocity and wind direction at hourly intervals in t only for those hours during which combustion turbines at either of the combined cycle units of the with greater than 0.5 percent sulfur content. Wind data for the hours during which oil with greater content was burned each month, or, if applicable, a statement that no oil with greater than 0.5 per burned during that month, shall be reported to the Northeast District Office of the Department by t

month following each reporting period. Wind velocity and direction measurements required by this made in accordance with recognized methods and procedures.

2. Stack Height

Minimum stack heights for the paired combined cycle unit exhaust stacks shall be 71 feet a with a height of at least 150 feet shall be constructed if monitoring data per Condition 5 indicates have been violated.

~~Wind Restriction~~

~~The permittee will burn fuel oil containing no more than 0.50% sulfur when sustained winds hour for any continuous period of three hours or longer.~~

~~Wind Monitoring~~

~~The permittee shall measure wind velocity and wind direction at hourly intervals in the plan those hours during which combustion turbines at either of the combines cycle units of the plant op greater than 0.5 percent sulfur content. Wind data for the hours during which oil with greater than content was burned each month, or, if applicable, a statement that no oil with greater than 0.5 per burned during that month, shall be reported to the Northeast District Office of the Department by t month following each reporting period. Wind velocity and direction measurements required by this made in accordance with recognized methods and procedures.~~

3. Sampling Platform

The permittee shall install a sampling platform on one stack or shall provide sampling ports access facilities as may be prescribed by the Department in performing stack sampling.

4. Continuous Monitoring Devices

The permittee shall install and operate continuous monitoring devices on one of the paired the following: Opacity, Nitrogen Oxides. Records of such monitoring shall be available for inspec

5. Ambient Air Samplers

The permittee shall install and operate continuously for a 24-hour period every six days, tw West-Gaeke, monitoring devices for sulfur dioxide and two suspended air particulate sampling de these ambient air samples will be determined by consultation with the Chief, Bureau Air Monitorin the Department. The data collected will be reported to the Chief, Bureau of Air Monitoring and As by the 45th day following the end of the reporting period, utilizing the SAROAD or other mutually and DEP ~~DER~~ shall examine the ambient monitoring program and decide by 1/10/92 to upgrade t delete it.

6. Water Effluents

Water effluents shall conform to the limitations of Chapter 62-302, F.A.C., including but not

contained in Paragraph 7 below. Iron, chlorine, nickel and zinc shall meet the water quality stand Administrative Code Rule 62-302, at the boundary of a mixing zone defined to be an area that is 8 and 90 meters in width, taking into account the particular shoreline configuration, as shown on Fi

7. Monitoring

Monitoring shall be conducted at the frequencies listed below on the following waste strea applicable: Cooling Tower Blowdown, West EP Pond, North Fuel Oil Tank Farm, waste streams St. Johns River. Cooling Tower Blowdown and Physical Chemical Treatment System discharge simultaneously or separately through the same pipe. Monitoring reports shall be submitted quart Department's Director of the Northeast District:

Effluent Characteristics	Limitation	Monitoring
* Flow	To existing plant discharge area. Cooling tower blowdown shall be minimized to the degree allowed by best engineering practice; furthermore, the combined flow to the St. Johns River from the cooling tower and the chemical waste treatment system shall not exceed 2,200 gpm.	Continuous recorders or pump logs
* Temperature	Not to exceed 98°F. at the P.O.D. and not to exceed 92°F. or 5° F. above ambient at the boundary of a 3-dimensional zone of mixing described by a cylinder if 50 meters radius running horizontally from the P.O.D. and which extends vertically to the river surface and river bottom.	Continuous (recorder or pump logs) at any point between the blowdown discharge at the cooling tower and the P.O.D. of cooling water into the river.
* Phosphate to Blowdown tank	50 ppm	Weekly
* Dissolved solids	6000 ppm	Daily
* pH	6.0-8.5	Daily

* Floating solids and visible foam	None visible	None

8. Change in Discharge

All discharges or emissions authorized herein shall be consistent with the terms and condit certification. The discharge of any pollutant identified in this certification more frequently than or excess of that authorized shall constitute a violation of the certification. Any solids, sludges, filter pollutants removed in the course of treatment or control of wastewaters shall be disposed of in a prevent any pollutants from such materials from entering waters of the state.

9. Noncompliance Notification:

If, for any reason, the permittee does not comply with or will be unable to comply with any li in this certification, the permittee shall provide prompt notification to the Director of the Northeast telecommunication sent no late than 3:00 p.m. of the next normal work day following the occurren noncompliance, and shall submit the following information in writing, within ninety-six (96) hours o aware of such condition:

A. A description of the discharge and cause of noncompliance; and

B. The period of noncompliance, including exact dates and times; or, if not corrected, the noncompliance is expected to continue, and steps being taken to reduce, eliminate and prevent r noncomplying discharge.

10. Facilities Operation

The permittee shall at all times maintain in good working order and operate as efficiently a treatment or control facilities or systems installed or used by the permittee to achieve compliance conditions of this certification.

11. Adverse Impact

The permittee shall take all reasonable steps to minimize any adverse impact resulting fro any limitation specified in this certification, including such accelerated or additional monitoring as the nature and impact of the noncomplying discharge.

12. Bypassing

Any diversion or bypass of facilities necessary to maintain compliance with the terms and c certification is prohibited, except (i) where unavoidable to prevent loss of life or severe property d excessive storm drainage or runoff would damage any facilities necessary for compliance with the permittee shall promptly notify the Director of the Northeast District of the Department of each suc bypass in accordance with the procedure contained in condition 9 of this certification.

13. Removed Substances

Solids, sludges, filter backwash, or other pollutants removed in the course of treatment or c wastewaters shall be disposed of in a manner such as to prevent any pollutant from such material waters of the state.

14. Right of Entry

The permittee shall allow the Secretary of the Florida Department of Environmental Protect representatives, upon the presentation of credentials:

A. ~~a.~~ To enter upon the permittee's premises where an effluent source is located or in whi required to be kept under terms and conditions of this certification; and

B. ~~b.~~ To have access to and copy any records required to be kept under the conditions of and

C. ~~c.~~ To inspect any monitoring equipment or monitoring method required in this certificati any discharge of pollutants.

15. Revocation or Suspension

After notice and opportunity for a hearing, this certification may be suspended, or revoked during its term for cause including, but not limited to, the provisions of s. 403.512, Chapter 403, Fl failure to comply with the terms and conditions of the certification.

16. New Pollutant Standards

If an effluent or emission standard or prohibition (including any schedule of compliance sp effluent or emission standard or prohibition) is established for a pollutant which is present in this c such standard or prohibition is more stringent than any limitation for such pollutant in this certifica shall be revised in accordance with the new effluent or emission standard or prohibition and the p

17. Civil and Criminal Liability

Nothing in this certification shall be construed to relieve the permittee from civil or criminal non-compliance with any condition of this certification, applicable rules or regulation of the Depart 403, Florida Statutes.

18. Legal Action

Nothing in this certification shall be construed to preclude the institution of any legal action permittee from the responsibilities, requirement, liabilities, or penalties established pursuant of an Statutes, or Regulation, including Department rules and regulations promulgated by the Departme 403, F.S.

19. Property Rights

The issuance of this certification does not convey any property rights in either real or perso exclusive privileges, nor does it authorize any injury to public or private property or any invasion o any infringement of Federal, State or local laws or regulations

20. Severability

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

21. Debris Discharge

No debris shall be discharged to waters of the State from the intake screens with the excep Additionally, the Permittee shall, beginning no later than July 1, 1978, undertake a study to evalu viable nekton collected on the intake screens to ambient temperature waters and shall submit a re no later than November 1, 1979.

22. Free Available Chlorine

After December 31, 1976 or six months after commencement of boiler operations, whichev available chlorine shall not exceed an average concentration of 0.2 mg/1 and a maximum concent a maximum of one two-hour period a day. Chlorine concentration monitoring shall be conducted t during the period of maximum expected residual, at any point between the exit from the cooling to cooling water in the river. The results of such a monitoring shall be reported, quarterly to the Nort Additionally, a study shall be instituted to evaluate all practicable methods to reduce total chlorine levels, including, but not necessarily limited to, (i) ~~(1)~~ minimization of chlorine addition commensu requirements, (ii) ~~(2)~~ reduction of flow during chlorination, and (iii) ~~(3)~~ discontinuation of blowdow chlorination and subsequent periods of high concentration. Results of this study, including faciliti methods propose to reduce total chlorine residuals shall be submitted within twenty-four months o plant operation. Subsequently, chlorination procedures to reduce total chlorine residual shall be i extent practicable.

23. Biocide Discharge

Any biocide discharge from any point source shall comply with the requirements of the Fed Fungicide, and Rodenticide Act, as amended (U.S.C. 136 et. seq.) and the use of such pesticide consistent with the labeling.

24. Polychlorinated Biphenyl Compounds

There shall be no release from containment devices structures of polychlorinated biphenyl environment.

25. Turbid Waters

There shall be no surface discharge of turbid waters to waters of the State from the spoil di system. Any spoil excavated during construction or maintenance dredging shall be deposited on berm or other control device shall be constructed around the spoil disposal area to insure against of excavated material which may cause turbidity in excess of 29 Nephelometric ~~50 Jackson~~ Turbi background in waters of the State.

26. Barge Slip

The Barge Slip shall be of a sheet pile type construction with a poured concrete cap. Ripra the river bank adjacent to the barge slip to prevent erosion due to removal of natural vegetation. removed from the barge slip prior to the departure of any barge. Such oil shall be disposed of by treatment system.

27. Utilities Tunnel

Construction of the utilities tunnel under U.S. 17 shall be expedited to occur in a minimal a construction shall be performed in accordance with the standards of the Florida Department of Tr close coordination with:

~~Mr. C. A. Benedict~~
District Engineer Fifth Division
Florida Department of Transportation
Post Office Box 47
Deland, Florida 32720

and with:

~~Mr. J.A. Crookshank, Jr.~~
Maintenance Engineer, Putnam County
Post Office Drawer "X"
St. Augustine, Florida 32084

28. Stormwater Runoff

During construction and plant operation necessary measures shall be employed to settle, fi silt-containing pollutant-loaded stormwater runoff to prevent contamination of water of the State. may include sediment traps, barriers and use of berms or vegetation. Exposed or disturbed soils s as possible to minimize silt and sediment run runoff into waters of the State.

29. Turbidity Control

Turbidity control shall be installed prior to any construction or maintenance dredging to ins State waters is not increased more than 29 Nephelometric ~~50 Jackson~~ Turbidity units.

30. Groundwater Monitoring Plan

The Groundwater Monitoring Plan for the Putnam Power Plant, approved on February 25, the Department, is incorporated by reference.

Copies of any subsequent revisions to the Groundwater Monitoring Plan which are approv Department's Northeast District Office shall be filed with the Department's Siting Coordination Offi to the parties hereto by certified mail, and, in the absence of a request for a hearing thereon withi such revision, the revisions shall become part of this certification without the need for further filing filing fees.

31. Review of Site Certification

This certification shall be final unless revoked or suspended pursuant to law. Five years fr issuance of any National Pollutant Discharge Elimination System Permit issued pursuant to the F Pollution Control Act Amendments of 1972, for the Combined Cycle Units, the Department shall r monitoring data that have been submitted to it during the preceding five year period, for the purpo the extent of the permittee's compliance with the conditions of this certification and the environme facility. The Department shall submit the results of its review and recommendations to the Permitt of record in this certification proceeding.

32. Monitoring Program Review

The results of the air and water monitoring programs will be reviewed by the Department a Light Company at the end of each year of operation to determine the necessity and/or extent of co methods and procedures utilized in the monitoring program shall be approved by the Department annually by the Department sand Florida Power & Light Company, and may be modified by agree record in this certification proceeding.

33. Modification of Conditions

The conditions of this certification may be modified in the following manner:

A. The Board, pursuant to 403.516(1), F.S., hereby delegates to the Secretary the authorit notice and opportunity for hearing, any conditions pertaining to air and water monitoring and sam exceptions to water quality standards.

B. Conformance With Federally Delegated Permits

This certification shall be modified to conform to any subsequent amendments, modificatio by DEP under a federally delegated or approved program to any separately issued Prevention of (PSD) permit, Title V Air Permit, or National Pollutant Discharge Elimination System (NPDES) per facility. FPL shall send each party to the certification proceeding (at the parties last known addre the record of such proceedings) copies of notice requests submitted by FPL for modifications or r above-listed permits if the request involves a relief mechanism (e.g., mixing zone, variance, etc.) f standards, a relaxation of conditions included in the permit due to state permitting requirements, o less restrictive air emission limitations in the air permits. DEP shall notify all parties to the certific intent to modify conditions under this section prior to taking final agency action.

C. All other modifications shall be made in accordance with Section 403.516, Florida Statu

---------- History Notes ----------

Certification issued 10/16/74 by Pollution Control Board
Modified 5/18/76, Governor Graham
Modified 9/26/78, Secretary Landers/parties/stipulation
Modified 8/20/80
Modified 3/15/84, Governor Graham
May have been modified in 1985 -- researching Archives
Modified 4/15/86, _____?; -- researching Archives
Modified 7/16/91, Secretary Browner
Modified 12/14/95, Secretary Wetherell

AL

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

FPL

March 21, 1997

Hamilton S. Oven, Jr.
Professional Engineer Administrator
Siting Coordination Office
State of Florida
Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Re: FPL Putnam Plant ; PA74-01
Conditions of Certification

Dear ~~Mr. Oven:~~ Buck

This correspondence is in response to your letter of February 24, 1997 regarding the revised Conditions of Certification for the Putnam facility. In our review of the revised conditions, several items were apparent which could be addressed for purpose of clarity:

Page 2, item iv: The sentence that begins "The initial performance test shall be performed...." can be stricken entirely, as this testing was completed years ago.

Page 3, item 2: The sentence that begins "Stacks with a height of...." can be deleted since the Ambient Air Sampling required in Condition 5 has been eliminated.

Page 4, item 3: "Sampling Platform - The permittee shall install...." As above, this condition was completed several years ago, so this language can be stricken.

Page 4, item 5: "Ambient Air Samplers" - The samplers referenced in the condition were removed several years ago, with concurrence from the Department. This condition can be deleted.

Page 4, item 6: "Water Effluents" The parameter of copper has been omitted from the sentence "Iron, chlorine, nickel and zinc shall...." It should read "Iron, chlorine, copper, nickel and zinc shall...."

Page 4, item 7: "Monitoring" - The first sentence lists the waste streams for which monitoring is required. The North Fuel Oil Tank Farm (OSN 004) was deleted as an outfall in the December 15, 1995 modification. This language change was not addressed in the "Final Order". This "correction should be made now.

Page 4, item 7: "Monitoring" - The final sentence of this section requires quarterly submittal of surface water monitoring reports to the DEP's Northeast District Office. The current requirement in the SPDES permit, as a result of delegation of the NPDES program on May 1, 1995, is monthly reporting through DEP-Tallahassee. This section should be updated.

Page 5, Table of Effluent Characteristics, Limitation and Monitoring - In previous editions of the Conditions of Certification, this table has contained a fourth heading - Waste Stream. It is necessary to have this column since it is not clear which Serial Discharge Streams are to be monitored for the listed effluent characteristic. Additionally, the limitation on combined flow to the St. Johns River from the cooling tower and the chemical waste treatment system of 2,200 gpm has not been a part of previous permits. The table should read:

Effluent Characteristics	Limitation	Monitoring	Waste Stream
* Flow	To existing plant discharge area. Cooling tower blowdown shall be minimized to the degree allowed by best engineering practice.	Continuous recorders or pump logs	Cooling tower blowdown, Physical / Chemical Treatment System, West EP Pond
* Temperature	Not to exceed 98 F. at the P.O.D. and not to exceed 92 F. or 5 F. above ambient at the boundary of a 3-dimensional zone of mixing described by a cylinder of 50 meters radius running horizontally from the P.O.D. and which extends vertically to the river surface and river bottom.	Continuous (recorder or pump logs) at any point between the blowdown discharge at the cooling tower and the P.O.D. of cooling water into the river.	Cooling tower blowdown
* Phosphate	50 ppm	Weekly	Physical Chemical Treatment System
* Dissolved solids	6000 ppm	Daily	Cooling tower blowdown, Physical Chemical Treatment System, West EP Pond

* pH	6.0 - 8.5	Daily	Cooling tower blowdown, Physical Chemical Treatment System, West EP Pond
*Floating solids and visible foam	None visible	Daily	Cooling tower blowdown, Physical Chemical Treatment system

Page 8, item 22: "Free Available Chlorine" - Much of this section should be deleted since it has long ago been completed. The language of the remainder should be changed to reflect the requirements of the NPDES permit concerning free available chlorine. The section should read:

"Chlorine concentration monitoring shall be conducted two times per week, during the period of maximum expected residual, at any point beween the exit from the cooling tower and the P.O.D. of cooling water in the river. If the grab sample for total residual chlorine (TRC) taken prior to discharge from the cooling tower indicates that no TRC is present, sampling for FAC is not required. If FAC is present, multiple grabs shall be conducted hourly until it can no longer be detected. When TRC measures "less than detectable" and the cooling tower blowdown has been established, it is not required to sample for TRC again until a chlorination of the cooling tower water has been performed."

The statement requiring reporting of monitoring results should be updated to reflect the delegation of the NPDES program to the FDEP from EPA.

With respect to the History Notes section, in general the dates provided appear to be correct. I would add that the date of 5/20/80 should be inserted as the date for the fourth change to the Conditions of Certification. FPL also has archived many of our older files, and thus some of this information is not easiliy accessible.

I would be pleased to discuss this further with you, or with other members of the Department if you have any questions.

Very truly yours,

Rich Piper
Senior Environmental Specialist
Florida Power & Light Company

cc:

Clair Fancy	DARM
Craig Diltz	DWF

FLORIDA POWER & LIGHT COMPANY
Report of Laboratory Analyses

STATE OF FLORIDA LABORATORY CERTIFICATION NUMBERS
DRINKING WATER CERTIFICATION NUMBER: 56275
ENVIRONMENTAL CHEMISTRY CERTIFICATION NUMBER: E56078

PUTNAM PLANT

ANALYSES OF #2 FUEL OIL FIRED DECEMBER 1993

Date Sampled	12/03/93
API Gravity @ 60 F:	33.6
Density (lb. per bbl):	299.712
Heat of Combustion (Btu/lb.):	19443
Heat of Combustion (MBtu/bbl):	5827
Sulfur (% by weight):	0.39

COPIES TO: PPN PLANT MGR. PPN/PPN
V. FLORIANI - JEN/GB
TECHNICAL MANAGER
K. WASHINGTON-ETS/JB

ANALYZED BY: [signature]

CERTIFIED BY: [signature]

F-PPN-4

DECEMBER 28,1993

Florida Power & Light Company, P.O. Box 088801, North Palm Beach, FL 33408-8801

FPL

RECEIVED

MAR 2 8 1994

Bureau of
Air Regulation

March 21, 1994

Mr. Clair Fancy
DEP/Bureau of Air Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

RE: Putnam Plant
PPS-74-01
NSPS Notification for Auxiliary Boiler Initial Compliance Test

In compliance with 40 CFR 60.44c(g), FPL is hereby submitting as the initial compliance test for the auxiliary boiler a copy of the fuel oil analysis which shows that the fuel oil available for the auxiliary boiler when placed into service, in December 1993, was less than the 0.5% sulfur required by 40 CFR 60.42c(d). Also enclosed is a copy of a letter from the plant manager attesting that the only fuel oil available for the auxiliary boiler meets ASTM specification for grade No. 1 and 2.

40 CFR 60.43c(c) is not applicable since the auxiliary boiler has a heat input less than 30 MBtu per hour.

Please call me at (407) 625-7661 if you have any questions.

Sincerely,

Dan MacDougall
Environmental Specialist
Environmental Affairs

cc: Jewel Harper, EPA
Ernest Frey DEP/JAX
B. Olsen

12/21 Preston ...
JKP
Patty - file

FPL

Florida Power & Light Company, P.O. Box 088801, North Palm Beach, FL 33408-8801

December 14, 1993

Mr Clair Fancy, Chief
Bureau of Air Regulation
Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, FL 32399

RE: Putnam Plant
PPS 74-01
Initial Fire of Auxiliary Boiler

Dear Mr. Fancy:

In compliance with 40 CFR 60.7(a)(3), FPL is hereby notifying the Department that the auxiliary boiler at the Putnam Plant was initial fired on December 8, 1993. If you have any questions or comments, please call me at (407) 625-7661.

Sincerely,

Daniel M. MacDougall
Environmental Specialist
Florida Power & Light

cc: Ernest Frey DEP-NED

Florida Department of Environmental Regulation

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

Lawton Chiles, Governor

Virginia B. Wetherell, Secretary

April 22, 1993

Dan M. MacDougall
Environmental Affairs
Florida Power & Light
Post Office Box 088801
North Palm Beach, FL 33408-8801

RE: FPL Palatka (Putnam) Power Plant, PPS 74-01
Auxiliary Boiler Replacement

Dear Mr. MacDougall:

The Department has reviewed the material you submitted on February 10, 1993 concerning the proposed replacement of the auxiliary boilers for the FPL Putnam Plant, PPS No. 74-01. No agency objections or adverse comments on this activity have been received by the Department. The Department has reviewed the material and concluded that no further review or approvals are required so long as the work is performed in accordance with the information submitted with your letter. No formal modification of certification is required to address the more stringent limit imposed under the separately-applicable federal new source performance standards contained in 40 CFR 60, Subpart D.c.

Sincerely,

Hamilton S. Oven

Hamilton S. Oven, P.E.
Siting Coordination
Administrator

cc: Richard T. Donelan
Douglas S. Roberts
Parties to FPL Putnam Certification

Department of Environmental Regulation

Routing and Transmittal Slip

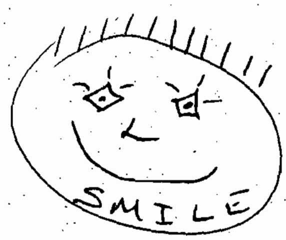
To: (Name, Office, Location)

1. ~~Preston Lewis~~
2. ~~DARM~~
3.
4.

Patty for file (FPL Putnam) GRL 5/10/93

Remarks:

FYI



RECEIVED

APR 23 1993

Division of Air Resources Management

From:	Date
H	4-22-93
	Phone 7-0472

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

For Routing To Other Than The Addressee

To: _____ Location: _____
To: _____ Location: _____
To: _____ Location: _____
From: _____ Date: _____

Interoffice Memorandum

TO: Buck Oven

FROM: Teresa M. Heron T.H.
Katherine Zhang ykz

THRU: Preston Lewis
Clair Fancy

DATE: March 16, 1993

SUBJ: Palatka (Putman) Power Plant
Site Certification PPS No 74-01
Auxiliary Boiler Replacement

This is to acknowledge receipt of the auxiliary boiler replacement amendment request at the above mentioned facility. The new 10,000 lbs/hr auxiliary boiler will comply with a more stringent emission limit than required by the condition of certification on the two (2) existing permitted 37,000 lbs/hr auxiliary boilers. This is the 40 CFR 60 Subpart Dc NSPS for Steam Generators.

The Bureau of Air Regulation has reviewed this information as submitted and have no adverse comments. Thank you for the opportunity to review and comment on this amendment request.

TH-KZ/plm

Florida Power & Light Company, P.O. Box 088801, North Palm Beach, FL 33408-8801

February 10, 1993

Hamilton S. Oven, Jr., P.E.
Department of Environmental Regulation
2600 Blair Stone Road, Room 612
Tallahassee, FL 32399-2400

RE: Palatka (Putnam) Power Plant
Site Certification PPS No. 74-01
Auxiliary Boiler Replacement

Dear Buck:

As briefly discussed with you and Mr. Clair Fancy on December 14, 1992, FPL is planning to replace the two existing 37,000 lb/hr auxiliary boilers at the Putnam Plant with a new 10,000 lb/hr auxiliary boiler. The Putnam Plant was certified pursuant to the Florida Power Plant Siting Act on October 16, 1974. The new auxiliary boiler by virtue of its smaller size and efficient design will result in less air emissions as compared to the existing auxiliary boilers. FPL has utilized, for informational purposes, the Department's permit application form to provide the Department with specific information about the new auxiliary boiler.

The existing auxiliary boilers are authorized by Site Certification Condition 1.A. which limits the sulfur in the fuel to 0.7% S. The new auxiliary boiler will be required to comply with 40 CFR 60 Subpart Dc which has a more stringent limit of 0.5% S in fuel. These NSPS limits will thus establish a more stringent emission limit for the replacement auxiliary boiler than required by the conditions of certification. However, the installation of the new auxiliary boiler does not require formal modification to the Site Certification since the new auxiliary boiler is essentially a replacement of in-kind equipment (with less impact) and is subject to more stringent limits (40 CFR 60 Subpart Dc) than originally contained in the current Site Certification.

The current schedule calls for the installation of the new auxiliary boiler to begin on June 1, 1993. If you have any questions about the auxiliary boiler replacement please call me at (407) 625-7661.

Sincerely,

Dan M. MacDougall

Dan M. MacDougall
Environmental Specialist
Environmental Affairs

cc: Clair Fancy
Richard T. Donelan
Counsel for Parties to Certification Order

FOR INFORMATION ONLY: AUXILIARY BOILER ORIGINALLY PERMITTED PURSUANT TO THE POWER PLANT SITING ACT.

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32301

BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE: AUXILIARY BOILER [ ] New[1] [X] Existing[1]

APPLICATION TYPE: [ ] Construction [ ] Operation [ ] Modification [X] REPLACEMENT

COMPANY NAME: FLORIDA POWER & LIGHT COMPANY COUNTY: PUTNAM

Identify the specific emission point source(s) addressed in this application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peaking Unit No. 2, Gas Fired) AUX BOILER FOR THE PUTNAM PLANT

SOURCE LOCATION: Street HIGHWAY 17 SOUTH City EAST PALATKA

UTM: East _____ North _____

Latitude 29 ° 37 ' 43 "N Longitude 81 ° 35 ' 25 "W

APPLICANT NAME AND TITLE: FLORIDA POWER & LIGHT COMPANY

APPLICANT ADDRESS: JEN/GB PO BOX 088801 NORTH PALM BEACH FL 33408-8801

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of _____

I certify that the statements made in this application for a _____ permit are true, correct and complete to the best of my knowledge and belief. Further, I agree to maintain and operate the pollution control source and pollution control facilities in such a manner as to comply with the provision of Chapter 403, Florida Statutes, and all the rules and regulations of the department and revisions thereof. I also understand that a permit, if granted by the department, will be non-transferable and I will promptly notify the department upon sale or legal transfer of the permitted establishment.

*Attach letter of authorization

Signed: _____

_____
Name and Title (Please Type)

Date: _____ Telephone No. _____

B. PROFESSIONAL ENGINEER REGISTERED IN FLORIDA (where required by Chapter 471, F.S.)

This is to certify that the engineering features of this pollution control project have been designed/examined by me and found to be in conformity with modern engineering principles applicable to the treatment and disposal of pollutants characterized in the permit application. There is reasonable assurance, in my professional judgment, that

See Florida Administrative Code Rule 17-2.100(57) and (104)

the pollution control facilities, when properly maintained and operated, will discher an effluent that complies with all applicable statutes of the State of Florida and the rules and regulations of the department. It is also agreed that the undersigned will furnish, if authorized by the owner, the applicant a set of instructions for the proper maintenance and operation of the pollution control facilities and, if applicable, pollution sources.

Signed _____

_____
Name (Please Type)

_____
Company Name (Please Type)

_____
Mailing Address (Please Type)

Florida Registration No. _____ Date: _____ Telephone No. _____

SECTION II: GENERAL PROJECT INFORMATION

A. Describe the nature and extent of the project. Refer to pollution control equipment, and expectec improvements in source performance as a result of inetallation. State whether the project will result in full compliance. Attach additional sheet if necessary.

THE TWO EXISTING (37,000)lb/hr OIL FIRED AUXILIARY BOILERS ARE BEING REPLACED WITH A NEW 10,000 lb/hr DUAL FUEL FIRED AUXILIARY BOILER TO BE LOCATED NEAR THE CT's. THE ORIGINAL AUXILIARY BOILERS WERE PERMITTED PURSUANT TO THE POWER PLANT SITING ACT (Chp 403 F.S.). ATTACHMENT IIA1 SHOWS THAT THE NEW AUXILIARY BOILER WILL HAVE LESS IMPACT AS COMPARED TO THE EXISTING AUXILIARY BOILERS.

B. Schedule of project covered in this application (Construction Permit Application Only)

Start of Construction JUNE 1993 Completion of Construction DECEMBER 1993

C. Costs of pollution control system(s): (Note: Show breakdown of estimated costs only for individual components/units of the project serving pollution control purposes. Information on actual costs shall be furnished with the application for operation permit.)

GENERALLY THE COST OF POLLUTION CONTROL SYSTEMS FOR THIS TYPE OF AUXILIARY BOILER IS IMBEDDED IN THE TOTAL COST OF THE PROJECT SINCE THE POLLUTION CONTROLS ARE AN INTEGRAL PART OF THE DESIGN AND OPERATION OF THE AUXILIARY BOILER.

D. Indicate any previous DER permits, orders and notices associated with the emission point, including permit issuance and expiration dates.

SITE CERTIFICATION PPS-74-01 ORIGINALLY ISSUED 10/16/74 AND LAST MODIFIED 5/28/92

E. Requested permitted equipment operating time: hrs/day 24 ; days/wk 7 ; wks/yr 52 ; if power plant, hrs/yr ; if seasonal, describe: THE AUXILIARY BOILER's OPERATIONAL SCHEDULE IS DEPENDENT UPON THE OPERATION OF UNITS 1 & 2 AND THE NEED FOR POWER. THE AUXILIARY BOILER WILL NOT OPERATE WHEN BOTH UNITS ARE ONLINE AND AT FULL LOAD. THE NEW AUXILIARY BOILER WILL GENERALLY BE USED TO SUPPLY STEAM DURING UNITS 1 & 2 START-UP, SHUTDOWN, AND STAND-BY OPERATIONS AND NOT FUEL CLEANING OR HEAT TRACING AS WAS DONE IN T PAST.

F. If this is a new source or major modification, answer the following questions. (Yes or No)

1. Is this source in a non-attainment area for a particular pollutant? NO
   a. If yes, has "offset" been applied?
   b. If yes, has "Lowest Achievable Emission Rate" been applied?
   c. If yes, list non-attainment pollutants.
2. Does best available control technology (BACT) apply to this source? If yes, see Section VI. YES *
3. Does the State "Prevention of Significant Deterioration" (PSD) requirement apply to this source? If yes, see Sections VI and VII. NO
4. Do "Standards of Performance for New Stationary Sources" (NSPS) apply to this source? YES **
5. Do "National Emission Standards for Hazardous Air Pollutants" (NESHAP) apply to this source? NO

H. Do "Reasonably Available Control Technology" (RACT) requirements apply to this source? NO
   a. If yes, for what pollutants?
   b. If yes, in addition to the information required in this form, any information requested in Rule 17-2.650 must be submitted.

Attach all supportive information related to any answer of "Yes". Attach any justification for any answer of "No" that might be considered questionable.

* BACT REQUIRED BY 17-296.406 F.A.C.

** THE NEW AUXILIARY BOILER IS SUBJECT TO 40 CFR 60 SUBPART Dc

SECTION III: AIR POLLUTION SOURCES & CONTROL DEVICES (Other than Incinerators)

A. Raw Materials and Chemicals Used in your Process, if applicable:

NOT APPLICABLE

Description	Contaminants		Utilization Rate - lbs/hr	Relate to Flow Diagram
	Type	% Wt		

B. Process Rate, if applicable: (See Section V, Item 1) NOT APPLICABLE

1. Total Process Input Rate (lbs/hr): _____

2. Product Weight (lbs/hr): _____

C. Airborne Contaminants Emitted: (Information in this table must be submitted for each emission point, use additional sheets as necessary)

Name of Contaminant	Emission[1]		Allowed[2] Emission Rate per Rule 17-2	Allowable[3] Emission lbs/hr	Potential[4] Emission		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/yr	T/yr	
SO2 (OIL)	7.5		0.5%*	7.5		32.9	
SO2 (GAS)	$9x10^{-3}$		0.5%*	$9x10^{-3}$		0.04	

SEE ATTACHMENT IIA1 FOR OTHER EMISSION ESTIMATES

[1]See Section V, Item 2.

[2]Reference applicable emission standards and units (e.g. Rule 17-2.600(5)(b)2. Table II, E. (1) - 0.1 pounds per million BTU heat input)

[3]Calculated from operating rate and applicable standard.

[4]Emission, if source operated without control (See Section V, Item 3).

*40 CFR 60.42c(d) SUBPART Dc

D. Control Devices: (See Section V, Item 4) ALL CONTROLS ARE INTEGRAL TO THE DESIGN AND OPERATION OF THE AUXILIARY BOILER

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles Size Collected (in microns) (If applicable)	Basis for Efficiency (Section V Item 5)

E. Fuels

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	
NATURAL GAS		0.0155 MMCF	15.5
# 2 FUEL OIL		105 gal/hr	14.8

*Units: Natural Gas--MMCF/hr; Fuel Oils--gallons/hr; Coal, wood, refuse, other--lbs/hr.

Fuel Analysis: GAS/OIL

Percent Sulfur: 10 grains/1000 SCF/0.5% S max Percent Ash: 0/0.05

Density: 0.5826 SG/7.132 lb/gal lbs/gal Typical Percent Nitrogen: 0.02/0.76

Heat Capacity: _____ BTU/lb 1000 Btu/SCF/141,000Btu/gal BTU/gal

Other Fuel Contaminants (which may cause air pollution): _____

F. If applicable, indicate the percent of fuel used for space heating.

Annual Average 0 Maximum 0

G. Indicate liquid or solid wastes generated and method of disposal.

THE NEW AUXILIARY BOILER DOES NOT PRODUCE ANY ADDITIONAL LIQUID OR SOLID WASTES AS PART OF ITS OPERATION WHEN COMPARED WITH THE EXISTING AUXILIARY BOILERS.

H. Emission Stack Geometry and Flow Characteristics (Provide data for each stack):

Stack Height: 45 ft. Stack Diameter: 2.5 od/ 2.0 id ft.

Gas Flow Rate: 5786 ACFM _____ DSCFM Gas Exit Temperature: 550 °F.

Water Vapor Content: 4.5 % Velocity: 31 FPS

SECTION IV: INCINERATOR INFORMATION

NOT APPLICABLE

Type of Waste	Type 0 (Plastics)	Type I (Rubbish)	Type II (Refuse)	Type III (Garbage)	Type IV (Pathological)	Type V (Liq.& Gas By-prod.)	Type VI (Solid By-prod.)
Actual lb/hr Incinerated							
Uncontrolled (lbs/hr)							

Description of Waste _____

Total Weight Incinerated (lbs/hr) _____ Design Capacity (lbs/hr) _____

Approximate Number of Hours of Operation per day _____ day/wk _____ wks/yr. _____

Manufacturer _____

Date Constructed _____ Model No. _____

	Volume $(ft)^3$	Heat Release (BTU/hr)	Fuel		Temperature (°F)
			Type	BTU/hr	
Primary Chamber					
Secondary Chamber					

Stack Height: _____ ft. Stack Diameter: _____ Stack Temp. _____

Gas Flow Rate: _____ ACFM _____ DSCFM* Velocity: _____ FPS

*If 50 or more tons per day design capacity, submit the emissions rate in grains per standard cubic foot dry gas corrected to 50% excess air.

Type of pollution control device: [ ] Cyclone [ ] Wet Scrubber [ ] Afterburner

[ ] Other (specify) _____

Brief description of operating characteristics of control devices: _____

Ultimate disposal of any effluent other than that emitted from the stack (scrubber water, ash, etc.):

NOTE: Items 2, 3, 4, 6, 7, 8, and 10 in Section V must be included where applicable.

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

1. Total process input rate and product weight -- show derivation [Rule 17-2.100(127)]
   NOT APPLICABLE
2. To a construction application, attach basis of emission estimate (e.g., design calculations, design drawings, pertinent manufacturer's test data, etc.) and attach proposed methods (e.g., FR Part 60 Methods 1, 2, 3, 4, 5) to show proof of compliance with applicable standards. To an operation application, attach test results or methods used to show proof of compliance. Information provided when applying for an operation permit from a construction permit shall be indicative of the time at which the test was made.
   SEE ATTACHMENT V3
3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test).
   SEE ATTACHMENT V3
4. With construction permit application, include design details for all air pollution control systems (e.g., for baghouse include cloth to air ratio; for scrubber include cross-section sketch, design pressure drop, etc.)
   NOT APPLICABLE
5. With construction permit application, attach derivation of control device(s) efficiency. Include test or design data. Items 2, 3 and 5 should be consistent: actual emissions = potential (1-efficiency).
   NOT APPLICABLE
6. An 8 1/2" x 11" flow diagram which will, without revealing trade secrets, identify the individual operations and/or processes. Indicate where raw materials enter, where solid and liquid waste exit, where gaseous emissions and/or airborne particles are evolved and where finished products are obtained.
   SEE ATTACHMENT V6
7. An 8 1/2" x 11" plot plan showing the location of the establishment, and points of airborne emissions, in relation to the surrounding area, residences and other permanent structures and roadways (Example: Copy of relevant portion of USGS topographic map).
   SEE ATTACHMENT V7
8. An 8 1/2" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram.
   SEE ATTACHMENT V7

9. The appropriate application fee in accordance with Rule 17-4.05. The check should made payable to the Department of Environmental Regulation.

NOT APPLICABLE

10. With an application for operation permit, attach a Certificate of Completion of Construction indicating that the source was constructed as shown in the construction permit.

NOT APPLICABLE

SECTION VI: BEST AVAILABLE CONTROL TECHNOLOGY

A. Are standards of performance for new stationary sources pursuant to 40 C.F.R. Part 60 applicable to the source?

[ ] Yes [ ] No

Contaminant	Rate or Concentration
SEE ATTACHMENT VI	

B. Has EPA declared the best available control technology for this class of sources (If yes, attach copy)

[ ] Yes [ ] No

Contaminant	Rate or Concentration

C. What emission levels do you propose as best available control technology?

Contaminant	Rate or Concentration

D. Describe the existing control and treatment technology (if any).

1. Control Device/System:
2. Operating Principles:
3. Efficiency:*
4. Capital Costs:

*Explain method of determining

5. Useful Life:

6. Operating Costs:

7. Energy:

8. Maintenance Cost:

9. Emissions:

Containment	Rate or Concentration

10. Stack Parameters

a. Height: ft.

b. Diameter: ft.

c. Flow Rate: ACFM

d. Temperature: °F.

e. Velocity: FPS

E. Describe the control and treatment technology available (As many types as applicable, use additional pages if necessary).

1.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy [2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

2.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

[1]Explain method of determining efficiency.
[2]Energy to be reported in units of electrical power - KWH design rate.

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operat within proposed levels:

3.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

4.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Costs:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

F. Describe the control technology selected:

1. Control Device:

2. Efficiency:[1]

3. Capital Cost:

4. Useful Life:

5. Operating Cost:

6. Energy:[2]

7. Maintenance Cost:

8. Manufacturer:

9. Other locations where employed on similar processes:

a. (1) Company:

(2) Mailing Address:

(3) City:

(4) State:

[1]Explain method of determining efficiency.
[2]Energy to be reported in units of electrical power - KWH design rate.

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions:[1]

Contaminant	Rate or Concentration

(8) Process Rate:[1]

b. (1) Company:

(2) Mailing Address:

(3) City: (4) State:

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions:[1]

Contaminant	Rate or Concentration

(8) Process Rate:[1]

10. Reason for selection and description of systems:

[1]Applicant must provide this information when available. Should this information not b available, applicant must state the reason(s) why.

SECTION VII - PREVENTION OF SIGNIFICANT DETERIORATION

NOT APPLICABLE

A. Company Monitored Data

1. _____no. sites _____ TSP _____( ) SO^{2} _____ Wind spd/dir

Period of Monitoring _____/_____/_____ to _____/_____/_____
month day year month day year

Other data recorded _____

Attach all data or statistical summaries to this application.

Specify bubbler (B) or continuous (C).

2. Instrumentation, Field and Laboratory

a. Was instrumentation EPA referenced or its equivalent? [ ] Yes [ ] No

b. Was instrumentation calibrated in accordance with Department procedures?

[ ] Yes [ ] No [ ] Unknown

B. Meteorological Data Used for Air Quality Modeling

1. _____ Year(s) of data from _____/_____/_____ to _____/_____/_____
month day year month day year

2. Surface data obtained from (location)_____

3. Upper air (mixing height) data obtained from (location)_____

4. Stability wind rose (STAR) data obtained from (location)_____

C. Computer Models Used

1. _____ Modified? If yes, attach description.

2. _____ Modified? If yes, attach description.

3. _____ Modified? If yes, attach description.

4. _____ Modified? If yes, attach description.

Attach copies of all final model runs showing input data, receptor locations, and principle output tables.

D. Applicants Maximum Allowable Emission Data

Pollutant	Emission Rate	
TSP	_____	grams/sec
SO^2	_____	grams/sec

E. Emission Data Used in Modeling

Attach list of emission sources. Emission data required is source name, description of point source (on NEDS point number), UTM coordinates, stack data, allowable emissions, and normal operating time.

F. Attach all other information supportive to the PSD review.

G. Discuss the social and economic impact of the selected technology versus other applicable technologies (i.e., jobs, payroll, production, taxes, energy, etc.). Include assessment of the environmental impact of the sources.

H. Attach scientific, engineering, and technical material, reports, publications, journals, and other competent relevant information describing the theory and application of the requested best available control technology.

PUTNAM PLANT
COMPARISON OF EXISTING AUX BOILERS TO PROPOSED AUX BOILER*

	EXISTING AUX BOILERS	NEW AUX BOILER		ADVANTAGES OF NEW BOILER
NUMBER OF UNITS	TWO UNITS	ONE UNIT		
MANUFACTURER	CLEAVER-BROOKS	VA-POWER		
MODEL	D-60	CIRCULATIC		
RATING	2140 BoHP (BOTH)	350 BoHP		84% SMALLER SIZE
THERMAL OUTPUT	74.6 MMBTU/HR (BOTH)	11.7 MMBTU/HR		84% LESS HEAT FLOW GENERATED
AIR REQUIRED	18,100 SCFM (BOTH)	2980 SCFM		84% LESS AIR CONSUMED
WATER BLOWDOWN	6 GPM (BOTH)	1 GPM		84% LESS WATER CONSUMED
FUEL	#2 OIL	NAT. GAS	#2 OIL	DUAL FUEL CAPABILITY
CONSUMPTION	760 GPH (BOTH)	15,500 SCFH	105 GPH	86% LESS OIL CONSUMED
EMISSIONS	#2 OIL	NAT. GAS	#2 OIL	PRIMARY FUEL IS NATURAL GAS WHICH PRODUCES LESS EMISSIONS THAN #2 OIL
SOx (LB/HR) @ 0.5% S OIL	48 (BOTH)	TRACE	7.5	
NOx (LB/HR) @ 0.2% N OIL	30 (BOTH)	3.0	4.8	
PARTICULATES (#/HR)	0.93 (BOTH)	TRACE	0.15	

* Notes: Manufacturer's data for new unit
Existing Cleaver-Brooks units are 18 years old.

FILE: COMP1.DRW
DISK JAZ02
2/8/93

ATTACHMENT IIA1

TABLE 1.4-2. EMISSION FACTORS FOR SULFUR DIOXIDE (SO_2), NITROGEN OXIDES (NO_x), AND CARBON MONOXIDE (CO) FROM NATURAL GAS COMBUSTION[6,a,b]

Combustor Type	SO_2[c]			NO_x[d]			CO		
(size, 10^6 Btu/hr heat input)	kg/10^6m^3	lb/10^6ft^3	Rating	kg/10^6m^3	lb/10^6ft^3	Rating	kg/10^6m^3	lb/10^6ft^3	Rating
Utility/large industrial boilers (>100)									
Uncontrolled	9.6	0.6	A	8800	550[f]	A	640	40	A
Controlled - Low NO_x burners	9.6	0.6	A	1300	81	D[e]	NA	NA	
Controlled - Flue gas recirculation	9.6	0.6	A	850	53	D[e]	NA	NA	
Small industrial boilers (10-100)									
Uncontrolled	9.6	0.6	A	2240	140	A	560	35	A
Controlled - Low NO_x burners	9.6	0.6	A	1300	81	D[e]	980	61	D
Controlled - Flue gas recirculation	9.6	0.6	A	480	30	C	590	37	C
Commercial boilers (0.3-<10)									
Uncontrolled	9.6	0.6	A	1600	100	B	330	21	C
Controlled - Low NO_x burners	9.6	0.6	A	270	17	C	425	27	C
Controlled - Flue gas recirculation	9.6	0.6	A	580	36	D	NA	NA	
Residential Furnaces (<0.3)									
Uncontrolled	9.6	0.6	A	1500	94	B	640	40	B

NA = Not Applicable.

a. Expressed as weight pollutant/volume natural gas fired.

b. Based on an average natural gas higher heating value of 8270 kcal/m^3 (1000 Btu/scf). The emission factors in this table may be converted to other natural gas heating values by multiplying the given emission factor by the ratio of the specified heating value to this average heating value.

c. Reference 7. Based on average sulfur content of natural gas, 4600 g/10^6 Nm^3 (2000 gr/10^6 scf).

d. Expressed as NO_2. For tangentially fired units, use 4400 kg/10^6 m^3 (275 lb/10^6 ft^3). At reduced loads, multiply factor by load reduction coefficient in Figure 1.4-1. Note that NO_x emissions from controlled boilers will be reduced at load conditions.

ATTACHMENT V3

reference: EPA OAQPS technology transfer network clearinghouse for inventorie and emission factors (chief bulletin board service)

TABLE 1.3-1. UNCONTROLLED EMISSION FACTORS FOR FUEL OIL COMBUSTION

EMISSION FACTOR RATING: A

Boiler Type[a]	Particulate[b] Matter		Sulfur Dioxide[c]		Sulfur Trioxide		Carbon Monoxide[d]		Nitrogen Oxide[e]		Volatile Organics[f] Nonmethane		Methane	
	$kg/10^3$ l	$lb/10^3$ gal	$kg/10^3$ l	$lb/10^3$ gal	$kg/10^3$ l	$lb/10^3$ gal	$kg/10^3$ l	$lb/10^3$ gal	$kg/10^3$ l	$lb/10^3$ gal	$kg/10^3$ l	$lb/10^3$ gal	$kg/10^3$ l	$lb/10^3$ gal
Utility Boilers														
Residual Oil	g	g	19S	157S	0.34S[h]	2.9S[h]	0.6	5	8.0 (12.6)(5)[i]	67 (105)(42)[i]	0.09	0.76	0.03	0.28
Industrial Boilers														
Residual Oil	g	g	19S	157S	0.24S	2S	0.6	5	6.6[j]	55[j]	0.034	0.28	0.12	1.0
Distillate Oil	0.24	2	17S	142S	0.24S	2S	0.6	5	2.4	20	0.024	0.2	0.006	0.052
Commercial Boilers														
Residual Oil	g	g	19S	157S	0.24S	2S	0.6	5	6.6	55	0.14	1.13	0.057	0.475
Distillate Oil	0.24	2	17S	142S	0.24S	2S	0.6	5	2.4	20	0.04	0.34	0.026	0.216
Residential Furnaces														
Distillate Oil	0.3	2.5	17S	142S	0.24S	2S	0.6	5	2.2	18	0.085	0.713	0.214	1.78

[a] Boilers can be approximately classified according to their gross (higher) heat rate as shown below:
Utility (power plant) boilers: >106 x 10^9 J/hr (>100 x 10^6 Btu/hr)
Industrial boilers: 10.6 x 10^9 to 106 x 10^9 J/hr (10 x 10^6 to 100 x 10^6 Btu/hr)
Commercial boilers: 0.5 x 10^9 to 10.6 x 10^9 J/hr (0.5 x 10^6 to 10 x 10^6 Btu/hr)
Residential furnaces: <0.5 x 10^9 J/hr (<0.5 x 10^6 Btu/hr)

[b] References 3-7 and 24-25. Particulate matter is defined in this section as that material collected by EPA Method 5 (front half catch).

[c] References 1-5. S indicates that the weight % of sulfur in the oil should be multiplied by the value given.

[d] References 3-5 and 8-10. Carbon monoxide emissions may increase by factors of 10 to 100 if the unit is improperly operated or not well maintained.

[e] Expressed as NO_2. References 1-5, 8-11, 17 and 26. Test results indicate that at least 95% by weight of NO_x is NO for all boiler types except residential furnaces, where about 75% is NO.

[f] References 18-21. Volatile organic compound emissions are generally negligible unless boiler is improperly operated or not well maintained, in which case emissions may increase by several orders of magnitude.

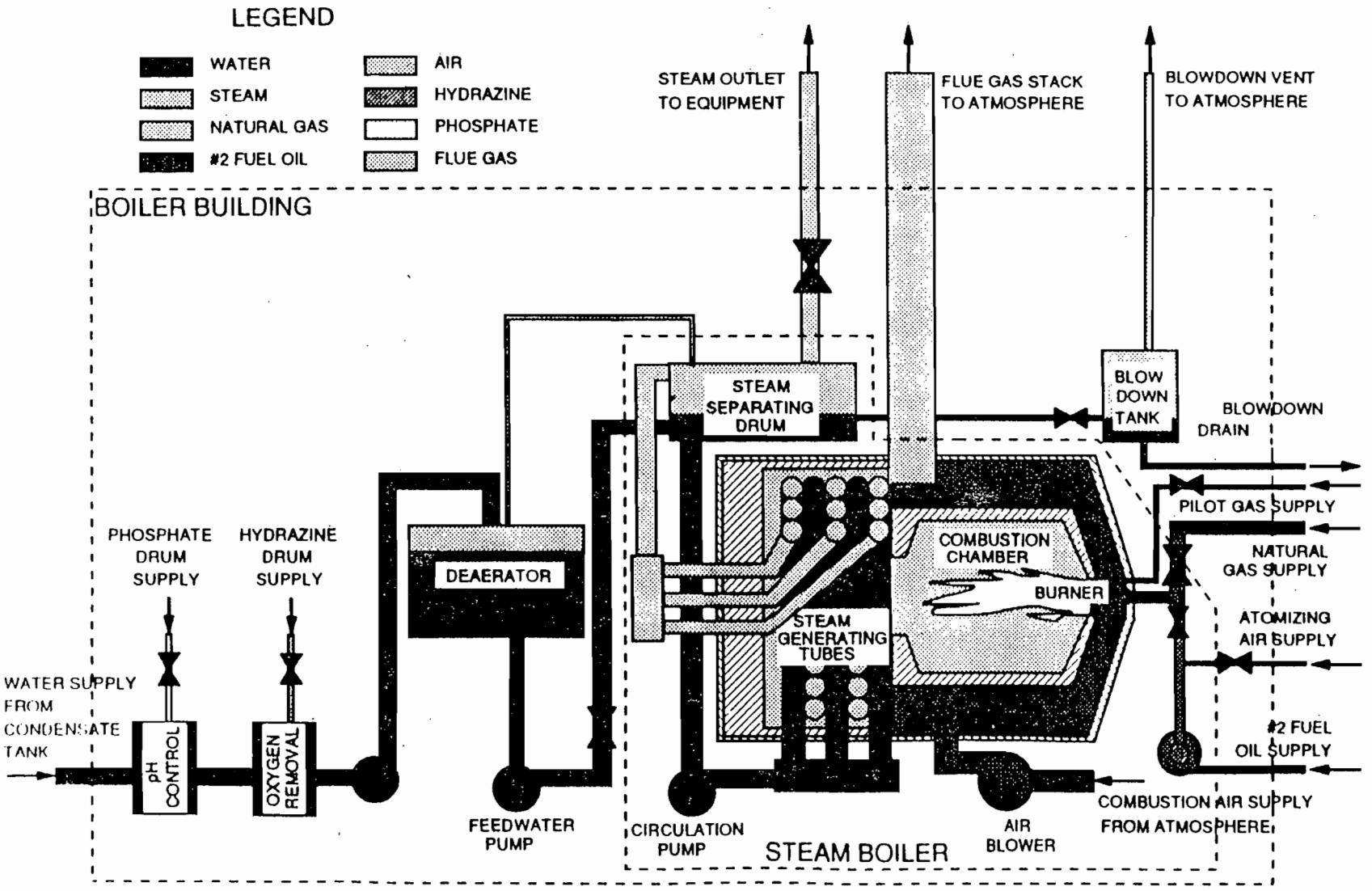
[g] Particulate emission factors for residual oil combustion are, on average, a function of fuel oil grade and sulfur content:
Grade 6 oil: 1.25(S) + 0.38 $kg/10^3$ liter [10(S) + 3 $lb/10^3$ gal] where S is the weight % of sulfur in the oil. This relationship is based on 81 individual tests and has a correlation coefficient of 0.65.
Grade 5 oil: 1.25 $kg/10^3$ liter (10 $lb/10^3$ gal)
Grade 4 oil: 0.88 $kg/10^3$ liter (7 $lb/10^3$ gal)

[h] Reference 25.

[i] Use 5 $kg/10^3$ liters (42 $lb/10^3$ gal) for tangentially fired boilers, 12.6 $kg/10^3$ liters (105 $lb/10^3$gal) for vertical fired boilers, and 8.0 $kg/10^3$ liters (67 $lb/10^3$ gal) for all others, at full load and normal (>15%) excess air. Several combustion modifications can be employed for NO_x reduction: (1) limited excess air can reduce NO_x emissions 5-20%, (2) staged combustion 20-40%, (3) using low NO_x burners 20-50%, and (4) ammonia injection can reduce NO_x emissions 40-70% but may increase emissions of ammonia. Combinations of these modifications have been employed for further reductions in certain boilers. See Reference 23 for a discussion of these and other NO_x reducing techniques and their operational and environmental impacts.

[j] Nitrogen oxides emissions from residual oil combustion in industrial and commercial boilers are strongly related to fuel nitrogen content, estimated more accurately by the empirical relationship:
kg $NO_2/10^3$ liters = 2.75 + 50(N)^2 [lb $NO_2/10^3$gal = 22 + 400(N)^2] where N is the weight % of nitrogen in the oil. For residual oils having high (>0.5 weight %) nitrogen content, use 15 kg $NO_2/10^3$ liter (120 lb $NO_2/10^3$gal) as an emission factor.

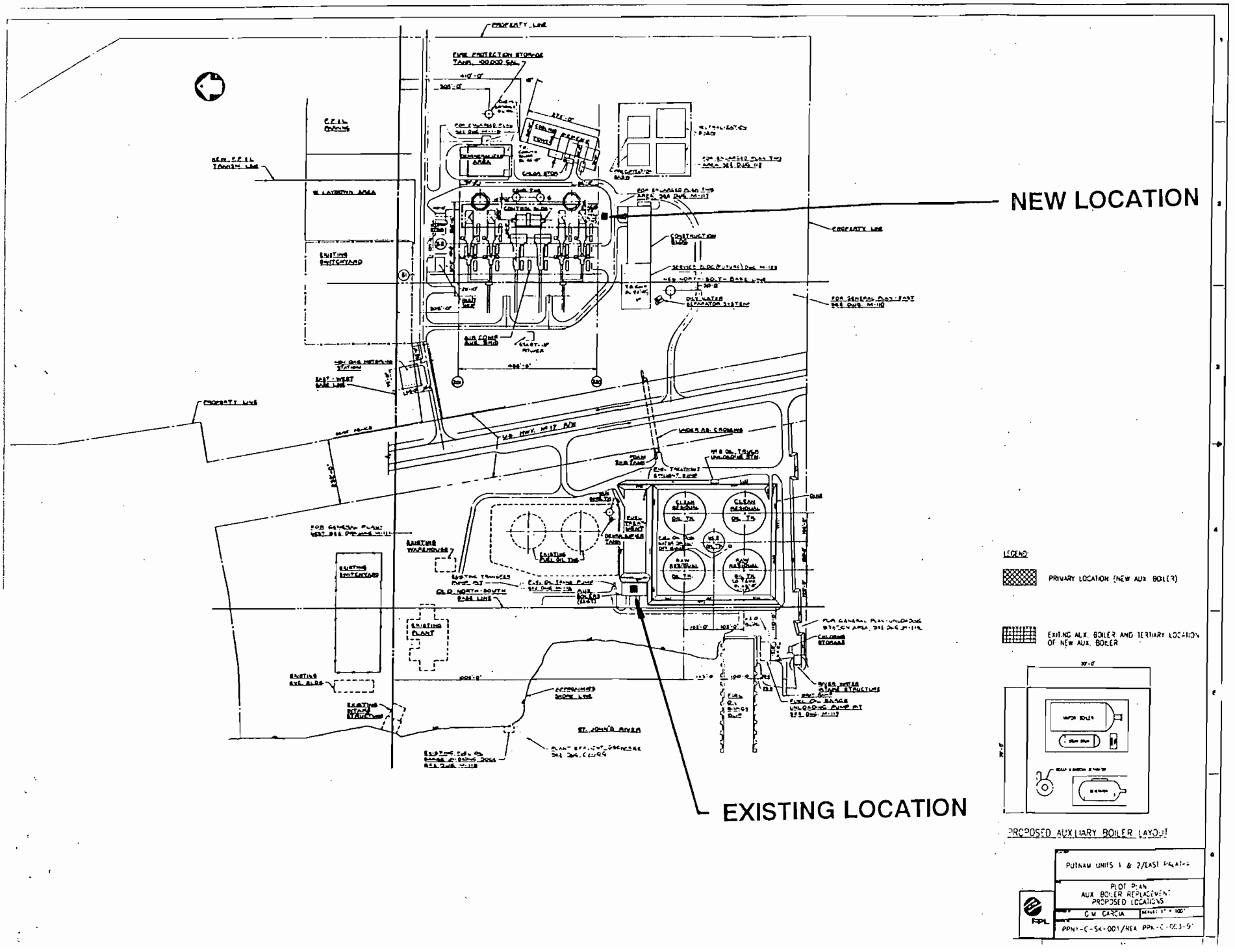
AUXILIARY STEAM BOILER FLOW DIAGRAM



FPL

AUXILIARY STEAM BOILER
FLOW DIAGRAM

POWER PLANT



ATTACHMENT VI.

The replacement auxiliary boiler is subject to 40 CFR 60 Subpart Dc but is not subject to PSD. The new auxiliary boiler is also subject to 17-296.405 F.A.C. which requires the replacement boiler to utilize best available controls. Such controls for the replacement auxiliary boiler include use of clean fuels (i.e., natural gas as the primary fuel, and low sulfur fuel and (0.5% S) as the secondary fuel), efficient combustion, and good operating practices to minimize air emissions.

15413

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

For Routing To Other Than The Addressee

To: _____ Location: _____

To: _____ Location: _____

To: _____ Location: _____

From: _____ Date: _____

Interoffice Memorandum

TO: Buck Oven

FROM: Teresa M. Heron T.H.
Katherine Zhang kkz

THRU: Preston Lewis
Clair Fancy

DATE: March 16, 1993

SUBJ: Palatka (Putman) Power Plant
Site Certification PPS No 74-01
Auxiliary Boiler Replacement

This is to acknowledge receipt of the auxiliary boiler replacement amendment request at the above mentioned facility. The new 10,000 lbs/hr auxiliary boiler will comply with a more stringent emission limit than required by the condition of certification on the two (2) existing permitted 37,000 lbs/hr auxiliary boilers. This is the 40 CFR 60 Subpart Dc NSPS for Steam Generators.

The Bureau of Air Regulation has reviewed this information as submitted and have no adverse comments. Thank you for the opportunity to review and comment on this amendment request.

TH-KZ/plm

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

For Routing To Other Than The Addressee

To: _____ Location: _____
To: _____ Location: _____
To: _____ Location: _____
From: _____ Date: _____

Interoffice Memorandum

TO: Buck Oven

FROM: Mike Harley *mike*

DATE: May 27, 1992

SUBJ: Compliance Test Procedures
FP&L Putnam PPSC PA-74-01

We have no objection to the approval of the above referenced request.

Florida Power & Light Company's April 2, 1992 request for approval to use alternate sampling procedures for the measurement of NO_x emissions from the Putnam Plant has been reviewed. FP&L has requested approval to:

- Measure NO_x emissions using EPA Methods 7E and 3A in lieu of EPA Method 20.
- Determine the NO_x emitted from the duct burner by measuring NOx emissions at the duct burner outlet under two different operating conditions. The NO_x emissions will be measured with only the turbine operating and then with both the turbine and the duct burner operating.
- Calculate the gas flow rates using the measured fuel consumption rates and the F-factors given in EPA Method 19 in lieu of measuring the gas flow rates with EPA Method 2.

The company's proposal is acceptable pursuant to the caveats of the May 22, 1992 letter from the Region IV Office of EPA.

Based on a May 26, 1992 conversation with David McNeal of EPA, the reference to 40 CFR 60.49b(h) in EPA's May 22, 1992 letter should be 40 CFR 60.48b(h).

Please send us a copy of your final action.

cc: Jim Pennington
Barry Andrews
Patty Adams
Andy Kutyna

Department of Environmental Regulation

Routing and Transmittal Slip

To: (Name, Office, Location) Kathy Adams

1.

2.

3.

4.

Remarks:

From: Mike Harley

Date: 5/28

Phone: 36

Florida Power & Light Company, P.O. Box 088801, North Palm Beach, FL 33408-8801

FEDERAL EXPRESS

October 6, 1992

Mr. C. H. Fancy, Chief
Bureau of Air Regulation
State of Florida
Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399

RE: Putnam Plant, Unit No. 2
Initial Start-up

Dear Mr. Fancy:

In accordance with the requirements listed in 40 CFR 60.49b and 60.7, this constitutes notification that initial start-up of Putnam Unit No. 2 subsequent to replacement of the HRSG's occurred on September 23, 1992. The design heat input capacity of each HRSG is 250 MMBtu/hr. The units are permitted to burn natural gas or fuel oil with not more than 0.5 percent sulfur by weight, with the primary fuel being natural gas. There are no annual capacity factor limits on this unit. There is no emergency SO_2 control technology on this unit.

Capacity factors anticipated for each permitted fuel for the next twelve-month period are as follows:

Natural Gas:

Total Combined-cycle Unit Operation - approx. 66%
Duct burners operation - approx. 8%

Distillate Oil:

Total Combined-cycle Unit Operation - < 0.3%
Duct burners operation - none

Residual Oil:

No residual oil operation anticipated for the next twelve months by either the duct burners or the total combined-cycle unit.

Although this notification applies only to the HRSG's as the regulated sources under NSPS due to their reconstruction and, therefore, only the forecast capacity factor for the HRSG-associated duct burners is pertinent, we have provided the forecast for the total combined-cycle unit for your reference. Please note that it is not our intent at present to burn any oil, either residual or distillate, in the duct burners.

Please call me at (407) 697-6926 if you have any questions.

Sincerely,

Elsa A. Bishop
Senior Environmental Specialist
Florida Power & Light Company

EAB:jm

cc: Ernest Frey - DER/JAX
Jewel Harper - EPA,Atlanta
H. S. Oven - DER/Tall

Florida Power & Light Company, P.O. Box 078768, West Palm Beach, FL 33407-0768

CORRECTED

April 15, 1992

Mr. C. H. Fancy, Chief
Bureau of Air Permitting
State of Florida
Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399

RE: Putnam Plant, Unit No. 2
Commencement of Construction

Dear Mr. Fancy:

As required by 40 CFR 60.7(a)(1), this constitutes notification that reconstruction of the Putnam Plant Unit No. 2 Heat Recovery Steam Generators (HRSG) commenced on April 10, 1992. We have resubmitted this notification, due to an error in the subject heading of the original notification (copy attached).

Please call me at (407) 697-6926 if you have any questions.

Sincerely,

Elsa A. Bishop
Senior Environmental Specialist
Florida Power & Light Company

EAB:jm

cc: Ernest Frey - DER/JAX
Jewel Harper - EPA/Atlanta
H. S. Oven - DER/TAll

Florida Power & Light Company, P.O. Box 078768, West Palm Beach, FL 33407-0768

FPL

CORRECTED

April 15, 1992

Mr. C. H. Fancy, Chief
Bureau of Air Permitting
State of Florida
Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399

RE: **Putnam Plant, Unit No. 2**
~~Completion~~ of Construction
Commencement

Dear Mr. Fancy:

As required by 40 CFR 60.7(a)(1), this constitutes notification that reconstruction of the Putnam Plant Unit No. 2 Heat Recovery Steam Generators (HRSG) commenced on April 10, 1992.

Please call me at (407) 697-6926 if you have any questions.

Sincerely,

Elsa A. Bishop

Elsa A. Bishop
Senior Environmental Specialist
Florida Power & Light Company

EAB:jm

cc: Ernest Frey - DER/JAX
Jewel Harper - EPA/Atlanta
H. S. Oven - DER/TAll

bcc: R. N. Allen - JEN/NP
W. T. Bethea - PPN
P. C. Cunningham - HBG&S
C. D. Henderson - JEN/NP
N. H. Roen - JEN/NP
A. Rodriguez - JPG/CSE
M. A. Smith - JEN/NP

Florida Power & Light Company, P.O. Box 078768, West Palm Beach, FL 33407-0768

FAXED
FEDERAL EXPRESS

April 14, 1992

Mr. C. H. Fancy, Chief
Bureau of Air Regulation
State of Florida
Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399

RE: Putnam Plant, Unit No. 1
Initial Start-up

Dear Mr. Fancy:

In accordance with the requirements listed in 40 CFR 60.49b and 60.7, this constitutes notification that initial start-up of Putnam Unit No. 1 subsequent to replacement of the HRSG's occurred on March 31, 1992. The design heat input capacity of each HRSG is 250 MMBtu/hr. The units are permitted to burn natural gas or fuel oil with not more than 0.5 percent sulfur by weight, with the primary fuel being natural gas. There are no annual capacity factor limits on this unit. There is no emergency SO_2 control technology on this unit.

Capacity factors anticipated for each permitted fuel for the next twelve-month period are as follows:

Natural Gas:

Total Combined-cycle Unit Operation - approx. 66%
Duct burners operation - approx. 8%

Distillate Oil:

Total Combined-cycle Unit Operation - < 0.3%
Duct burners operation - none

FEDERAL EXPRESS

QUESTIONS? CALL 800-238-5355 TOLL FREE.

AIRBILL PACKAGE TRACKING NUMBER 1801591083

1347M 1801591083

RECIPIENT'S COPY

1 Date 4/15/92

From (Your Name) Please Print	Your Phone Number (Very Important)	2 To (Recipient's Name) Please Print	Recipient's Phone Number (Very Important)
Elsa A. Bishop	(407-697-6911	C. H. Fancy	( )
Company	Department/Floor No.	Company	Department/Floor No.
		DER	
Street Address		Exact Street Address (We Cannot Deliver to P.O. Boxes or P.O. Zip Codes.)	
00 VILLAGE BLVD		2600 Blair Stone Road	
City State	ZIP Required	City State	ZIP Required
ST PALM BEACH FL	3 3 4 0 7	Tallahassee, Florida	32399

YOUR INTERNAL BILLING REFERENCE INFORMATION (optional) (First 24 characters will appear on invoice.)

iornmental Affairs XXXXXXXX

H IF HOLD FOR PICK-UP, Print FEDEX Address Here
Street Address
City State ZIP Required

3 PAYMENT 1 [X] Bill Sender 2 [ ] Bill Recipient's FedEx Acct. No. 3 [ ] Bill 3rd Party FedEx Acct. No. 4 [ ] Bill Credit Card
5 [ ] Cash/Check

4 SERVICES (Check only one box)

Priority Overnight (Delivery by next business morning†)	Standard Overnight (Delivery by next business afternoon†)
11 [ ] YOUR PACKAGING	51 [ ] YOUR PACKAGING
16 [X] FEDEX LETTER *	56 [ ] FEDEX LETTER *
12 [ ] FEDEX PAK *	52 [ ] FEDEX PAK *
13 [ ] FEDEX BOX	53 [ ] FEDEX BOX
14 [ ] FEDEX TUBE	54 [ ] FEDEX TUBE
Economy Two-Day (Delivery by second business day†)	**Government Overnight** (Restricted for authorized users only)
30 [ ] ECONOMY	46 [ ] GOVT LETTER
	41 [ ] GOVT PACKAGE

Freight Service (for Extra Large or any package over 150 lbs.)
70 [ ] OVERNIGHT FREIGHT ** (Confirmed reservation required)
80 [ ] TWO-DAY FREIGHT **
†Delivery commitment may be later in some areas.
*Declared Value Limit $100.
**Call for delivery schedule.

5 DELIVERY AND SPECIAL HANDLING (Check services required)

1 [ ] HOLD FOR PICK-UP (Fill in Box H)
2 [X] DELIVER WEEKDAY
3 DELIVER SATURDAY (Extra charge) [ ] (Not available to all locations)
4 [ ] DANGEROUS GOODS (Extra charge)
5 [ ]
6 [ ] DRY ICE ____ Lbs
7 [ ] OTHER SPECIAL SERVICE
8 [ ]
9 [ ] SATURDAY PICK-UP (Extra charge)
10 [ ]
11 [ ] DESCRIPTION
12 [ ] HOLIDAY DELIVERY (If offered) (Extra charge)

6

PACKAGES	WEIGHT In Pounds Only	YOUR DECLARED VALUE
Total	Total	Total

DIM SHIPMENT (Chargeable Weight)
[ ] ____ lbs.
L x W x H = ____
Received At
1 ☐ Regular Stop 3 ☐ Drop Box
2 ☐ On-Call Stop 4 ☐ B.S.C. 5 ☐ Station

7
Release Signature:
FedEx Emp. No. Date/Time

Emp. No. Date
☐ Cash Received
☐ Return Shipment
☐ Third Party ☐ Chg. To Del. ☐ Chg. To Hold
Street Address
City State Zip
Received By: X
Date/Time Received FedEx Employee Number

Federal Express Use
Base Charges
Declared Value Charge
Other 1
Other 2
Total Charges

REVISION DATE 6/91
PART #137204 FXEM11/91
FORMAT #099
099

Residual Oil:

No residual oil operation anticipated for the next twelve months by either the duct burners or the total combined-cycle unit.

Although this notification applies only to the HRSG's as the regulated sources under NSPS due to their reconstruction and, therefore, only the forecast capacity factor for the HRSG-associated duct burners is pertinent, we have provided the forecast for the total combined-cycle unit for your reference. Please note that it is not our intent at present to burn any oil, either residual or distillate, in the duct burners.

Please call me at (407) 697-6926 if you have any questions.

Sincerely,

Elsa A. Bishop

Elsa A. Bishop
Senior Environmental Specialist
Florida Power & Light Company

EAB:jm

cc: Ernest Frey - DER/JAX
Jewel Harper - EPA,Atlanta
H. S. Oven - DER/Tall
CHF/BA/PL

Florida Power & Light Company, P.O. Box 078768, West Palm Beach, FL 33407-0768

FPL

CORRECTED

September 13, 1991

Mr. C. H. Fancy, Chief
Bureau of Air Permitting
State of Florida
Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399

RE: Putnam Plant, Unit No. 1
Commencement of Construction

Dear Mr. Fancy:

As required by 40 CFR 60.7(a)(1), this constitutes notification that reconstruction of the Putnam Plant Unit No. 1 Heat Recovery Steam Generators (HRSG) commenced on August 31, 1991. We have resubmitted this notification, due to an error in the subject heading of the original notification (copy attached).

Please call me at (407) 697-6926 if you have any questions.

Sincerely,

Elsa A. Bishop
Senior Environmental Specialist
Florida Power & Light Company

EAB:jm

cc: Ernest Frey - DER/JAX
Jewel Harper - EPA/Atlanta
H. S. Oven - DER/TAll

Florida Power & Light Company, P.O. Box 078768, West Palm Beach, FL 33407-0768

FPL

CORRECTED

September 13, 1991

Mr. C. H. Fancy, Chief
Bureau of Air Permitting
State of Florida
Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399

RE: **Putnam Plant, Unit No. 1**
~~Completion~~ of Construction
Commencement

Dear Mr. Fancy:

As required by 40 CFR 60.7(a)(1), this constitutes notification that reconstruction of the Putnam Plant Unit No. 1 Heat Recovery Steam Generators (HRSG) commenced on August 31, 1991.

Please call me at (407) 697-6926 if you have any questions.

Sincerely,

Elsa A. Bishop
Senior Environmental Specialist
Florida Power & Light Company

EAB:jm

cc: Ernest Frey - DER/JAX
Jewel Harper - EPA/Atlanta
H. S. Oven - DER/TAll

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

For Routing To Other Than The Addressee

To: _____ Location: _____

To: _____ Location: _____

To: _____ Location: _____

From: _____ Date: _____

Interoffice Memorandum

TO: Howard Rhodes
Ernie Frey
Clair Fancy

FROM: Hamilton S. Oven HSO

DATE: March 14, 1991

SUBJECT: FPL - Putnam Power Plant Modification
PA 74-01E

Please have the appropriate members of your staff review the attached petition for modification of the FPL Putnam Power Plant, Module NO. 8044. Please submit any comments to me by May 1, 1991.

If additional information is required please let me know by April, 15, 1991.

HOPPING BOYD GREEN & SAMS
ATTORNEYS AND COUNSELORS
123 SOUTH CALHOUN STREET
POST OFFICE BOX 6526
TALLAHASSEE, FLORIDA 32314
(904) 222-7500
FAX (904) 224-8551

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MICHAEL P. PETROVICH
DAVID L. POWELL
DOUGLAS S. ROBERTS
CECELIA C. SMITH

OF COUNSEL
W. ROBERT FOKES

March 13, 1991

RECEIVED
MAR 13 1991
DER - BAQM

BY HAND DELIVERY

Mr. Hamilton S. Oven
Siting Coordination Administrator
Department of Environmental Regulation
2600 Blair Stone Road, Room 338
Tallahassee, Florida 32399-2400

Re: Florida Power & Light Company, Putnam Power Plant, Proposed Modification of Conditions of Certification

Dear Buck:

Enclosed are an original and 14 copies of a Request for Modification of the Conditions of Certification for Florida Power & Light Company's (FPL) Putnam Power Plant, complete with exhibits. We hereby request that the modification be approved under the authority granted to you by Condition No. 32 of the Site Certification, and Section 403.516(1), Florida Statutes. Pursuant to Rule 17-17.293(1)(c), Florida Administrative Code, a check in the amount of $10,000 is included with this Request.

The purposes of this request are to:

(1) Incorporate new source performance standards applicable to the heat recovery steam generators as a result of proposed refurbishments; and

(2) Allow the construction activities necessary for the refurbishment to occur; and

(3) Update the certification to include the current groundwater monitoring plan for the plant and to clarify air-related conditions.

If you have any questions or need additional information, please do not hesitate to call upon me.

Respectfully submitted,

HOPPING BOYD GREEN & SAMS

By Angela R. Morrison
William H. Green
Angela R. Morrison

Attorneys for Florida Power & Light Company

bjh/LtrOven
Enclosures

cc (w/enc):
Elsa A. Bishop, FPL
Winifred Perkins, FPL

Barrt - Over
Barry Andrews
Preston Cum
4/26/91

Putnam

May 1, 1991 meet with FPL

June 13, 1991 Notice of Intent Action
Complete

FPL – PUTNAM
MAY 1, 1991 MTG

Name	Company & Address	Telephone
Preston Lewis	DER – TALLAHASSEE	488-1344
Bill Green	Hopping Boyd Green & Sams (for FPL)	222-7500
Elsa Bishop	F P & L	(407) 697-6926
Angela Morrison	# BGS	222-7500
Buck Oven	DER	(904) 488-1344
Ken Kosky	KBN	(904) 331-9000

Does not require

Do a small boiler BACT – treat duct burners like a boiler – Do modeling

4/19/91

FPL - Putnam

LOCATED IN 1 SE OF PALATKA

(NO. PPS 74-01) (NPDES certified on 10/16/74 THIS IS A MODIFICATION

- Fuel .7% Sulfur OR Natural Gas fire DUCT BURNERS and Combustion Turbine

- (4) COMBUSTION TURBINE / (2) HRSG / AUX. BOILER COMBUSTION TURBINES 968 mm BTU/HR
  (4) DUCT BURNERS (250 mm BTU/Hr)

- Natural Gas and Fuel oil W/ .5% Sulfur will be used in HRSG

- WILL ADD WATER INJECTION SYSTEM AND ACCEPT NO_x STANDARD TO CONTROL NOX Emission

	NATURAL GAS	DISTILLATE OIL	RESIDUAL
NO_x	.2 lb/mm BTU	.2 LB/mm BTU	0.4
SO_2	.5 lb/mm BTU		

(1) Why is residual oil being used? - pg 3 (2)
What is its sulfur content? MAX .7%

(2) Why do you use 0.5% S fuel oil ~~in the HTGR~~ FOR THE HTGR
and 0.7% in the ~~HTGR~~ Combustor?

(3) Why was the air permit application never signed, dated or sealed? Brick Owen's copy was signed, dated and stamped.

- NO_x Controlled by Water injection

Letters

(1) Letter FPL to Twachtmann 3/26/90

- Two Combined cycle Turbines - each comprised of two Combustion Turbines (Commercial unit #1, 1977 unit #2 1978)

- Will avoid increased emission by ~~for NOx~~ installing a Water injection and accepting NO_x Standards
  NO EPA allowed this Amendment

- SO_2 would increase from 204 Kg/Hr to 225 Kg/Hr when firing distillate and .26 to .28 Kg/Hr when firing Natural gas (DISTILLATE limit 0.5% Sulfur)

(2) Letter DER to EPA 4/12/90 Asking for PSD Determination

(3) letter EPA to DER 12/3/90 NOT SUBJECT TO PSD

- EPA Suggest Source Provide ACTUAL OPERATING HISTORY DATA AND REASONABLE ASSURANCE THAT "EXTENT OR PRIORITY OF THEIR USE" "NOT CHANGE.

Putnam (Cont.)

(4) Letter FPL (HOPING/BOYD/GREEN) TO EPA 12/7/90
- Responded to questions raised by EPA Concerning Physical changes and usage after modification.
- Stated that they should apply to DER FOR ruling on PSD applicability.

(5) Letter FPL to DER 12/13/90
- FPL response notifies EPA that PSD is not triggered.

(6) Request for modification of Conditions of Certification Received 3/13/91 (BUCK OWEN'S COPY SIGNED/STAMPED)
- HRSG's RECONSTRUCTED BUT NO CHANGE IN PLANT'S POTENTIAL EMISSIONS. See pg A-5 for list of changes
- see p A-6, A-7 and A 8/9 for emission factors
- see NSPS for NG on Page A-12
- see Page A-13 and A.14 for details of monitoring NG and oil fired SG units
- Table A-1 appendix ~~A~~ projects the Stack Parameter for various fuels
- last section gives the "certification" Conditions

HRSG
NO_x .2 LB/mmBTU (NG) .4 LB/mmBTU (OIL)

~~HTGR (GAS) .2 LB/mmBTU~~ x

WHAT IS THE MMBTU IN HRSG to Calculate NO_x? see Pg 2 of Existing Conditions of Certif.

Do a small boiler BACT - treat Duct burners like a boiler - Do modeling (Tanner simple

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IV
345 COURTLAND STREET, N.E.
ATLANTA, GEORGIA 30365

DEC 13 1990

4APT-AEB

Mr. Clair H. Fancy, P.E., Chief
Bureau of Air Regulation
Florida Department of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

REC -
DEC 18
DER

RE: FPL Putnam Revised Applicability Determination Request

Dear Mr. Fancy:

By letter of April 12, 1990, your office requested EPA assistance in a Prevention of Significant Deterioration (PSD) applicability determination for proposed modifications at the FPL Putnam Plant. We responded to your request in a letter dated May 9, 1990. Since that time, Mr. William Green, attorney for FPL, has requested from EPA an applicability determination for a revised scenario at the plant in which physical changes will be made only to the HRSG steam system internals. This request, dated October 26, 1990, asks that EPA make a finding of non-applicability of PSD to the proposed project.

EPA responded to this latest request by letter to you dated December 3, 1990. As stated in that letter, we feel that it is appropriate that FDER make the final determination on applicability while EPA's role is to provide assistance and support. To that end, we provided several questions which we thought needed to be answered in order to make an applicability determination. Mr. Green responded to these questions by letter dated December 7, 1990.

Based on Mr. Green's response (i.e., the source is not physically limited by the current steam system, the amount of fuel combusted will not change, the utilization priority of the source will not change), it would be our interpretation that the changes would not be subject to PSD review. If you have any questions or comments on this issue, please contact Mr. Gregg Worley of my staff at (404) 347-2904.

Sincerely yours,

Jewell A. Harper, Chief
Air Enforcement Branch
Air, Pesticides, and Toxics
Management Division

cc: Mr. William Green, Esquire
123 South Calhoun Street
P.O. Box 6526
Tallahassee, Florida 32314

HOPPING BOYD GREEN & SAMS
ATTORNEYS AND COUNSELORS
123 SOUTH CALHOUN STREET
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CHERYL G. STUART

OF COUNSEL
W. ROBERT FOKES

December 7, 1990

Mr. Clair Fancy
Division of Air Resources Management
Bureau of Air Quality Management
Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, FL 32399-2400

RE: Florida Power & Light Company
Putnam Plant
PSD Applicability Request

Dear Clair:

Please find enclosed a copy of our response to the Environmental Protection Agency's (EPA's) letter dated December 3, 1990, a copy of which is also attached. Jewell Harper indicated in her letter that Prevention of Significant Deterioration (PSD) review would not be necessary for proposed changes to the heat recovery steam generators at Florida Power & Light Company's Putnam plant, provided that certain further documentation was submitted to EPA. Our reply to EPA includes that additional information.

We trust that you will concur that PSD review is unnecessary for the steam system improvements, and respectfully request your early written confirmation to that effect. As always, if you have any questions, please do not hesitate to call.

Sincerely,

William H. Green

cc: Jewell Harper

HOPPING BOYD GREEN & SAMS
ATTORNEYS AND COUNSELORS
123 SOUTH CALHOUN STREET
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OF COUNSEL
W. ROBERT FOKES

December 7, 1990

Ms. Jewell A. Harper, Chief
Air Enforcement Branch
Air, Pesticides and Toxics
Management Division
Environmental Protection Agency
Region IV
345 Courtland Street, N.E.
Atlanta, GA 30365

RE: FPL Putnam Plant
PSD/NSPS Applicability Determination Request

Dear Ms. Harper:

We are in receipt of a copy of your letter to Mr. Clair Fancy dated December 3, 1990 relating to the above. At the outset, I would like to thank you on behalf of Florida Power & Light Company (FPL) and myself for the prompt response to our earlier requests and your continued guidance in this matter. The purpose of this letter is to respond to the questions set forth in your letter to Mr. Fancy and to confirm the understanding of you and your staff concerning the other aspects of the improvements discussed in your letter. Your questions and FPL's responses are as follows:

EPA Question No. 1.:

Are the changes to the HRSG internals considered routine replacements according to industry standards?

a. Are the parts being replaced with the same or equivalent parts?

b. Is the current condition of the unit such that it cannot be operated at capacity?

FPL Response:

The electric utility industry has not developed "industry standards" for the replacement of component parts of heat recovery steam generators (HRSGs). These replacements are made on a case-by-case basis and deal primarily with the need to replace steam tubes as they experience wear and resulting failure. The system is designed to remove otherwise wasted exhaust gas energy from the exhaust gasses and to convert it into usable energy. In effect, leaking steam tubes waste otherwise usable energy.

The parts that would be replaced by the proposed work are functionally equivalent to those parts which came with the original units. The parts have been improved somewhat to decrease the likelihood and hopefully the frequency of leaks. For example, the configuration of the original steam tubes involved certain angles and stresses which tend to produce points where erosion and wear and resulting leaks become intensified. The replacement tubes will have greater tolerances between tubes and a somewhat improved configuration to make the tube stresses more uniform and, hopefully, make leaks less frequent. None of these changes would cause the components to have a non-equivalent function.

The current condition of the Putnam units is such that both the combustion turbines and the HRSGs can be run at maximum capacity. When the units are running, the more efficient steam tube system will generate more electrical energy from a given amount of fuel combusted. However, the changes will not allow the units to combust more fuel.

EPA Question No. 2:

Can the source document, within reason, that the usage of the source will not increase?

Comment: The increased efficiency of the unit due to the proposed changes would lead one to believe that the unit would be utilized more frequently than in the past. The source should provide data as to the actual operating history of this unit and provide reasonable assurances that the "extent or priority of their utilization" will not change.

FPL Response:

Changes to the HRSG steam system internals will not increase the usage of the HRSGs or the extent or priority of their utilization. The Putnam units currently have top priority for usage among all of FPL's fossil-fired units. The proposed changes will not cause them to move ahead of the nuclear units. The Putnam Plant will, nevertheless, realize a significant increase in efficiency; i.e., the amount of megawatts generated from a given quantity of fuel.

Your letter reflected a discussion which occurred between Mr. Greg Worley of your staff and myself concerning the changes. I believe that your letter correctly reflects our discussion and I would like to confirm, once again, that the changes proposed to the HRSGs deal only with heat transfer efficiency as FPL attempts to capture more electrical output from otherwise wasted exhaust gasses. These efficiency changes are independent of the amount of fuel fired in the units. In addition, the current steam system does not physically limit the firing or operation of the combustion turbines; rather, they limit the amount of heat that can be recovered from the combustion turbine exhaust gasses. Moreover, the proposed steam system changes do not include any changes to the duct burners (the actual emissions source of the HRSGs) nor will they affect the amount of their use.

In light of the above and in light of our understanding of your letter, we conclude that the proposed changes will not be subject to PSD review. As you suggested, we have now requested confirmation of that interpretation by the Florida Department of Environmental Regulation (DER), as you will see from the enclosed correspondence.

We wish to thank you for your continued assistance and guidance in these important matters.

Sincerely,

William H. Green
Angela R. Morrison

WHG/wrn:ltrharper
cc: Clair Fancy, Chief
Bureau of Air Regulation, DER

bc: Dr. Martin A. Smith, FPL
Ms. Elsa Bishop, FPL

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET, N.E.
ATLANTA, GEORGIA 30365

4APT-AEB

Mr. Clair H. Fancy, P.E., Chief
Bureau of Air Regulation
Florida Department of Environmental
Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

RE: FPL Putnam Revised Applicability Determination Request

Dear Mr. Fancy:

By letter of April 12, 1990, your office requested EPA assistance in a Prevention of Significant Deterioration (PSD) applicability determination for proposed modifications at the FPL Putnam Plant. We responded to your request in a letter dated May 9, 1990. Since that time, Mr. William Green, attorney for FPL, has requested from EPA an applicability determination for a revised scenario at the plant in which physical changes will be made only to the HRSG steam system internals. This request, dated October 26, 1990, asks that EPA make a finding of non-applicability of PSD to the proposed project.

As you know, Florida has a SIP approved permitting program and full authority for implementing PSD regulations. Thus, we feel that it is appropriate that FDER make the final determination on applicability while EPA's role is to provide assistance and support. We are happy to offer you assistance in this determination.

From the information submitted by Mr. Green, the determination does not appear to be very clear-cut. The changes to the HRSG internals raise several questions which may be similar to the issues raised in the WEPCO court case; however, no physical changes will be made to fuel firing units. Some of the questions which would need to be answered are:

1. Are the changes to the HRSG internals considered routine replacements according to industry standards?

   a. Are the parts being replaced with the same or equivalent parts?

   b. Is the current condition of the unit such that it cannot be operated at capacity?

2. Can the source document, within reason, that the usage of the source will not increase?

> Comment: The increased efficiency of the unit due to the proposed changes would lead one to believe that the unit would be utilized more frequently than in the past. The source should provide data as to the actual operating history of this unit and provide reasonable assurances that the "extent or priority of their utilization" will not change.

It is our understanding, from a discussion between Mr. Green and Mr. Gregg Worley of my staff that the proposed changes will only allow the unit to more efficiently transfer heat and will have no effect on the amount of fuel fired. Apparently, the current steam system does not physically limit the firing or operation of the turbine. Additionally, the increased efficiency will not change the plant's position on the priority list. We have requested that Mr. Green provide answers to the questions stated above in order to aid in the applicability determination.

If the situation is as stated above, it would be our interpretation that the changes would not be subject to PSD review. As stated previously, we are currently reviewing this information and awaiting additional information to confirm FPL's position. We will continue to provide information and assistance to you as it becomes available. If you have any questions or comments on this issue, please contact Mr. Gregg Worley of my staff at (404) 347-2904.

Sincerely yours,

Jewell A. Harper, Chief
Air Enforcement Branch
Air, Pesticides, and Toxics
Management Division

Enclosure

cc: Mr. William Green, Esquire
123 South Calhoun Street
P.O. Box 6526
Tallahassee, Florida 32314

Turner
Brian

Hopping Boyd Green & Sams

ATTORNEYS AND COUNSELORS
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DOUGLAS S. ROBERTS
CECELIA C. SMITH
CHERYL G. STUART

OF COUNSEL
W. ROBERT FOKES

October 26, 1990

Ms. Jewell A. Harper, Chief
Air Enforcement Branch
Air, Pesticides and Toxics
Management Division
Environmental Protection Agency
Region IV
345 Courtland Street, N.E.
Atlanta, GA 30365

RE: FPL Putnam Plant
PSD/NSPS Applicability Determination

Dear Ms. Harper:

As you will recall, by letter dated March 26, 1990, our client, Florida Power & Light Company (FPL) requested an applicability determination from the Florida Department of Environmental Regulation (DER) regarding whether New Source Performance Standards (NSPS) or Prevention of Significant Deterioration (PSD) permitting requirements would apply to certain proposed changes to FPL's Putnam combined cycle power plant. We appreciate the timely response to that request contained in your letter of May 11, 1990 wherein you concluded that the proposed changes to the combustion turbines (CTs) would trigger PSD review, and that the proposed changes to the Heat Recovery Steam Generators (HRSGs) would constitute reconstruction that would trigger NSPS applicability to those components.

In light of EPA's determination, FPL has further evaluated its options for the Putnam Power Plant and has elected to forego the changes to the CTs and the related emissions increases that you found would trigger PSD review. Only the heat transfer related replacements at the HRSGs will be pursued at present. Of course, in view of the cost of those component changes, FPL acknowledges the correctness of your earlier determination that the HRSGs will be required to meet the applicable NSPS.

We have evaluated the proposed HRSG changes under applicable regulations at the request of FPL and, because they will not involve any changes in emissions from the source, we concluded that PSD review will not be triggered. As you are probably aware, the HRSGs recover heat from the CT exhaust gases and use that heat to generate steam electric energy. The HRSGs themselves do not generate emissions, with the exception of their supplemental duct burners, which can be used to raise the temperature of CT exhaust gases. (Attachments 1 and 2 depict the combined cycle unit block diagram and component relationships.) The changes proposed for the Putnam HRSGs will not involve the existing duct burners which, incidentally, will comply with NSPS; rather, the changes relate solely to the steam system and are intended to increase its reliability and efficiency. The changes include the following items:

- Replacement of steam tube modules
- Addition of tubing and replacement of steam drum internals to achieve lower steam and water velocities and reduced erosion
- Replacement of low pressure separation vessels
- Steam performance improvements to existing de-aerators
- Replacement of evaporator forced circulation pumps
- Replacement of boiler feed pump impellers and mechanical seals
- Replacement of miscellaneous steam and water piping.

It should be noted that the above changes will not affect the normal operations of the Putnam Plant units, nor will they influence the extent or priority of their utilization; thus, Plant emissions will be unaffected by the changes.

In view of the continued importance of this project and its scheduling constraints, we respectfully request confirmation by EPA of our interpretation of the

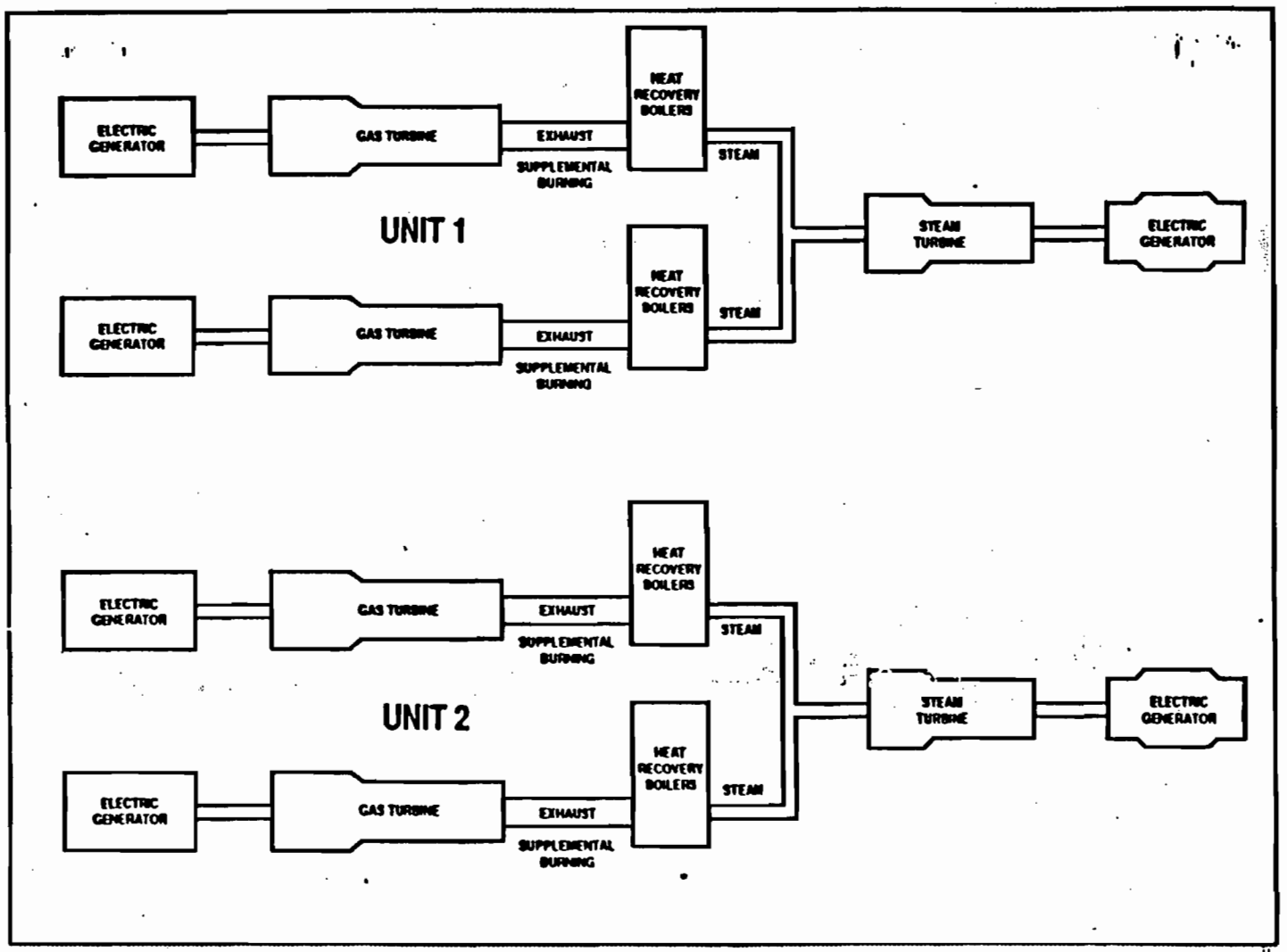
nonapplicability of PSD permitting to the facts outlined above.

Once again, we thank you for your earlier timely response in this matter and look forward to your continued guidance. Of course, please do not hesitate to call if you have any questions in this matter.

Sincerely,

William H. Green
Angela R. Morrison

WHG/wrn:ltrharper
cc: Greg Worley, EPA Air Enforcement Branch
Clair Fancy, Chief, Bureau of Air Regulation, DER
Dr. Martin A. Smith, FPL



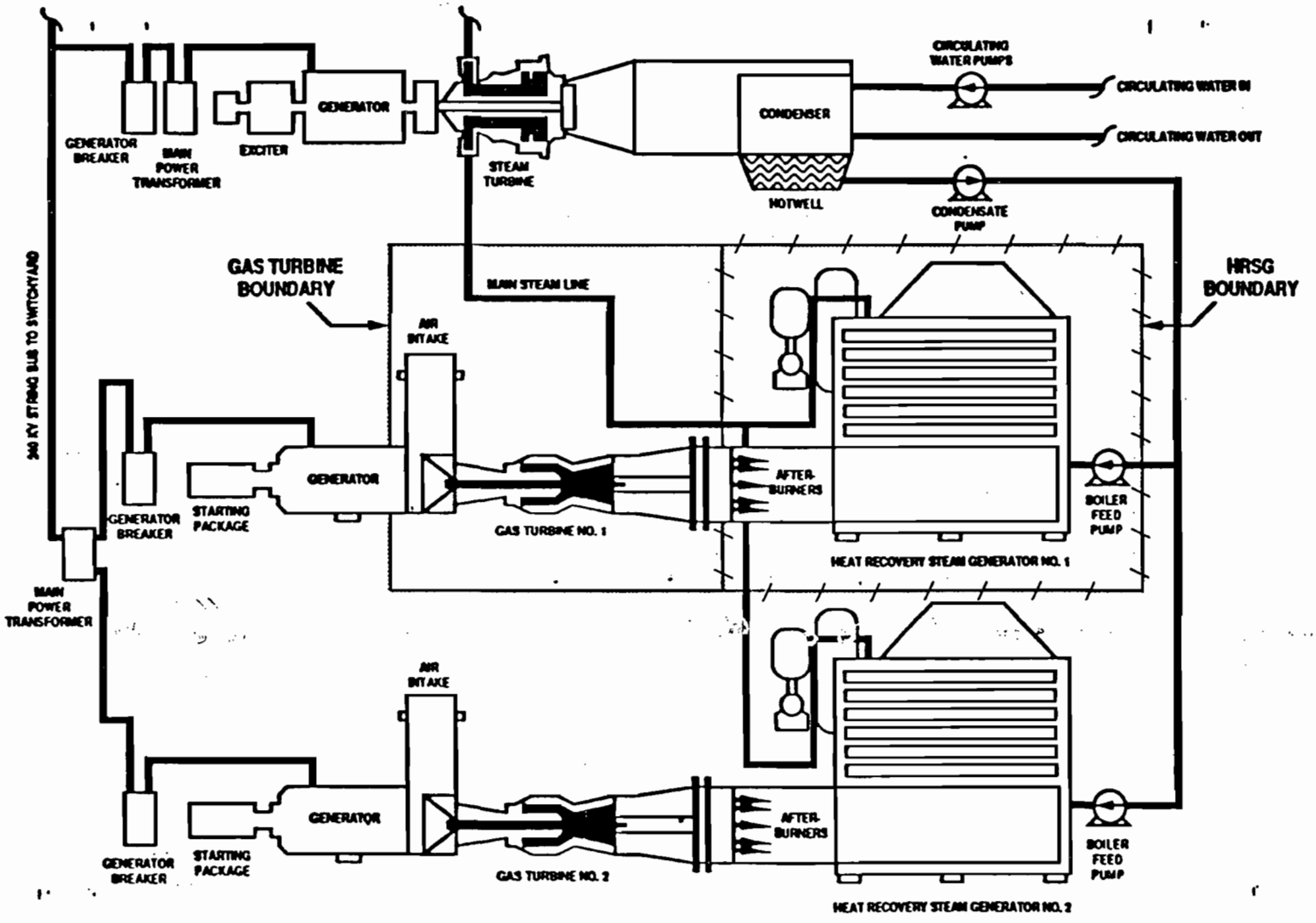
Attachment 1

FPL PUTNAM COMBINED CYCLE POWER PLANT
(Block Diagram)

KBN

Attachment 2

KBN 10/PUTNAM.1



FPL PUTNAM PLANT COMBINED CYCLE UNIT

KBN

① Prepare BACT for Small boilers (cost effectiveness like small boilers) ② modify this document

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

IN RE:

FLORIDA POWER & LIGHT COMPANY PUTNAM POWER PLANT; modification of terms and conditions of Certification No. PPS-74-01, Putnam County, Florida,

Petitioner.

RECEIVED
MAR 18 1991
DER - BAQM

REQUEST FOR MODIFICATION OF CONDITIONS OF CERTIFICATION

1. FLORIDA POWER & LIGHT COMPANY (FPL) hereby requests modification of the Conditions of Certification for the Putnam Power Plant pursuant to Section 403.516(1)(b), Florida Statutes, and Site Certification Condition No. 32, as more particularly described herein.

Background

2. On October 16, 1974, FPL was issued Site Certification by the Board of the Department of Pollution Control authorizing the construction and operation of its "Putnam Plant," subject to certain Conditions of Certification.

3. The Putnam Plant Conditions of Certification were previously modified pursuant to Section 403.516, Florida Statutes, on May 18, 1976; September 26, 1978; May 20, 1980; February 21, 1984; and May 15, 1986.

Modification Request

4. Modifications to the conditions are needed to incorporate new source performance standards applicable to the heat recovery steam generators as a result of proposed refurbishments and to allow the construction activities which are necessary for those refurbishments to occur. The proposed refurbishments will increase the steam system's reliability and efficiency by allowing more electrical energy to be generated from the same amount of fuel. The modification of conditions would allow FPL to reconstruct and operate the heat recovery steam generators in a manner consistent with the conditions set forth below. Certain clarifying modifications and modifications reflecting current Department of Environmental Regulation programs also need to be made.

5. Accordingly, FPL hereby requests modifications to Site Certification Conditions 1, 2, 4, 5, 9, 12, 31, and 32 and the addition of a new Condition No. 30 as follows (proposed new language is shown underlined):

6. Condition No. 1: FPL requests expansion of Condition No. 1 to cover the proposed heat recovery steam generator (HRSG) system improvements and to clarify which requirements apply to the auxiliary boilers, combustion turbines, and HRSGs.

1. A. Auxiliary Boilers:

Fuel consumed should not contain more than 0.7% sulfur nor should stack emissions exceed those specified in chapter 17-2.600(6).

B. Combustion Turbines:

(i) Only fuel oil with not more than 0.7 percent sulfur content or natural gas may be fired.

(ii) Opacity shall not exceed 20 percent opacity except for one 6-minute period per hour during which opacity shall not exceed 27 percent.

C. Heat Recovery Steam Generators:

(i) Only the following fuels may be fired: (a) natural gas or (b) fuel oil with not more than 0.5 percent sulfur content by weight.

(ii) Emissions shall not exceed the following limitations:

(a) Opacity emissions shall not exceed 20 percent (6-minute average), except for one 6-minute period per hour of not more than 27 percent.

(b) Excess opacity resulting from malfunctions is permitted provided that best operational practices to minimize emissions are adhered to and the duration of excess opacity shall be minimized, but in no case exceed two hours in any 24-hour period unless specifically authorized by the Department for longer duration.

(c) Excess opacity resulting from startup or shutdown is permitted, provided that best operational practices to minimize emissions are adhered to and the duration of excess emissions shall be minimized.

(d) Nitrogen oxides emissions shall not exceed 0.2 lb/mmBtu heat input when natural gas or distillate oil is combusted or 0.4 lb/mmBtu heat input when residual oil is combusted. Compliance is determined on a 30-day rolling average basis. The nitrogen oxides standard applies at all times, including periods of startup, shutdown, or malfunction.

(iii) To determine compliance with the emissions limit for sulfur dioxide, receipts from the fuel supplier shall be maintained for each shipment which certify that the oil complies with the specifications for fuel oil numbers 1 and 2, as defined by the American Society of Testing and

Materials in ASTM D396-78, Standard Specifications for Fuel Oils. Quarterly reports based on such receipts shall be submitted to the Northeast District Office certifying that only oil containing no more than 0.5 weight percent sulfur or oil that has a sulfur dioxide emission rate equal to or less than 0.5 lb/mmBtu heat input and which meets the ASTM specifications was combusted in the duct burners during the preceding quarter. All quarterly reports shall be postmarked by the 30th day following the end of each calendar quarter.

(iv) To determine compliance with the opacity limit, Method 9 shall be used as required under 40 CFR § 60.8 (July 1, 1990) Edition). The initial performance test shall be performed within 60 days after achieving the maximum production rate for the HRSGs, but not later than 180 days after initial startup. Annual compliance tests shall be performed at least once during each federal fiscal year (October 1 - September 30). Thirty (30) days prior to the initial compliance test and fifteen (15) days prior to each annual compliance test, notice shall be provided to the Northeast District Office. The results of each test shall be submitted to the Northeast District Office within 45 days of test completion. Other Department-approved methods may be used for compliance testing after prior Department approval.

(v) To determine compliance with the nitrogen oxides emissions limit, FPL shall conduct the performance test described in 40 CFR § 60.46b(f) (July 1, 1990 Edition) and required under 40 CFR § 60.8 (July 1, 1990 Edition) using the nitrogen oxides and oxygen measurement procedures in 40 CFR Part 60 Appendix A, Method 20 (July 1, 1990 Edition). The initial compliance test shall be performed within 60 days after achieving the maximum production rate for the HRSGs, but not later than 180 days after initial startup. Annual compliance tests shall be performed at least once during each federal fiscal year (October 1 - September 30). Thirty (30) days prior to the initial compliance test and fifteen (15) days prior to each annual compliance test, notice shall be provided to the Northeast District Office. The results of each test shall be submitted to the Northeast District Office within 45 days of test completion.

(vi) FPL shall maintain records of opacity and must submit excess emissions reports for any calendar quarter during which there are excess emissions from the HRSGs. If there are no excess emissions during the calendar quarter, FPL shall submit a report stating that no excess emissions occurred during the quarterly reporting period. The quarterly reports shall be submitted to the Department's Northeast District Office.

(vii) FPL shall satisfy any applicable nitrogen oxides emissions records maintenance requirements set forth in 40 CFR § 60.49b(g) (July 1, 1990 Edition).

(viii) All records required under this condition shall be maintained by FPL for a period of two years following the date of such record.

Rationale

FPL proposes to make changes to the heat recovery steam generators (HRSGs) as outlined in the attached letters dated March 26, 1990, to the Department of Environmental Regulation[1] (Exhibit 1), and dated October 26, 1990, to the Environmental Protection Agency (EPA) (Exhibit 2). The proposed changes to the existing HRSGs will make them subject to the regulatory requirements, including emission limitations, that apply to new HRSGs. (See letter from EPA dated May 9, 1990, attached as Exhibit 3.) EPA has also determined that because the potential emissions from the plant will not be increased by the proposed changes, the

[1]FPL is not proposing to make any changes to the combustion turbines at this time. Accordingly, the Environmental Protection Agency has determined that the HRSG changes above will not trigger the need for a Prevention of Significant Deterioration (PSD) construction permit (see Exhibit 3).

final refurbishment plan will not require Prevention of Significant Deterioration (PSD) preconstruction review. (See letter from EPA dated December 3, 1990, letter to EPA dated December 7, 1990, and letter from EPA dated December 13, 1990, attached as Exhibits 4, 5, and 6, respectively.) A description of the proposed changes is included in a construction application form that is attached as Exhibit 7 in order to update the Department's files.

The changes to Condition No. 1 reflect standards of performance for new steam generating units (HRSGs) reconstructed after June, 1984, and which have a heat input capacity of greater than 100 mmBtu/hr, but not more than 250 mmBtu/hr, Subpart Db of 40 CFR Part 60, specifically, 40 CFR § 60.43b(f), 60.46b(d), 60.48b(a) (opacity); 40 CFR § 60.43b(g) (excess emissions); 40 CFR § 60.42b(d), (j) (sulfur dioxide); 40 CFR § 60.44b(4), 60.46b(f), 60.48b(h) (nitrogen oxides); 40 CFR § 60.49b (reporting and record keeping); 40 CFR § 60.8 (performance tests); emissions standards contained in Rules 17-2.250 and 17-2.600(6), Florida Administrative Code (excess emissions); and performance testing requirements of Rule 17-2.700, Florida Administrative Code.

The proposed language regarding auxiliary boilers is intended to clarify the Conditions of Certification and does not reflect any physical or operational change to the Putnam Plant. The existing Putnam Plant includes two auxiliary

boilers that produce auxiliary steam needed to operate several plant auxiliary systems, including, but not limited to, fuel treatment, steam turbine seals and steam jet air ejectors. These auxiliary boilers were part of the design of the plant at the time of its original Site Certification in October, 1974. Construction commenced on the foundations for the auxiliary boilers, as well as other portions of the plant, prior to January 6, 1975. The auxiliary boilers have operated as an integral part of the plant since it was put into service in 1978. Because the Conditions of Certification do not explicitly address the auxiliary boilers, FPL proposes that several of the conditions be clarified to indicate which requirements apply to the auxiliary boilers and which apply to the combined cycle units. (See revised language proposed for Conditions 1, 2 and 4.)

7. Condition No. 2: FPL proposes to revise the stack height and wind monitoring provisions as follows:

> 2. Stack Height: Minimum stack heights for the paired combined cycle unit exhaust stacks shall be 71 feet above grade. Stacks with a height of at least 150 feet shall be constructed if monitoring data per Condition 5 indicates ambient air standards have been ~~would be~~ violated.
>
> Wind Restriction: The permittee will burn fuel oil containing no more than 0.50% sulfur when sustained winds exceed 20 miles per hour for any continuous period of three hours or longer.

Wind Monitoring: The permittee shall measure wind velocity and wind direction at hourly intervals in the plant vicinity, only for those hours during which combustion turbines at either of the combined cycle units of the plant operates on oil with greater than 0.5 percent sulfur content. Wind data for the hours during which oil with greater than 0.5 percent sulfur content was burned each month, or, if applicable, a statement that no oil with greater than 0.5 percent sulfur content was burned during that month, shall be reported to the Northeast District Assistant Deputy Secretary Manager of the Department by the last day of the each month following each the reporting period. Wind velocity and direction measurements required by this paragraph shall be made in accordance with recognized methods and procedures.

Do we want to leave this in

Rationale

These changes would: (a) clarify that the stack height condition applies only to the combined cycle units and not to the auxiliary boilers; and (b) make the wind "monitoring" provision more consistent with the wind "restriction" provision of Condition No. 2, which is intended to ensure that the combustion turbine fuel sulfur content is restricted to a maximum of 0.5 percent when sustained wind speeds exceed 20 miles per hour.

8. Condition No. 4: FPL proposes to change the continuous monitoring requirements as follows:

4. The permittee shall install and operate continuous monitoring devices on one of the paired combined cycle unit exhaust stacks for each unit for the following: Opacity, Nitrogen Oxides. Records of such monitoring shall be available for inspection.

Rationale

This change would clarify that the continuous emissions monitor requirements apply to one stack at each combined cycle unit and not to the auxiliary boilers.

9. Condition No. 5: FPL proposes to change the date for submission of monitoring reports, as follows:

> 5. The permittee shall install and operate continuously for a 24-hour period every six days, two ambient air, West-Gaeke, monitoring devices for sulfur dioxide and two suspended particulate sampling devices. The location of these ambient air samples shall be determined by consultation with the Northeast District Assistant Deputy Secretary **Manager** of the Department. The data collected will be reported to the Northeast District Assistant Deputy Secretary **Manager** quarterly by the 45th day following the end of ~~last day of each month following~~ the reporting period, utilizing the SAROAD or other mutually acceptable format.

Rationale

With this change, the air quality monitoring reports will be due within 45 days after the end of the quarterly reporting period, consistent with Rule 17-2.700(7)(b), Florida Administrative Code, the reporting requirement for compliance tests.

10. Condition Nos. 7, 9 and 12: FPL proposes changes to clarify the District's title, as follows:

> 7. Monitoring shall be conducted at the frequencies listed below on the following waste streams, where applicable: Cooling Tower Blowdown, West EP Pond, North Fuel Oil Tank Farm, and the Physical Chemical Treatment System. Each of these

waste streams discharge to the St. Johns River. Cooling Tower Blowdown and the Physical Chemical Treatment System discharge may discharge simultaneously or separately through the same pipe. Monitoring reports shall be submitted quarterly to the Department's Northeast District Assistant Deputy Secretary **Manager**:

* * *

9. 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 provide prompt notification to the Assistant Deputy Secretary of the Northeast District ~~Lower St. Johns Subdistrict~~ **Manager** of the Department by telecommunication sent by 3:00 p.m. of the next normal work day following the occurrence of such noncompliance, and shall submit the following information in writing, within ninety-six (96) hours of becoming aware of such conditions:

(a) [No change]

(b) [No change]

* * *

12. Bypassing: Any diversion or bypass of facilities necessary to maintain compliance with the terms and conditions of this certification is prohibited, except (i) where unavoidable to prevent loss of life or severe property damage, or (ii) where excessive storm drainage or runoff would damage any facilities necessary for compliance with the conditions of this certification. The permittee shall promptly notify the Assistant Deputy Secretary of the Northeast District ~~Lower St. Johns Subdistrict~~ **Manager** of the Department of each such diversion or bypass in accordance with the procedure contained in Condition 9 of this certification.

Rationale

These changes would update the correct titles of the appropriate Department staff and District to whom FPL must provide any notices of noncompliance, reports, or correspondence.

11. FPL proposes to incorporate the plant's Groundwater Monitoring Plan as a new Condition No. 30, as follows:

> 30. The Groundwater Monitoring Plan for the Putnam Power Plant, approved on February 25, 1985, and on file with the Department, is incorporated by reference.
>
> Copies of any subsequent revisions to the Groundwater Monitoring Plan which are approved by the Department's Northeast District Office shall be filed with the Department's Siting Coordination Office and provided to the parties hereto by certified mail, and, in the absence of a request for a hearing thereon within 15 days of receipt of such revision, the revisions shall become part of this certification without the need for further filing or the submission of filing fees.

Rationale

The Groundwater Monitoring Plan for the Putnam Power Plant was proposed pursuant to Rule 17-28.700, Florida Administrative Code, and approved by the Department of Environmental Regulation in 1985. Section 403.511, Florida Statutes, provides that a power plant certified under the Act must comply with rules adopted by the Department subsequent to the certification which prescribe new or stricter criteria. The statute further provides that such rules operate as automatic modifications to

certifications. The Department issued rules requiring a groundwater monitoring plan subsequent to the certification of the Putnam Power Plant. FPL submitted its Groundwater Monitoring Plan for the Putnam Plant in May of 1984, and the Plan was approved by the Department in February of 1985. A copy of the Groundwater Monitoring Plan for the Putnam Plant is attached as Exhibit 8. The Conditions of Certification should therefore be modified to incorporate the plan.

FPL may seek additional revisions to its Groundwater Monitoring Plan at some future date. The Department and FPL should be able to make such revisions without going through a formal modification procedure, in the absence of the objection of a party. The Northeast District would be authorized to approve such minor revisions without a formal modification of conditions unless a party were to request a hearing within fifteen (15) days of receipt of the revisions. This would simplify the process for minor changes to the Groundwater Monitoring Plan.

12. Condition Nos. 30, 31, and 32: **FPL proposes to renumber these conditions as follows:**

31. ~~30~~. [No change]
32. ~~31~~. [No change]
33. ~~32~~. [No change]

Rationale

These changes are to reflect the renumbering of Condition Nos. 30, 31, and 32 to Nos. 31, 32, and 33 because of the addition of a new Condition No. 30.

13. The Conditions of Certification, as modified, are attached as Exhibit 9.

Request for Relief

WHEREFORE, Petitioner respectfully requests that:

A. The Department give notice and opportunity for hearing in accordance with Chapter 403 and Chapter 120, Florida Statutes; Petitioner will provide notice to all parties to the original site certification proceeding in the above-styled case of this request to modify certain terms and conditions of Site Certification No. PPS-74-01, in accordance with Florida Administrative Code Rule 17-17.211(4);

B. The Secretary of the Department approve the modifications described herein; and

C. The Secretary of the Department grant such other relief as may be appropriate.

Respectfully submitted,

HOPPING BOYD GREEN & SAMS

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123 S. Calhoun Street
Post Office Box 6526
Tallahassee, FL 32314
(904) 222-7500

Attorneys for Petitioner,
Florida Power & Light Company

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that copies of the foregoing Request for Modification of Conditions of Certification were furnished to the following by United States Mail, postage prepaid, this 13th day of March, 1991:

Steven Pfeiffer, General Counsel
Department of Community Affairs
The Rhyne Building, Room 138
2740 Centerview Drive
Tallahassee, FL 32399-2100

Susan F. Clark, General Counsel
Florida Public Service Commission
Fletcher Building
101 E. Gaines Street
Tallahassee, FL 32399-0850

John Thompson, Chairman
Putnam County Board of
County Commissioners
Post Office Box 758
Palatka, FL 32178

Attorney

bjh/PutnamReqC

3/20/90 Letter to Dale Dwachtman

Letter to
Tarachtmann

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ROBERT P. SMITH, JR.

KATHLEEN BLIZZARD
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RICHARD W. MOORE
DIANA M. PARKER
LAURA BOYD PEARCE
MICHAEL P. PETROVICH
DAVID L. POWELL
DOUGLAS S. ROBERTS
CECELIA C. SMITH
SAM J. SMITH
CHERYL G. STUART

OF COUNSEL
W. ROBERT FOKES

March 26, 1990

Dale S. Twachtmann, Secretary
Florida Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

RE: PSD and NSPS Determination Request

Dear Secretary Twachtmann:

Florida Power & Light (FPL) is proposing to improve its Putnam Combined-Cycle Power Plant to achieve greater reliability, capability and efficiency. These improvements require review by the Department under its New Source Performance Standards (NSPS) and potentially under its Prevention of Significant Deterioration (PSD) responsibilities. FPL has had two preliminary meetings with Clair Fancy and Buck Oven of your staff, and now wishes to formally request a determination from the Florida Department of Environmental Regulation (DER) for the project, pursuant to 40 CFR §60.5. In particular, we seek the Department's concurrence, in view of the proposed work at the Putnam Plant, that the Heat Recovery Steam Generator (HRSG) components of the plant will be "reconstructed" and thus subject to the 40 CFR, Part 60, Subpart Db NSPS, and that the combustion turbine components will not be subject to the 40 CFR, Part 60, Subpart GG NSPS for nitrogen oxides (NO_x). FPL further requests concurrence that the facility will not be subject to PSD review.

BACKGROUND

FPL's Putnam Power Plant consists of two combined-cycle units each comprised of two combustion turbines, two afterburners, and two HRSGs. (See Attachment 1.) The Putnam Plant was the first power plant licensed under Chapter 403, Sections 403.501-403.517, Florida Statutes, the Florida Electrical Power Plant Siting Act (PPSA). Certification under the PPSA was issued in October, 1974. In December, 1975 the plant was issued a NPDES permit from EPA. Commercial operation of the Putnam Plant units began in August, 1977 (Unit 2) and April, 1978 (Unit 1).

EXHIBIT 1

The Putnam Plant was designed to burn distillate oil, residual oil, and natural gas. The Plant operated exclusively on oil until 1981 when natural gas was added to the fuel mix and when rotor improvements allowed combustion of more distillate oil and natural gas fuel at an improved heat rate and marginally increased power output on the turbine side. The maximum design and maximum potential emission rate, reflecting use of residual oil, remained unchanged as a result of the work done in 1981-82, and actual emissions in terms of both the kg/hr rate and annual emissions decreased, since the plant has primarily operated on gas and distillate oil following the turbine efficiency improvements. DER was nevertheless apprised of the program to burn natural gas as a primary operational fuel, and DER subsequently modified the Site Certification to relax wind speed monitoring requirements when gas was being burned.

PROPOSED WORK

FPL is now proposing a modernization program at the Putnam Plant which would increase the plant's power output at a reduced heat rate. Steam cycle performance will be enhanced by complete tube bundle replacement in the existing HRSGs. A series of components will also be upgraded in the combustion turbines. The project promises to increase base load net output by 29.6 MW per unit, thus raising the total plant capability by 59.2 MW net generation.[1/] The base load unit heat rate is expected to improve by an average of 542 BTU/kwh, thereby potentially ranking Putnam Plant as number one in the United States for heat rate (efficiency) performance.

The greatest potential regulatory impact on the proposed project is related to nitrogen oxides (NO_x) emissions. If the hardware changes resulted in an increase in short-term or long-term nitrogen oxide (NO_x) emissions from the combustion turbines, stringent NSPS or possibly even more stringent best available control technology (BACT) emission controls might be imposed, thereby making the project

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1/ It should be noted that these improvements will not require an increase in the maximum operating capacity of the existing electric generators at the plant. See §403.506(2).

economically infeasible. FPL proposes to avoid increased NO_x emissions by the installation of a water injection system and the acceptance of a federally enforceable NO_x emissions limitation for the combustion turbines.

REGULATORY ANALYSIS

Your review of this request will involve a determination of the applicability or non-applicability of various NSPS and PSD regulatory requirements. Our analysis of these requirements for the project follows.[2/]

NSPS

Heat Recovery Steam Generators (HRSGs)

40 CFR, Part 60, Subpart Db is presumed to be applicable for the proposed changes to the Putnam Plant HRSGs because the fixed capital cost of the components being replaced in the HRSGs exceeds 50 percent of the fixed capital cost that would be required to construct comparable entirely new HRSGs. See 40 CFR §60.15.

This letter constitutes notice under 40 CFR §60.15(d), that under the proposed plan the HRSGs will be reconstructed and thus subject to NSPS. It is our understanding that the following standards will apply under Subpart Db:

Pollutant	Emission Standard
Particulate Matter 40 CFR §60.43b	No standard when burning very low sulfur oil. (≤0.5% by weight) See 54 Fed. Reg. 51818
Visible Emissions 40 CFR §60.43b(f)	20% opacity, except for one 6-minute period per hour of up to 27% opacity

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2/ This analysis does not cover the current conditions of site certification, which will be discussed in a subsequent letter.

Sulfur Dioxides 40 CFR §60.42b(j)	0.5 lbs/10^6 BTU heat input or 0.5% sulfur by weight
Nitrogen Oxides 40 CFR §60.44b(a)(4)	0.2 lbs/10^6 BTU heat input (gas or distillate oil); 0.4 lbs/10^6 BTU residual oil

The Company will burn only very low sulfur oil (maximum 0.5% sulfur content) or natural gas in the HRSGs. Therefore, the HRSGs will not be subject to performance and compliance testing for sulfur dioxide under 40 CFR §60.45b(j), or emission monitoring requirements for sulfur dioxide under 40 CFR §60.47b(f), provided that fuel receipts are obtained from the fuel supplier which certify that the oil meets the definition of distillate oil as defined in 40 CFR §60.41b. Compliance with the emission limit for nitrogen oxides will be determined by performance tests using procedures in 40 CFR Part 60, Appendix A, Method 20. See 40 CFR §60.46b(f). No continuous monitoring system is required to measure nitrogen oxides. 40 CFR §60.48b(h). The plant will operate a continuous monitoring system for measuring the opacity of emissions discharged to the atmosphere and record the output of the system. 40 CFR §60.48b(a).

Combustion Turbines

For the combustion turbines, the potentially applicable standards are found in 40 CFR Part 60, Subpart GG, which contains NSPS for NO_x and SO_2. Subpart GG, does not currently apply to the Putnam Plant because construction of the combustion turbines commenced before October 3, 1977. Subpart GG could apply to the turbines if the proposed changes caused them to be "reconstructed" sources (see above discussion for HRSGs). However, on the basis of manufacturer's price estimates, fixed capital cost of those components that would be replaced for each combustion turbine as part of the modernization program is approximately $2.8 million, whereas the cost of a comparable entirely new combustion turbine is estimated to range between $15 and $20 million dollars. See Attachment 2 (depicting the components included in the cost analysis). The capital cost for the combustion turbines work is less than 20 percent of the replacement value, well below the 50 percent range needed to constitute reconstruction.

Under EPA regulation 40 CFR §60.14, adopted by reference in Florida Administrative Code Rule 17-2.660(2)(f), a source will be "modified" if physical or operational changes to it would increase, or initiate for the first time, emissions (in kg/hr) to the atmosphere of any pollutant to which a standard applies; NSPS would be triggered for each such pollutant.

Anticipated differences in the combustion turbine emissions at the Putnam Plant are depicted in Table 1. (Table 2, Attachment 3, provides estimated short-term emissions for the proposed changes for all pollutants.) Water injection, designed to achieve a 100 ppm NO_x emissions limit, will preclude any increase in nitrogen oxides emissions after the proposed changes. The installation of water injection capability to reduce air pollutants is exempt from the definition of modification under 40 CFR §60.15(e)(5).

Table 1. Emissions Rates (kg/hr) Per Combustion Turbine Before and After the Proposed Changes

FUEL	POLLUTANT	BEFORE	AFTER
Residual Oil	NO_x	433	433
	SO_2	279	279
Distillate Oil	NO_x	388	191
	SO_2	204	225
Natural Gas	NO_x	233	177
	SO_2	0.26	0.28

The proposed changes would theoretically increase the short-term (kg/hr) emission rate for SO_2. Therefore, the combustion turbines will be subject to the 40 CFR Part 60, Subpart GG NSPS standard for SO_2 which limits the sulfur content of fuel to 0.8% sulfur by weight. The combustion turbines share a common fuel storage with the HRSG's afterburners. The 40 CFR Part 60, Subpart Db, SO_2 NSPS standard applicable to the reconstructed HRSGs will require FPL to reduce its currently allowed fuel sulfur content from 0.7% to 0.5% (see HRSG discussion above). Thus, the combustion turbines will meet the Subpart GG SO_2 standard.

FPL will monitor the sulfur fuel content of its Putnam Plant fuel by maintaining fuel receipts from the fuel supplier as required under Subpart Db.

PSD

Although no PSD permit was required for the construction of the Putnam Plant because construction commenced prior to the June 1, 1975 applicability date of the PSD regulations, current DER regulations require a PSD permit when a major facility is modified such that it experiences a significant net increase in emissions of any pollutant regulated under the Clean Air Act. Fla. Admin. Code R. 17-2.500(2)(d)(4)(ii)(1989)[3/]

In order to determine whether a source will experience a significant net increase in actual emissions of a regulated pollutant, emissions from the entire plant site before and after the proposed work must be examined on a tons-per-year basis. PSD review will only be triggered for those pollutants for which the source will experience a significant net emission increase, after taking into account contemporaneous creditable increases and decreases in actual emissions. Fla. Admin. Code R. 17-2.500(2)(e). The pre-alteration emission rate for the Putnam Plant is listed in Table 3, Attachment 4. The pre-alteration actual emission rate was calculated by computing the average rate, in tons per year, at which the Putnam Plant actually emitted the pollutant during the two-year period preceding the proposed change (1988-89). Actual operating conditions and fuel usage were used in the computation. Also displayed in Table 3. for comparison are the emissions that would have resulted if 100% residual oil had been burned in 1988-89;[4/] the proposed changes will not alter these emissions. Also

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3/ See the definition of "modification" at Fla. Admin. Code R. 17-2.100(126) (1989) and "significant net emissions increase" at Fla. Admin. Code R. 17-2.500(2)(e)(2) (1989) and Table 500-2, Regulated Air Pollutants - Significant Emission Rates.

4/ At this time, the Company has no plans to burn residual oil in the future, though it wishes to retain this option.

displayed in Table 3. are the potential actual emissions of the plant for distillate oil and natural gas usage after the proposed work, assuming that reductions in NO_x emissions are made federally enforceable. Fla. Admin. Code R. 17-2.500(2)(e)4.c.(ii)(1989). The emissions were calculated assuming the same capacity factor and fuel use conditions before and after the proposed work. This approach is consistent with the recent holding of Wisconsin Electric Power Co. v. Reilly, 893 F.2d 901, 918 n.14 (7th Cir. 1990).

As Table 3. shows, NO_x emissions will decrease somewhat after the change because of water injection control. The emissions of other regulated pollutants will not significantly increase.

To further conservatively depict the effects of the proposed work to the Putnam Plant, the plant's theoretical maximum potential to emit regulated pollutants from the three fuels, before and after the proposed work, is displayed in Table 4, Attachment 5. Also, note that the plant will actually observe a decrease in emissions per megawatt as a result of being operated at a higher efficiency rate. Table 5, Attachment 6, displays the emissions rates in tons/MW of electricity produced. Table 5. shows that the proposed project will allow FPL to produce more electricity while decreasing pollutant emissions per MW.

CONCLUSION

FPL remains committed to providing its customers with improved reliability, capability and efficiency and to maintaining its concern for the environment. The changes that FPL is proposing for the Putnam Plant provide an increase in generating capability and efficiency, a decrease in the emission rate of NO_x, and minimal increases in the emission rates of other pollutants. Indeed, with water injection, the maximum NO_x emissions are projected to decrease by approximately 20% and 50% respectively for natural gas and distillate oil. FPL therefore respectfully requests that DER issue a written determination concurring with our conclusions that the changes proposed at the Putnam Plant:

(a) would constitute reconstruction of the HRSGs, thereby triggering the applicability of 40 CFR, Part 60, Subpart Db to the HRSGs;

(b) would not trigger the applicability of 40 CFR, Part 60, Subpart GG to the combustion turbines, provided that:

(i) NO_x controls (water injection) are installed so as to avoid any increase in the maximum short term emission rate (kg/hr); and

(ii) the sulfur content in distillate oil burned is limited to 0.5% by weight; and

(c) Would not trigger PSD/BACT review for the plant, provided that a federally enforceable NO_x emissions limit based upon water injection is imposed.

In view of the increased generating capacity needs projected for the State of Florida by 1992, FPL will need all generating units operational to meet demand. FPL would greatly appreciate your response to this request within the next 45 days, in order to allow construction to begin as soon as possible and thus allow the units to return to service in time to meet the projected demand. In the interim, if you have any questions or would like more information about the project, please contact us.

Thanks for your assistance in this matter.

Respectfully submitted,

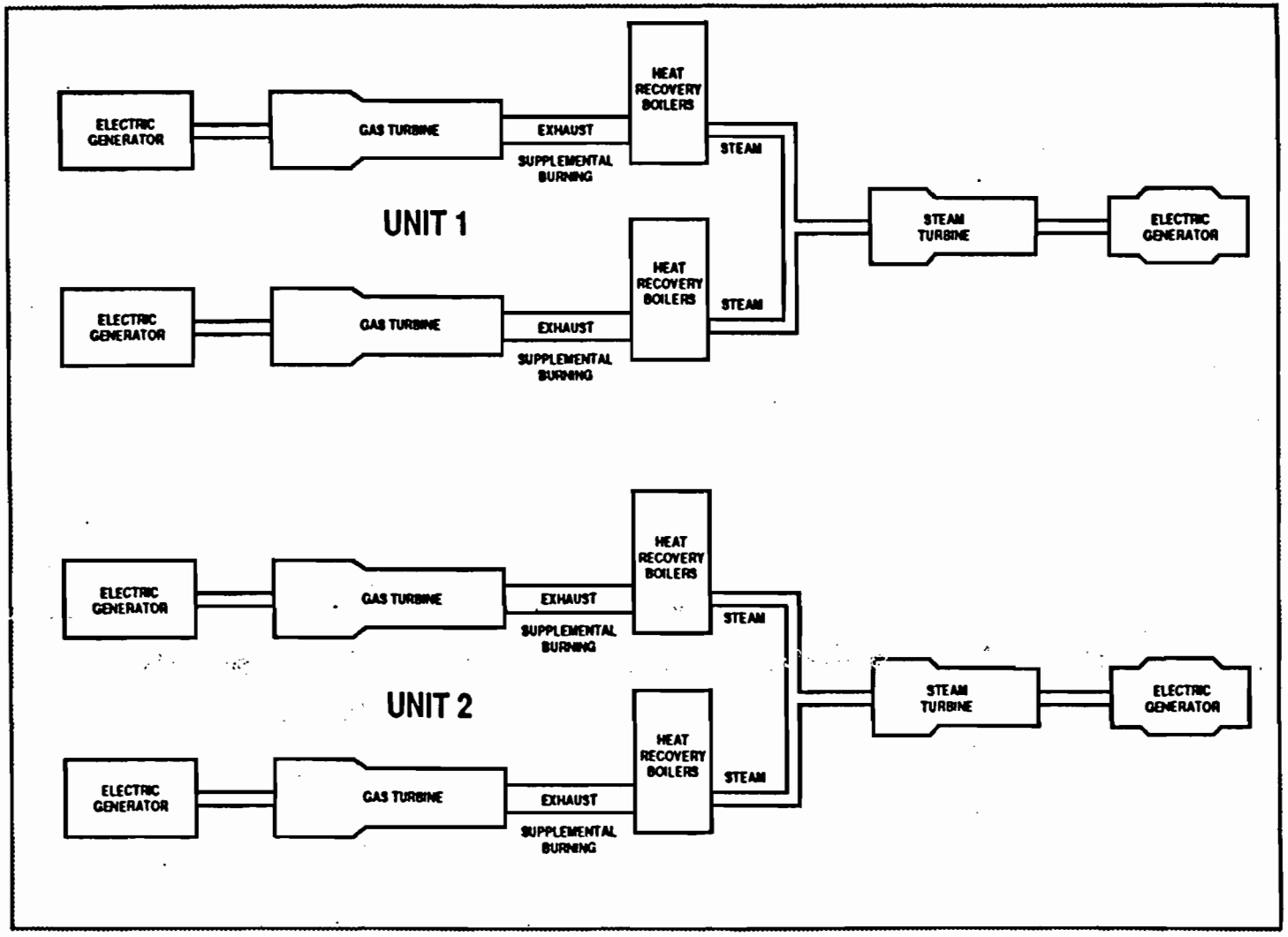
William H. Green
Sam J. Smith

Attorneys for Florida Power and Light Company

WHG/SJS/kkm/wrn:Twachtmann

cc: Mr. Hamilton S. Oven, Jr., P.E., DER
Mr. Clair Fancy, DER
Mr. Steve Smallwood, DER

Attachment -

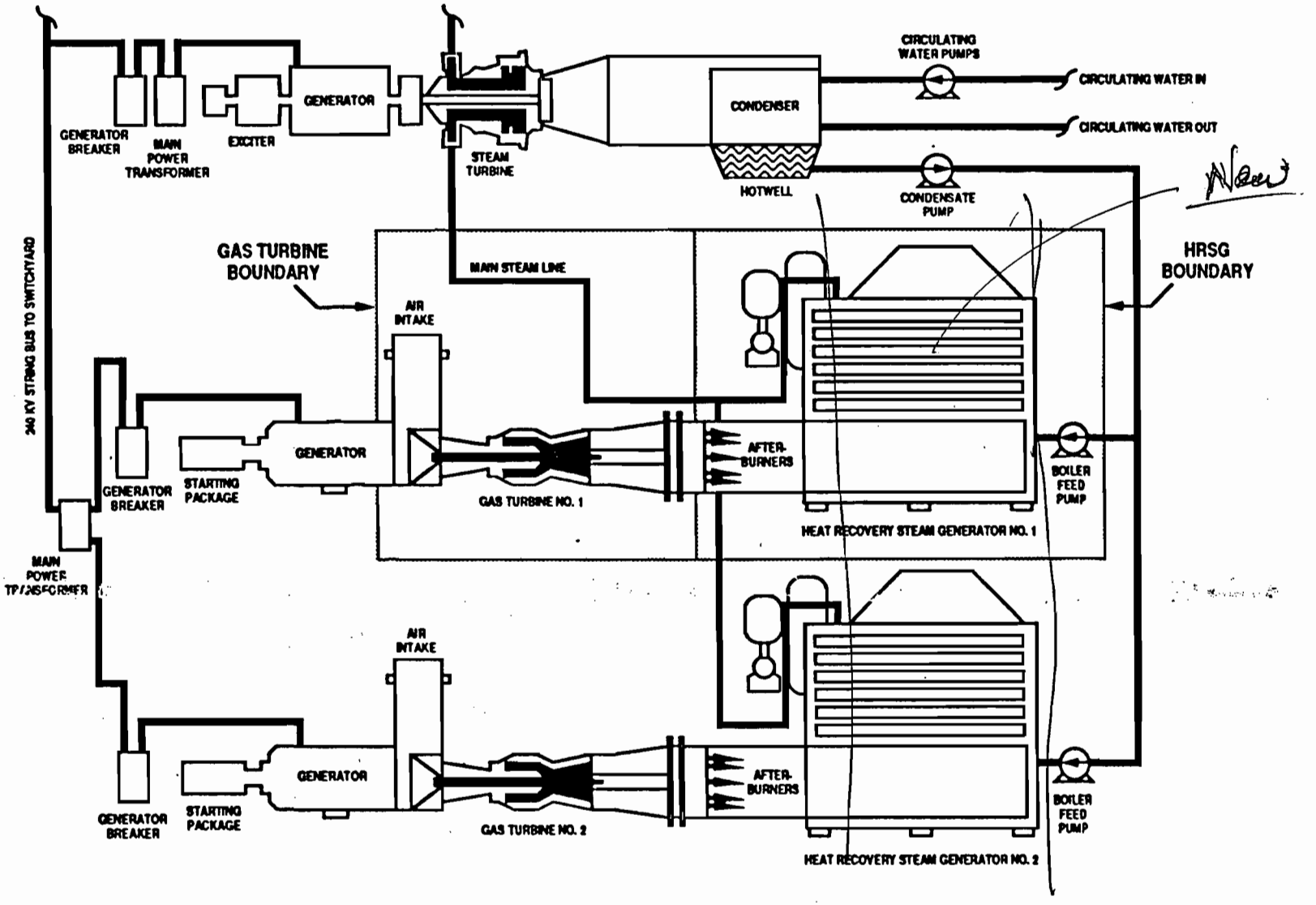


FPL PUTNAM COMBINED CYCLE POWER PLANT
(Block Diagram)

KBN

Attachment 2

KBN 10/PUTNAM.1



FPL PUTNAM PLANT COMBINED CYCLE UNIT

KBN

Attachment 3

Table 2. Estimated Emissions for Putnam Plant Changes

	CT/Natural Gas		CT/Fuel Oil		HRSG/Natural Gas		HRSG/Fuel Oil		Total - Before		Total - After	
	Before	After	Before	After	Before	After	Before	After	Natural Gas	Oil	Natural Gas	Oil
Fuel Flow (lb/hr)	44,100	47,160	47,200	52,020	8,140	8,522	8,516	8,923	52,240.0	55,716.0	53,682.0	58,943.0
Heat Input (mmBtu/hr)	968.3	1035.4	910.6	1003.6	178.7	143.2	164.3	133.6	1,147.0	1,074.9	1,178.6	1,137.2
NOx - lb/hr	490	390	853.3	420.6	17.9	14.3	23.9	19.4	507.9	877.2	404.3	440
- kg/hr	223	177	388	191	8	7	11	9				
SO2 - lb/hr	0.57	0.61	446.4	494.2	0.105	0.084	80.9	65.8	0.67	529.30	0.69	560.00
	0.26	0.28	204	225								
CO - lb/hr	6	7	5	14	7.36	5.90	5.91	4.81	13.36	10.91	12.90	18.81
PM10 - lb/hr	1	1	8	9	0.92	0.74	2.37	1.92	1.92	10.37	1.74	10.92
VOC - lb/hr	1	1	1	1	0.26	0.21	0.24	0.19	1.26	1.24	1.21	1.19
H2SO4 -lb/hr	0.046	0.049	36.1	39.8	0.008	0.007	6.5	5.3	0.05	42.62	0.06	45.09
Pb - lb/hr	0	0	0.0061	0.0089	0	0	0.0015	0.0012	0.000	0.010	0.000	0.010
Be - lb/hr	0	0	0.0023	0.0025	0	0	0.0004	0.0003	0.000	0.003	0.000	0.003
Hg - lb/hr	0.0110	0.0118	0.0027	0.0030	0.0020	0.0016	0.0005	0.0004	0.013	0.003	0.013	0.003
Fl - lb/hr	0	0	0.028	0.031	0	0	0.005	0.004	0.000	0.034	0.000	0.036
As - lb/hr	0	0	0.0038	0.0042	0	0	0.0007	0.0008	0.000	0.005	0.000	0.005

Note: Based on manufacturer design data, AP-42, or other EPA referenced documents.

Attachment 4

Table 3. Actual Emissions in tons/year

Pollutant	RESIDUAL OIL**	BEFORE NATURAL GAS	BEFORE DISTILLATE OIL	AFTER * NATURAL GAS	AFTER * DISTILLATE OIL	INCREASE/(DECREASE) NATURAL GAS	INCREASE/(DECREASE) DISTILLATE OIL
Nitrogen Oxides	9,322	4,733	69.1	3,800	35.2	(933)	(33.9)
Sulfur Dioxide	7,728	6.3	42.7	6.5	44.8	0.2	3.1
Carbon Monoxide	98.6	125	0.86	121	1.5	(4)	0.65
PM_{10}	702	17.9	0.82	16.3	0.87	(1.5)	0.06
VOC	16.7	11.7	0.097	11.3	0.095	(0.4)	(0.002)
Sulfuric Acid Mist	622	0.51	3.36	0.53	3.61	0.02	0.25
Lead	0.26	0	0.00075	0	0.00081	0	0.00006
Beryllium	0.039	0	0.00021	0	0.00023	0	0.00002
Mercury	0.030	0.122	0.00025	0.126	0.00027	0.004	0.00002
Flouride	1.063	0	0.00265	0	0.00285	0	0.00020
Arsenic	0.78	0	0.00036	0	0.00038	0	0.00003

* Water injection to 100 ppm gas/oil + allowance for FBN of 0.015% in oil
Water injected gas - 7,075 lb/hr, 0.15 lb H_2O/lb Fuel
oil - 23,410 lb/hr, 0.45 lb H_2O/lb Fuel

** Not changed by proposed work.

Attachment 5

Table 4. Potential Emissions in tons/year (8760 hrs/yr)

		BEFORE		AFTER *		INCREASE/(DECREASE)	
Pollutant	RESIDUAL OIL**	NATURAL GAS	DISTILLATE OIL	NATURAL GAS	DISTILLATE OIL	NATURAL GAS	DISTILLATE OIL
Nitrogen Oxides	17,227	8,898	15,368	7,683	7,709	(1,815)	(7,659)
Sulfur Dioxide	14,282	11.8	9,273	12.2	9,811	0.4	538
Carbon Monoxide	182	234	191	226	330	(8)	139
PM_{10}	1,297	34	182	30	191	(4)	9
VOC	30.9	22.0	21.7	21.1	20.9	(0.9)	(0.8)
Sulfuric Acid Mist	1,150	0.95	747	0.98	790	0.03	43
Lead	0.48	0	0.168	0	0.177	0	0.009
Beryllium	0.073	0	0.047	0	0.050	0	0.003
Mercury	0.055	0.228	0.057	0.235	0.060	0.007	0.003
Flouride	1.965	0	0.589	0	0.623	0	0.034
Arsenic	0.328	0	0.079	0	0.084	0	0.004

* Water injection to 100 ppm gas/oil + allowance for FBN of 0.015% in oil
Water injected gas - 7,075 lb/hr, 0.15 lb H_2O/lb Fuel
oil - 23,410 lb/hr, 0.45 lb H_2O/lb Fuel

** Not changed by proposed work.

Table 5. Emission Rate (Tons/Mw)

	BEFORE			AFTER	
Pollutant	RESIDUAL OIL*	NATURAL GAS	DISTILLATE OIL	NATURAL GAS	DISTILLATE OIL
Nitrogen Oxides	9.64	4.97	8.59	3.46	3.77
Sulfur Dioxide	7.99	0.0066	5.19	0.0059	4.79
Carbon Monoxide	0.102	0.131	0.107	0.110	0.161
PM_{10}	0.726	0.0188	0.1016	0.0149	0.0935
VOC	0.017	0.0123	0.0121	0.0103	0.0102
Sulfuric Acid Mist	0.644	0.0005	0.4179	0.0005	0.3861
Lead	0.00027	0	0.00009	0	0.00009
Beryllium	0.00004	0	0.00003	0	0.00002
Mercury	0.00003	0.00013	0.00003	0.00011	0.00003
Flouride	0.00110	0	0.00033	0	0.00030
Arsenic	0.00018	0	0.00004	0	0.00004

* Not changed by proposed work.

Letter to
EPA
10/26/90

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OF COUNSEL
W. ROBERT FOKES

October 26, 1990

Ms. Jewell A. Harper, Chief
Air Enforcement Branch
Air, Pesticides and Toxics
Management Division
Environmental Protection Agency
Region IV
345 Courtland Street, N.E.
Atlanta, GA 30365

RE: FPL Putnam Plant
PSD/NSPS Applicability Determination

Dear Ms. Harper:

As you will recall, by letter dated March 26, 1990, our client, Florida Power & Light Company (FPL) requested an applicability determination from the Florida Department of Environmental Regulation (DER) regarding whether New Source Performance Standards (NSPS) or Prevention of Significant Deterioration (PSD) permitting requirements would apply to certain proposed changes to FPL's Putnam combined cycle power plant. We appreciate the timely response to that request contained in your letter of May 11, 1990 wherein you concluded that the proposed changes to the combustion turbines (CTs) would trigger PSD review, and that the proposed changes to the Heat Recovery Steam Generators (HRSGs) would constitute reconstruction that would trigger NSPS applicability to those components.

In light of EPA's determination, FPL has further evaluated its options for the Putnam Power Plant and has elected to forego the changes to the CTs and the related emissions increases that you found would trigger PSD review. Only the heat transfer related replacements at the HRSGs will be pursued at present. Of course, in view of the cost of those component changes, FPL acknowledges the correctness of your earlier determination that the HRSGs will be required to meet the applicable NSPS.

EXHIBIT 2

We have evaluated the proposed HRSG changes under applicable regulations at the request of FPL and, because they will not involve any changes in emissions from the source, we concluded that PSD review will not be triggered. As you are probably aware, the HRSGs recover heat from the CT exhaust gases and use that heat to generate steam electric energy. The HRSGs themselves do not generate emissions, with the exception of their supplemental duct burners, which can be used to raise the temperature of CT exhaust gases. (Attachments 1 and 2 depict the combined cycle unit block diagram and component relationships.) The changes proposed for the Putnam HRSGs will not involve the existing duct burners which, incidentally, will comply with NSPS; rather, the changes relate solely to the steam system and are intended to increase its reliability and efficiency. The changes include the following items:

- Replacement of steam tube modules
- Addition of tubing and replacement of steam drum internals to achieve lower steam and water velocities and reduced erosion
- Replacement of low pressure separation vessels
- Steam performance improvements to existing de-aerators
- Replacement of evaporator forced circulation pumps
- Replacement of boiler feed pump impellers and mechanical seals
- Replacement of miscellaneous steam and water piping.

It should be noted that the above changes will not affect the normal operations of the Putnam Plant units, nor will they influence the extent or priority of their utilization; thus, Plant emissions will be unaffected by the changes.

In view of the continued importance of this project and its scheduling constraints, we respectfully request confirmation by EPA of our interpretation of the

nonapplicability of PSD permitting to the facts outlined above.

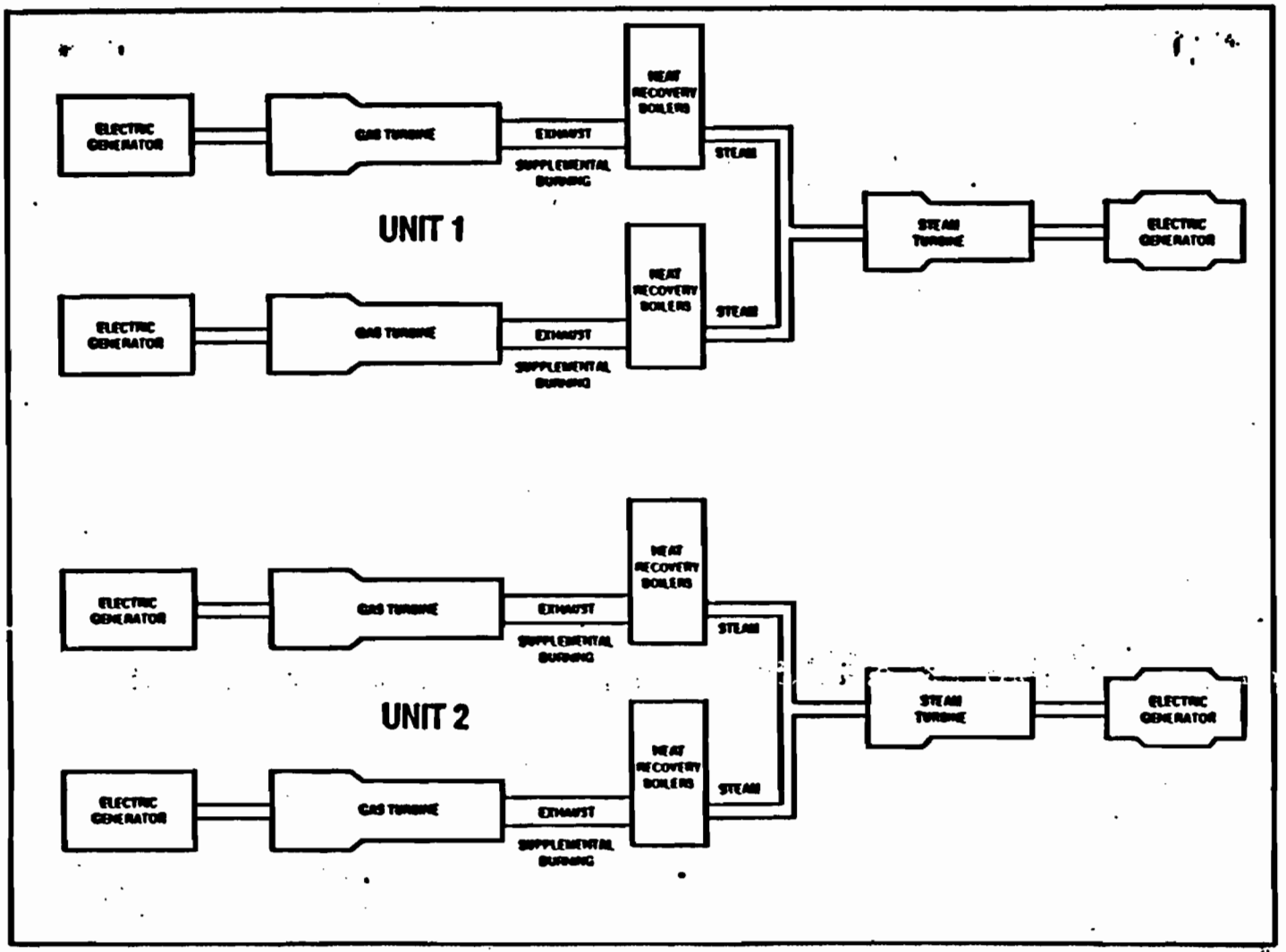
Once again, we thank you for your earlier timely response in this matter and look forward to your continued guidance. Of course, please do not hesitate to call if you have any questions in this matter.

Sincerely,

William H. Green
Angela R. Morrison

WHG/wrn:ltrharper
cc: Greg Worley, EPA Air Enforcement Branch
Clair Fancy, Chief, Bureau of Air Regulation, DER
Dr. Martin A. Smith, FPL

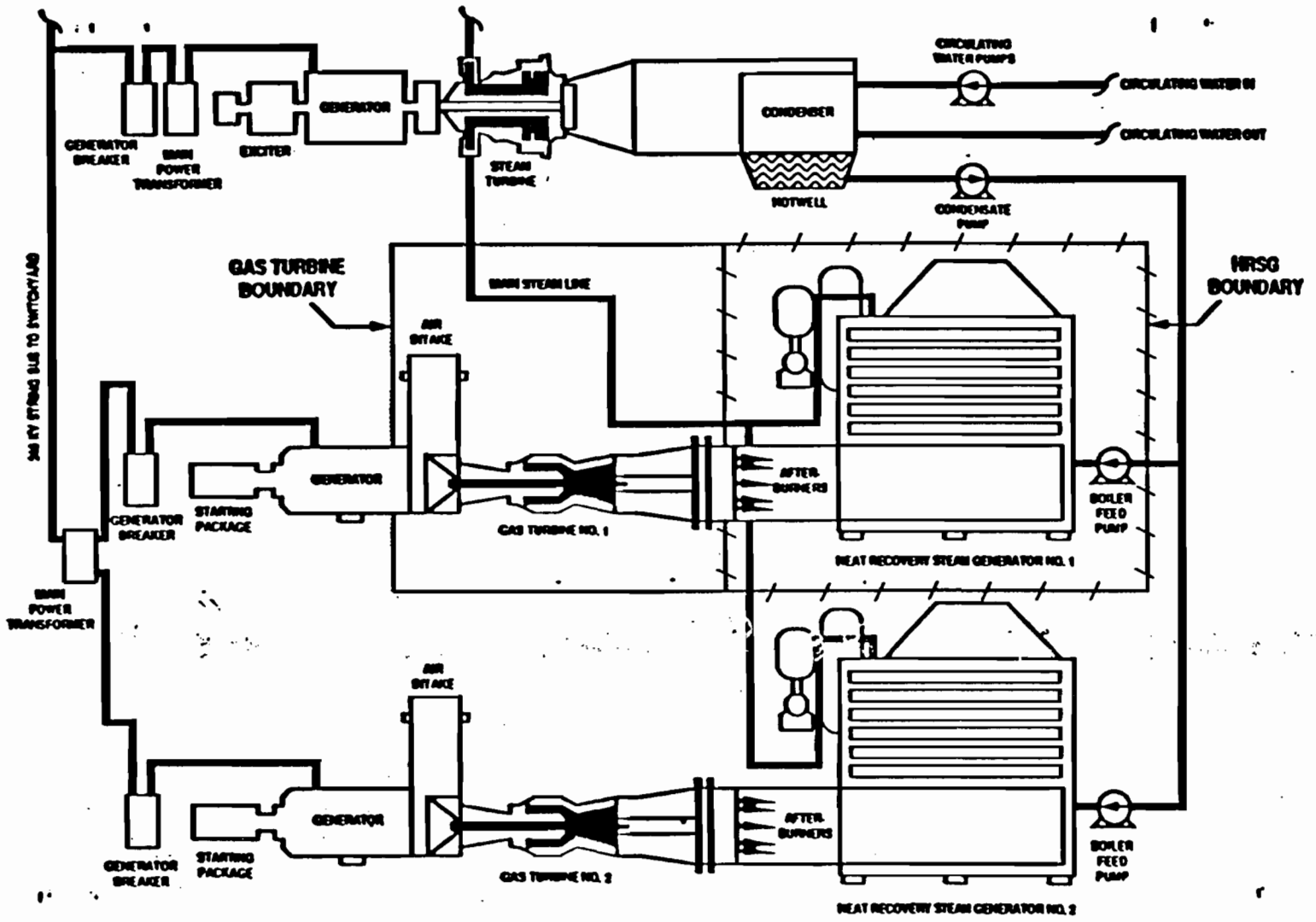
Attachment 1



FPL PUTNAM COMBINED CYCLE POWER PLANT
(Block Diagram)

KBN

Attachment 2



FPL PUTNAM PLANT COMBINED CYCLE UNIT

KBM

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET N.E.
ATLANTA, GEORGIA 30365

RECEIVED

MAY 11 1990

DER - BAQM

4APTMD-AEB

MAY 9 1990

Mr. Clair H. Fancy, P.E., Chief
Bureau of Air Regulation
Florida Department of Environmental
Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

RE: FPL Plant Putnam Request for Applicability Determination

Dear Mr. Fancy:

This is to acknowledge receipt of your letter dated April 12, 1990, concerning a request by the above referenced source for a determination of New Source Performance Standards (NSPS) and Prevention of Significant Deterioration (PSD) applicability to their proposed modification. Our comments regarding such determinations are as follows.

APPLICABILITY OF NSPS TO THE HEAT RECOVERY STEAM GENERATORS

FPL has declared pursuant to 40 C.F.R. §60.15(d) that each of the four Heat Recovery Steam Generators (HRSGs) will be reconstructed as defined in 40 C.F.R. §60.15. Each HRSG will be subject to 40 C.F.R. Part 60, Subpart Db because the heat input to each HRSG according to Table 2 of Attachment 3 will be greater than 100 million BTU per hour.

Since FPL intends to fire very low sulfur oil (both residual and distillate) and natural gas in the duct burners prior to the HRSGs, the following Subpart Db standards will apply:

Opacity standard of 20 percent when firing oil, either alone or in combination, as specified in 40 C.F.R. §60.43b(f).

Sulfur dioxide standard of 0.5 lb/MMBTU based solely on the heat input of the oil or 0.5% sulfur by weight as specified in 40 C.F.R. §60.42b(j).

Nitrogen Oxides standard of 0.2 lb/MMBTU when firing distillate or natural gas; and 0.4 lb/MMBTU when firing residual oil as specified 40 C.F.R. §60.44b(a)(4).

EXHIBIT 3

FPL will be required by 40 C.F.R. §60.48b(a) to install, calibrate, operate and maintain an opacity monitor on each HRSG. FPL has indicated that they will obtain fuel receipts as described in 40 C.F.R. §60.49b(r) to demonstrate compliance with the applicable SO_2 emission standard. For nitrogen oxides, compliance will be determined by Method 20 as specified in 40 C.F.R. §60.46b(f).

APPLICABILITY OF NSPS TO THE COMBUSTION TURBINES

According to FPL, each of the four combustion turbines will have an increase in the sulfur dioxide emission rate in kg/hr and will be subject to the sulfur dioxide standard of 40 C.F.R. Part 60, Subpart GG as a result of the modification provisions at 40 C.F.R. §60.14. FPL has indicated that the addition of water injection will result in no increase in the kg/hr emission rate of nitrogen oxides, therefore, not triggering the modification provisions of NSPS. In order to verify this, we recommend that emission tests be conducted before and after the changes to the turbines.

Compliance with the sulfur dioxide emission standard of Subpart GG shall be determined by the procedures specified in 40 C.F.R. §60.335(d).

APPLICABILITY OF PSD

In making the determination of PSD applicability, FPL based their calculations on comparing actual emissions prior to the proposed modification to estimated "actual emissions" after the modification. This method of comparing before and after emissions is in direct conflict with the EPA method of comparing actual emissions (based on the previous two years of operation) before the modification to potential emissions after the modification. EPA's method of determining PSD applicability was upheld in the recent ruling in Puerto Rican Cement Co., Inc. v. EPA, 889 F.2d 292 (First Cir. 1989).

Although FPL cites the recent WEPCO court decision as a basis for their method of calculation, the modifications proposed by FPL are not "like-kind replacements" designed to restore lost capacity. Rather, the modifications proposed by FPL are designed to increase the facility's capacity, and it can be anticipated that the utilization rate of the facility will increase.

FPL provided their current actual emissions in Table 3. According to FPL, the facility has been operated primarily on

natural gas and distillate oil in recent years. The maximum potential emissions for the source after modification were provided in Table 4. In the attached table, we have reconstructed the calculation for applicability comparing previous actual emissions to potential emissions after modification. The source will be subject to PSD for each pollutant which has an emissions increase exceeding the applicable significance level unless potential emissions are limited in a federally enforceable permit.

Thank you for the opportunity to review and comment on this package. If you have further questions regarding NSPS applicability, please contact Mr. Paul Reinermann of my staff at (404) 347-2904. For questions on PSD applicability, please contact Mr. Gregg Worley of my staff at (404) 347-2864.

Sincerely yours,

Sally S. Sumner, for

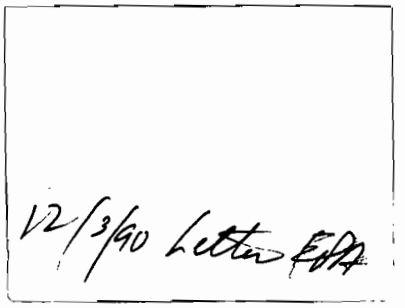
Jewell A. Harper, Chief
Air Enforcement Branch
Air, Pesticides, and Toxics
Management Division

Enclosure

Table 1. Change in Emissions in tons/year

	ACTUAL			POTENTIAL			CHANGE
Pollutant	Natural Gas	Distillate Oil	Total	Natural Gas	Distillate Oil	Residual Oil	
Nitrogen Oxides	4,733	69.1	4,802	7,683	7,709	17,227	12,425
Sulfur Dioxide	6.3	42.7	49	12.2	9,811	14,282	14,233
Carbon Monoxide	125	0.86	126	226	330	182	204
PM_{10}	17.9	0.82	18.7	30	191	1,297	1,278
VOC	11.7	0.097	11.8	21.1	20.9	30.9	19.1
Sulfuric Acid Mist	0.51	3.36	3.87	0.98	790	1,150	1,146
Lead	0	0.00075	0.00075	0	0.177	0.48	0.48
Beryllium	0	0.00021	0.00021	0	0.050	0.073	0.073
Mercury	0.122	0.00025	0.122	0.235	0.060	0.055	0.11
Fluoride	0	0.00265	0.00265	0	0.623	1.965	1.962
Arsenic	0	0.00036	0.00036	0	0.084	0.328	0.328

NOTE The change in emissions is calculated by comparing the worst case potential emissions for each pollutant after the modification (from Table 4) to the combined actual emissions for natural gas and distillate oil (from Table 3).


12/3/90 Letter EDA

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IV
345 COURTLAND STREET, N.E.
ATLANTA, GEORGIA 30365

DEC 03 1990

4APT-AEB

Mr. Clair H. Fancy, P.E., Chief
Bureau of Air Regulation
Florida Department of Environmental
Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

RE: FPL Putnam Revised Applicability Determination Request

Dear Mr. Fancy:

By letter of April 12, 1990, your office requested EPA assistance in a Prevention of Significant Deterioration (PSD) applicability determination for proposed modifications at the FPL Putnam Plant. We responded to your request in a letter dated May 9, 1990. Since that time, Mr. William Green, attorney for FPL, has requested from EPA an applicability determination for a revised scenario at the plant in which physical changes will be made only to the HRSG steam system internals. This request, dated October 26, 1990, asks that EPA make a finding of non-applicability of PSD to the proposed project.

As you know, Florida has a SIP approved permitting program and full authority for implementing PSD regulations. Thus, we feel that it is appropriate that FDER make the final determination on applicability while EPA's role is to provide assistance and support. We are happy to offer you assistance in this determination.

From the information submitted by Mr. Green, the determination does not appear to be very clear-cut. The changes to the HRSG internals raise several questions which may be similar to the issues raised in the WEPCO court case; however, no physical changes will be made to fuel firing units. Some of the questions which would need to be answered are:

1. Are the changes to the HRSG internals considered routine replacements according to industry standards?

   a. Are the parts being replaced with the same or equivalent parts?

   b. Is the current condition of the unit such that it cannot be operated at capacity?

2. Can the source document, within reason, that the usage of the source will not increase?

> Comment: The increased efficiency of the unit due to the proposed changes would lead one to believe that the unit would be utilized more frequently than in the past. The source should provide data as to the actual operating history of this unit and provide reasonable assurances that the "extent or priority of their utilization" will not change.

It is our understanding, from a discussion between Mr. Green and Mr. Gregg Worley of my staff that the proposed changes will only allow the unit to more efficiently transfer heat and will have no effect on the amount of fuel fired. Apparently, the current steam system does not physically limit the firing or operation of the turbine. Additionally, the increased efficiency will not change the plant's position on the priority list. We have requested that Mr. Green provide answers to the questions stated above in order to aid in the applicability determination.

If the situation is as stated above, it would be our interpretation that the changes would not be subject to PSD review. As stated previously, we are currently reviewing this information and awaiting additional information to confirm FPL's position. We will continue to provide information and assistance to you as it becomes available. If you have any questions or comments on this issue, please contact Mr. Gregg Worley of my staff at (404) 347-2904.

Sincerely yours,

Jewell A. Harper, Chief
Air Enforcement Branch
Air, Pesticides, and Toxics
Management Division

Enclosure

cc: Mr. William Green, Esquire
123 South Calhoun Street
P.O. Box 6526
Tallahassee, Florida 32314

1/7/90 Letter
to EPA

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OF COUNSEL
W. ROBERT FOKES

December 7, 1990

Ms. Jewell A. Harper, Chief
Air Enforcement Branch
Air, Pesticides and Toxics
Management Division
Environmental Protection Agency
Region IV
345 Courtland Street, N.E.
Atlanta, GA 30365

RE: FPL Putnam Plant
PSD/NSPS Applicability Determination Request

Dear Ms. Harper:

We are in receipt of a copy of your letter to Mr. Clair Fancy dated December 3, 1990 relating to the above. At the outset, I would like to thank you on behalf of Florida Power & Light Company (FPL) and myself for the prompt response to our earlier requests and your continued guidance in this matter. The purpose of this letter is to respond to the questions set forth in your letter to Mr. Fancy and to confirm the understanding of you and your staff concerning the other aspects of the improvements discussed in your letter. Your questions and FPL's responses are as follows:

EPA Question No. 1.:

Are the changes to the HRSG internals considered routine replacements according to industry standards?

a. Are the parts being replaced with the same or equivalent parts?

b. Is the current condition of the unit such that it cannot be operated at capacity?

FPL Response:

The electric utility industry has not developed "industry standards" for the replacement of component parts of heat recovery steam generators (HRSGs). These replacements are made on a case-by-case basis and deal primarily with the need to replace steam tubes as they experience wear and resulting failure. The system is designed to remove otherwise wasted exhaust gas energy from the exhaust gasses and to convert it into usable energy. In effect, leaking steam tubes waste otherwise usable energy.

The parts that would be replaced by the proposed work are functionally equivalent to those parts which came with the original units. The parts have been improved somewhat to decrease the likelihood and hopefully the frequency of leaks. For example, the configuration of the original steam tubes involved certain angles and stresses which tend to produce points where erosion and wear and resulting leaks become intensified. The replacement tubes will have greater tolerances between tubes and a somewhat improved configuration to make the tube stresses more uniform and, hopefully, make leaks less frequent. None of these changes would cause the components to have a non-equivalent function.

The current condition of the Putnam units is such that both the combustion turbines and the HRSGs can be run at maximum capacity. When the units are running, the more efficient steam tube system will generate more electrical energy from a given amount of fuel combusted. However, the changes will not allow the units to combust more fuel.

EPA Question No. 2:

Can the source document, within reason, that the usage of the source will not increase?

Comment: The increased efficiency of the unit due to the proposed changes would lead one to believe that the unit would be utilized more frequently than in the past. The source should provide data as to the actual operating history of this unit and provide reasonable assurances that the "extent or priority of their utilization" will not change.

FPL Response:

Changes to the HRSG steam system internals will not increase the usage of the HRSGs or the extent or priority of their utilization. The Putnam units currently have top priority for usage among all of FPL's fossil-fired units. The proposed changes will not cause them to move ahead of the nuclear units. The Putnam Plant will, nevertheless, realize a significant increase in efficiency; i.e., the amount of megawatts generated from a given quantity of fuel.

Your letter reflected a discussion which occurred between Mr. Greg Worley of your staff and myself concerning the changes. I believe that your letter correctly reflects our discussion and I would like to confirm, once again, that the changes proposed to the HRSGs deal only with heat transfer efficiency as FPL attempts to capture more electrical output from otherwise wasted exhaust gasses. These efficiency changes are independent of the amount of fuel fired in the units. In addition, the current steam system does not physically limit the firing or operation of the combustion turbines; rather, they limit the amount of heat that can be recovered from the combustion turbine exhaust gasses. Moreover, the proposed steam system changes do not include any changes to the duct burners (the actual emissions source of the HRSGs) nor will they affect the amount of their use.

In light of the above and in light of our understanding of your letter, we conclude that the proposed changes will not be subject to PSD review. As you suggested, we have now requested confirmation of that interpretation by the Florida Department of Environmental Regulation (DER), as you will see from the enclosed correspondence.

We wish to thank you for your continued assistance and guidance in these important matters.

Sincerely,

William H. Green
Angela R. Morrison

WHG/wrn:ltrharper
cc: Clair Fancy, Chief
Bureau of Air Regulation, DER

WHITE FILE COPY

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IV
345 COURTLAND STREET, N.E.
ATLANTA, GEORGIA 30365

DEC 13 1990

4APT-AEB

Mr. Clair H. Fancy, P.E., Chief
Bureau of Air Regulation
Florida Department of Environmental
Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

RE: PPL Putnam Revised Applicability Determination Request

Dear Mr. Fancy:

By letter of April 12, 1990, your office requested EPA assistance in a Prevention of Significant Deterioration (PSD) applicability determination for proposed modifications at the FPL Putnam Plant. We responded to your request in a letter dated May 9, 1990. Since that time, Mr. William Green, attorney for FPL, has requested from EPA an applicability determination for a revised scenario at the plant in which physical changes will be made only to the HRSG steam system internals. This request, dated October 26, 1990, asks that EPA make a finding of non-applicability of PSD to the proposed project.

EPA responded to this latest request by letter to you dated December 3, 1990. As stated in that letter, we feel that it is appropriate that FDER make the final determination on applicability while EPA's role is to provide assistance and support. To that end, we provided several questions which we thought needed to be answered in order to make an applicability determination. Mr. Green responded to these questions by letter dated December 7, 1990.

Based on Mr. Green's response (i.e., the source is not physically limited by the current steam system, the amount of fuel combusted will not change, the utilization priority of the source will not change), it would be our interpretation that the changes would not be subject to PSD review. If you have any questions or comments on this issue, please contact Mr. Gregg Worley of my staff at (404) 347-2904.

Sincerely yours,

Jewell A. Harper, Chief
Air Enforcement Branch
Air, Pesticides, and Toxics
Management Division

cc: Mr. William Green, Esquire
123 South Calhoun Street
P.O. Box 6526
Tallahassee, Florida 32314

EXHIBIT 6

CERTIFICATION
MODIFICATION
REQUEST

FLORIDA POWER & LIGHT COMPANY
PUTNAM POWER PLANT

REQUEST FOR MODIFICATION OF
CONDITIONS OF CERTIFICATION

Kennard Kosky, P.E.
KBN Engineering & Applied Sciences
1034 N.W. 57th Street
Gainesville, FL 32605
904-331-9000
Florida Registration No. 14996

EXHIBIT 7

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE: Electric Generating Station [X] New[1] [ ] Existing[1]

APPLICATION TYPE: [X] Construction [ ] Operation [ ] Modification

COMPANY NAME: Florida Power & Light Company COUNTY: Putnam

Identify the specific emission point source(s) addressed in this application (i.e., Lime Kiln No. 4 with Venturi Scrubber; Peaking Unit No. 2, Gas Fired) 2 combined cycle units

SOURCE LOCATION: Street U.S. Highway 17 City East Palatka

UTM: East 443.3 km North 3277.6 km

Latitude 29 ° 37 ' 42 "N Longitude 81 ° 35 ' 08 "W

APPLICANT NAME AND TITLE: Martin A. Smith, Ph.D. Manager Environmental Permitting & Programs

APPLICANT ADDRESS: P.O. Box 078768, West Palm Beach, FL 33407-0768

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of Florida Power & Light Company

I certify that the statements made in this application for a construction permit are true, correct and complete to the best of my knowledge and belief. Further, I agree to maintain and operate the pollution control source and pollution control facilities in such a manner as to comply with the provision of Chapter 403, Florida Statutes, and all the rules and regulations of the department and revisions thereof. I also understand that a permit, if granted by the department, will be non-transferable and I will promptly notify the department upon sale or legal transfer of the permitted establishment.

*Attach letter of authorization

Signed: _____

Martin A. Smith, Ph.D. Manager Environmental
Name and Title (Please Type)
Permitting and Programs

Date: _____ Telephone No. (407) 697-6930

B. PROFESSIONAL ENGINEER REGISTERED IN FLORIDA (where required by Chapter 471, F.S.)

This is to certify that the engineering features of this pollution control project have been designed/examined by me and found to be in conformity with modern engineering principles applicable to the treatment and disposal of pollutants characterized in the permit application. There is reasonable assurance, in my professional judgement, that

[1]See Florida Administration Code Rule 17-2.100(57) and (104)

the pollution control facilities, when properly maintained and operated, will discharge an effluent that complies with all applicable statutes of the State of Florida and the rules and regulations of the department. It is also agreed that the undersigned will furnish, if authorized by the owner, the applicant a set of instructions for the proper maintenance and operation of the pollution control facilities and, if applicable, pollution sources.

Signed _____

Kennard F. Kosky
Name (Please Type)

KBN Engineering and Applied Sciences, Inc.
Company Name (Please Type)

1034 N.W. 57th Street, Gainesville, FL
Mailing Address (Please Type)

Florida Registration No. 14996 Date: _____ Telephone No. (904) 331-9000

SECTION II: GENERAL PROJECT INFORMATION

A. Describe the nature and extent of the project. Refer to pollution control equipment, and expected improvements in source performance as a result of installation. State whether the project will result in full compliance. Attach additional sheet if necessary.

The heat recovery steam generators (HRSGs) will be reconstructed and will achieve the NSPS contained in 40 CFR 60 Subpart Db applicable to the duct burners. This application is notification of this change. See Attachment A.

B. Schedule of project covered in this application (Construction Permit Application Only)

Start of Construction August 1991 Completion of Construction December 1992

C. Costs of pollution control system(s): (Note: Show breakdown of estimated costs only for individual components/units of the project serving pollution control purposes. Information on actual costs shall be furnished with the application for operation permit.)

Not applicable

D. Indicate any previous DER permits, orders and notices associated with the emission point, including permit issuance and expiration dates.

Putnam plant was certified under the Electric Power Plant Siting Act on October 16, 1974 (Certification No. PPS74-01)

E. Requested permitted equipment operating time: hrs/day 24 ; days/wk 7 ; wks/yr 52 ;

If power plant, hrs/yr 8,760; if seasonal, describe: _____

F. If this is a new source or major modification, answer the following questions. (Yes or No)

1. Is this source in a non-attainment area for a particular pollutant? No

   a. If yes, has "offset" been applied? _____

   b. If yes, has "Lowest Achievable Emission Rate" been applied? _____

   c. If yes, list non-attainment pollutants. _____

2. Does best available control technology (BACT) apply to this source? If yes, see Section VI. No

3. Does the State "Prevention of Significant Deterioration" (PSD) requirement apply to this source? If yes, see Sections VI and VII. No

4. Do "Standards of Performance for New Stationary Sources" (NSPS) apply to this source? Reconstructed under Subpart Db. Yes

5. Do "National Emission Standards for Hazardous Air Pollutants" (NESHAP) apply to this source? No

H. Do "Reasonably Available Control Technology" (RACT) requirements apply to this source? No

   a. If yes, for what pollutants? _____

   b. If yes, in addition to the information required in this form, any information requested in Rule 17-2.650 must be submitted.

Attach all supportive information related to any answer of "Yes". Attach any justification for any answer of "No" that might be considered questionable.

SECTION III: AIR POLLUTION SOURCES & CONTROL DEVICES (Other than Incinerators)

A. Raw Materials and Chemicals Used in your Process, if applicable: Not Applicable (NA)

Description	Contaminants		Utilization Rate - lbs/hr	Relate to Flow Diagram
	Type	% Wt		

B. Process Rate, if applicable: (See Section V, Item 1)

1. Total Process Input Rate (lbs/hr): N/A

2. Product Weight (lbs/hr): N/A

C. Airborne Contaminants Emitted: (Information in this table must be submitted for each emission point, use additional sheets as necessary)

Based on Oil Firing Except CO Emissions - One CT/HRSG

Name of Contaminant	Emission[1]		Allowed[2] Emission Rate per Rule 17-2	Allowable[3] Emission lbs/hr	Potential[4] Emission		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr[5]			lbs/hr	T/yr	
PM	11.60	50.8	NA	NA	11.60	50.8	See
SO_2	571.5	2,503	NA	NA	571.5	2,503	Figures
NO_x[6]	889.7	3,897	NA	NA	889.7	3,897	2-1 and
CO	16.3	71.4	NA	NA	16.3	71.4	2-2 in
VOC	1.36	6.0	NA	NA	1.36	6.0	Att. A.

See also Tables 2-1, 2-2, and 2-3; data shown based on one CT/HRSG.

[1]See Section V, Item 2.

[2]Reference applicable emission standards and units (e.g. Rule 17-2.600(5)(b)2. Table II, E. (1) - 0.1 pounds per million BTU heat input).

[3]Calculated from operating rate and applicable standard.

[4]Emission, if source operated with control (See Section V, Item 3).

[5]Potential emissions using 0.5% sulfur maximum presented; actual sulfur content of No. 2 fuel oil over last 5 years was 0.3%.

[6]Does not include allowance for fuel-bound nitrogen (FBN) if FBN exceeds 0.015%.

D. Control Devices: (See Section V, Item 4) Not Applicable

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles Size Collected (in microns) (If applicable)	Basis for Efficiency (Section V Item 5)

E. Fuels

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr+	max./hr	
No. 2 Fuel Oil-CT	3,547	6,556 gal/hr.	910.6
No. 2 Fuel Oil-HRSG	974	1,800 gal/hr.	250
Natural Gas-Ct	526	973 MCF	968.3
Natural Gas-HRSG	136	252 MCF	250

*Based on CT operation at base load and 85°F.
Note: See Tables A-1 through A-8 for fuel consumption at other temperatures.

+Based on last 2 years of operation; 4,740 hours/year equivalent full load (100% load). Actual operating hours were 6,155, 6,698 and 5,476 for 1988, 1989 and 1990, respectively.

Fuel Analysis:

Percent Sulfur: 0.5 WT % max oil; 1 gr/100 cf gas Percent Ash: 0.01 WT % max

Density: 7.2 lbs/gal Typical Percent Nitrogen: 0.015 WT%

Heat Capacity: oil 19,292(HHV)/gas 21,956(HHV) BTU/lb 138,902 (HHV) Gas=995 Btu/cf(HHV) BTU/gal

Other Fuel Contaminants (which may cause air pollution): None

F. If applicable, indicate the percent of fuel used for space heating.

Annual Average N/A Maximum N/A

G. Indicate liquid or solid wastes generated and method of disposal.

Not applicable; existing source.

H. Emission Stack Geometry and Flow Characteristics (Provide data for each stack):

Stack Height: 73* ft. Stack Diameter: 7' x 12'(10.3 effective)* ft.

Gas Flow Rate: 856,750 ACFM 537,100 DSCFM Gas Exit Temperature: 328 °F.

Water Vapor Content: 5 % Velocity: 85 FPS

See Tables 2-1 through 2-3 in Attachment A.

*Two stacks per HRSG

SECTION IV: INCINERATOR INFORMATION--NOT APPLICABLE

Type of Waste	Type 0 (Plastics)	Type II (Rubbish)	Type III (Refuse)	Type IV (Garbage)	Type IV (Pathological)	Type V (Liq.& Gas By-prod.)	Type VI (Solid By-prod.)
Actual lb/hr Incinerated							
Uncontrolled (lbs/hr)							

Description of Waste _____

Total Weight Incinerated (lbs/hr) _____ Design Capacity (lbs/hr)_____

Approximate Number of Hours of Operation per day _____ day/wk _____ wks/yr._____

Manufacturer _____

Date Constructed _____ Model No. _____

	Volume $(ft)^3$	Heat Release (BTU/hr)	Fuel		Temperature (°F)
			Type	BTU/hr	
Primary Chamber					
Secondary Chamber					

Stack Height: _____ ft. Stack Diameter: _____ Stack Temp. _____

Gas Flow Rate: _____ ACFM _____ DSCFM* Velocity: _____ FPS

*If 50 or more tons per day design capacity, submit the emissions rate in grains per standard cubic foot dry gas corrected to 50% excess air.

Type of pollution control devices: [ ] Cyclone [ ] Wet Scrubber [ ] Afterburner

[ ] Other

(specify)_____

Brief description of operating characteristics of control devices: _____

Ultimate disposal of any effluent other than that emitted from the stack (scrubber water, ash, etc.):

NOTE: Items 2, 3, 4, 6, 7, 8, and 10 in Section V must be included where applicable.

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

1. Total process input rate and product weight -- show derivation [Rule 17-2.100(127)]
   Not Applicable
2. To a construction application, attach basis of emission estimate (e.g., design calculations, design drawings, pertinent manufacturer's test data, etc.) and attach proposed methods (e.g., FR Part 60 Methods, 1, 2, 3, 4, 5) to show proof of compliance with applicable standards. To an operation application, attach test results or methods used to show proof of compliance. Information provided when applying for an operation permit from a construction permit shall be indicative of the time at which the test was made.
   See Tables 2-1 through 2-4 in Attachment A.
3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test).
   Manufacturer data sheets and emission factors; See Tables 2-1 through 2-4.
4. With construction permit application, include design details for all air pollution control systems (e.g., for baghouse include cloth to air ratio; for scrubber include cross-section sketch, design pressure drop, etc.)
   Not applicable
5. With construction permit application, attach derivation of control device(s) efficiency. Include test or design data. Items 2, 3 and 5 should be consistent: actual emissions = potential (1-efficiency).
   Manufacturers' guarantees form the basis of emission estimates; see Tables 2-1 through 2-4 in Attachment A.
6. An 8 ½" x 11" flow diagram which will, without revealing trade secrets, identify the individual operations and/or processes. Indicate where raw materials enter, where solid and liquid waste exit, where gaseous emissions and/or airborne particles are evolved and where finished products are obtained.
   See Figures 2-1 and 2-2 in Attachment A.
7. An 8 ½" x 11" plot plan showing the location of the establishment, and points of airborne emissions, in relation to the surrounding area, residences and other permanent structures and roadways (Examples: Copy of relevant portion of USGS topographic map).
   See Figure 1-1 in Attachment A.
8. An 8 ½" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram.
   See Figure 1-2 in Attachment A.

9. The appropriate application fee in accordance with Rule 17-4.05. The check should be made payable to the Department of Environmental Regulation.

10. With an application for operation permit, attach a Certificate of Completion of Construction indicating that the source was constructed as shown in the construction permit.

SECTION VI: BEST AVAILABLE CONTROL TECHNOLOGY

A. Are standards of performance for new stationary sources pursuant to 40 C.F.R. Part 60 applicable to the source?

[X] Yes [ ] No; duct burner in combined cycle system 40 CFR Part 60 Subpart Db.

Contaminant	Rate or Concentration
See Table 2-5 in Attachment A	

B. Has EPA declared the best available control technology for this class of sources (If yes, attach copy)

[ ] Yes [ ] No Not Applicable

Contaminant	Rate or Concentration

C. What emission levels do you propose as best available control technology?

Contaminant	Rate or Concentration

D. Describe the existing control and treatment technology (if any). (See Attachment A)

1. Control Device/System:
2. Operating Principles:
3. Efficiency:*
4. Capital Costs:

*Explain method of determining

5. Useful Life:

6. Operating Costs:

7. Energy:

8. Maintenance Cost:

9. Emissions:

Contaminant	Rate or Concentration

10. Stack Parameters

a. Height: ft.

b. Diameter ft.

c. Flow Rate: ACFM

d. Temperature: °F.

e. Velocity: FPS

E. Describe the control and treatment technology available (As many types as applicable, use additional pages if necessary).

1.

a. Control Devices:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

2.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

[1]Explain method of determining efficiency.
[2]Energy to be reported in units of electrical power - KWH design rate.

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

3.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

4.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

F. Describe the control technology selected:

1. Control Device:

2. Efficiency:[1]

3. Capital Cost:

4. Useful Life:

5. Operating Cost:

6. Energy:[2]

7. Maintenance Cost:

8. Manufacturer:

9. Other locations where employed on similar processes:

a. (1) Company:

(2) Mailing Address:

(3) City:

(4) State:

[1]Explain method of determining efficiency.
[2]Energy to be reported in units of electrical power - KWH design rate.

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions:[1]

Contaminant	Rate or Concentration

(8) Process Rate:[1]

b. (1) Company:

(2) Mailing Address:

(3) City: (4) State:

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions:[1]

Contaminant	Rate or Concentration

(8) Process Rate:[1]

10. Reason for selection and description of systems:

[1]Applicant must provide this information when available. Should this information not be available, applicant must state the reason(s) why.

SECTION VII - PREVENTION OF SIGNIFICANT DETERIORATION

Not Applicable

A. Company Monitored Data

1. _____ no. sites _____ TSP _____( ) SO^{2*} _____ Wind spd/dir

Period of Monitoring _____/_____/_____ to _____/_____/_____
month day year month day year

Other data recorded _____

Attach all data or statistical summaries to this application.

*Specify bubbler (B) or continuous (C).

2. Instrumentation, Field and Laboratory

a. Was instrumentation EPA referenced or its equivalent? [ ] Yes [ ] No

b. Was instrumentation calibrated in accordance with Department procedures?

[ ] Yes [ ] No [ ] Unknown

B. Meteorological Data Used for Air Quality Modeling

1. _____ Year(s) of data from _____/_____/_____ to _____/_____/_____
month day year month day year

2. Surface data obtained from (location)_____

3. Upper air (mixing height) data obtained from (location) _____

4. Stability wind rose (STAR) data obtained from (location) _____

C. Computer Models Used

1. _____ Modified? If yes, attach description.

2. _____ Modified? If yes, attach description.

3. _____ Modified? If yes, attach description.

4. _____ Modified? If yes, attach description.

Attach copies of all final model runs showing input data, receptor locations, and principle output tables.

D. Applicants Maximum Allowable Emission Data

Pollutant	Emission Rate
TSP	_____ grams/sec
SO^2	_____ grams/sec

E. Emission Data Used in Modeling

Attach list of emission sources. Emission data required is source name, description of point source (on NEDS point number), UTM coordinates, stack data, allowable emissions, and normal operating time.

F. Attach all other information supportive to the PSD review.

G. Discuss the social and economic impact of the selected technology versus other applicable technologies (i.e, jobs, payroll, production, taxes, energy, etc.). Include assessment of the environmental impact of the sources.

H. Attach scientific, engineering, and technical material, reports, publications, journals, and other competent relevant information describing the theory and application of the requested best available control technology.

ATTACHMENT A

1.0 INTRODUCTION

Florida Power & Light Company (FPL) is proposing to improve the heat recovery steam generators (HRSGs) at its Putnam combined cycle plant. The HRSG improvements require review under the Florida Department of Environmental Regulation (FDER) New Source Performance Standards (NSPS). The HRSG components of the plant will be "reconstructed" and thus subject to 40 Code of Federal Regulations (CFR), Part 60, Subpart Db NSPS. There will be no change in the plant's potential emissions.

The Putnam plant site is located in Putnam County about 1 mile southeast of Palatka (Figure 1-1). The Putnam plant was the first power plant licensed under Chapter 403, Sections 403.501-403.517, Florida Statutes (FS), the Florida Electrical Power Plant Siting Act (PPSA). Certification under PPSA was issued in October 1974. Commercial operation of the Putnam plant units began in August 1977 (Unit 2) and April 1978 (Unit 1). The plant has net summer and winter generating capabilities of 448 and 468 megawatts (MW), respectively. A plot plan of the facility is presented in Figure 1-2.

2.0 EXISTING OPERATION AND PROJECT DESCRIPTION

2.1 EXISTING OPERATION

The existing facility consists of two combined cycle units, each comprised of two combustion turbines (CTs), two duct burners, and two HRSGs (Figure 2-1). Each of the four gas turbines has a maximum heat input rate of 968 million British thermal units per hour (10^6 Btu/hr) at an ambient temperature of 85°F, which generates 70 megawatt per hour (MW/hr) output when fired with natural gas. Heat input and electrical generation when firing No. 2 fuel oil or No. 6 fuel oil is slightly lower than that for natural gas. The four duct burners operate at a maximum heat input rate of 250 x 10^6 Btu/hr while burning either natural gas, No. 2 fuel oil, or No. 6 fuel oil. The maximum permitted sulfur content of the fuel oil fired in the turbines and duct burners is 0.7 percent. Technical descriptions and nitrogen oxide (NO_x) and SO_2

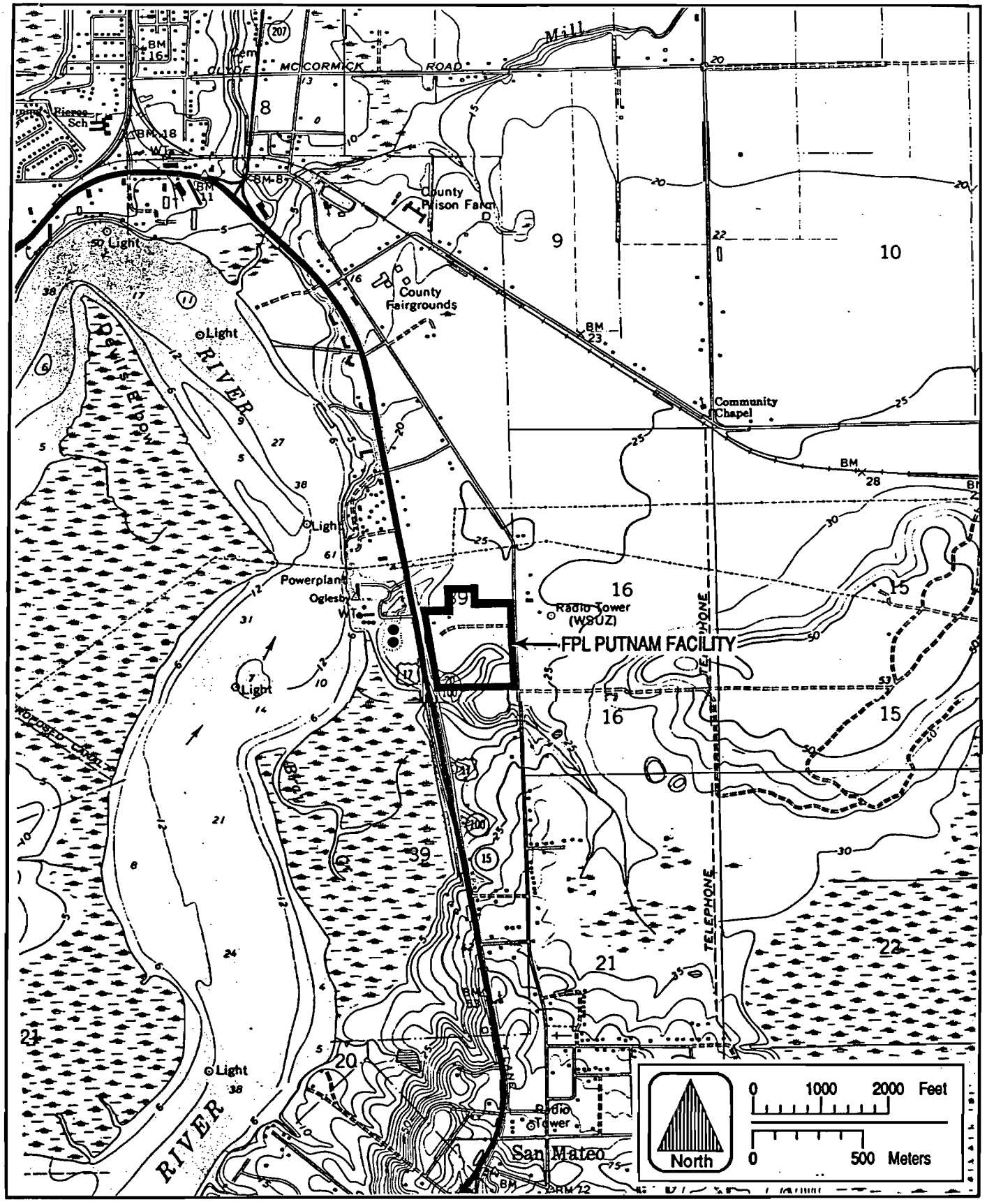

Figure 1-1 SITE LOCATION MAP

KBN

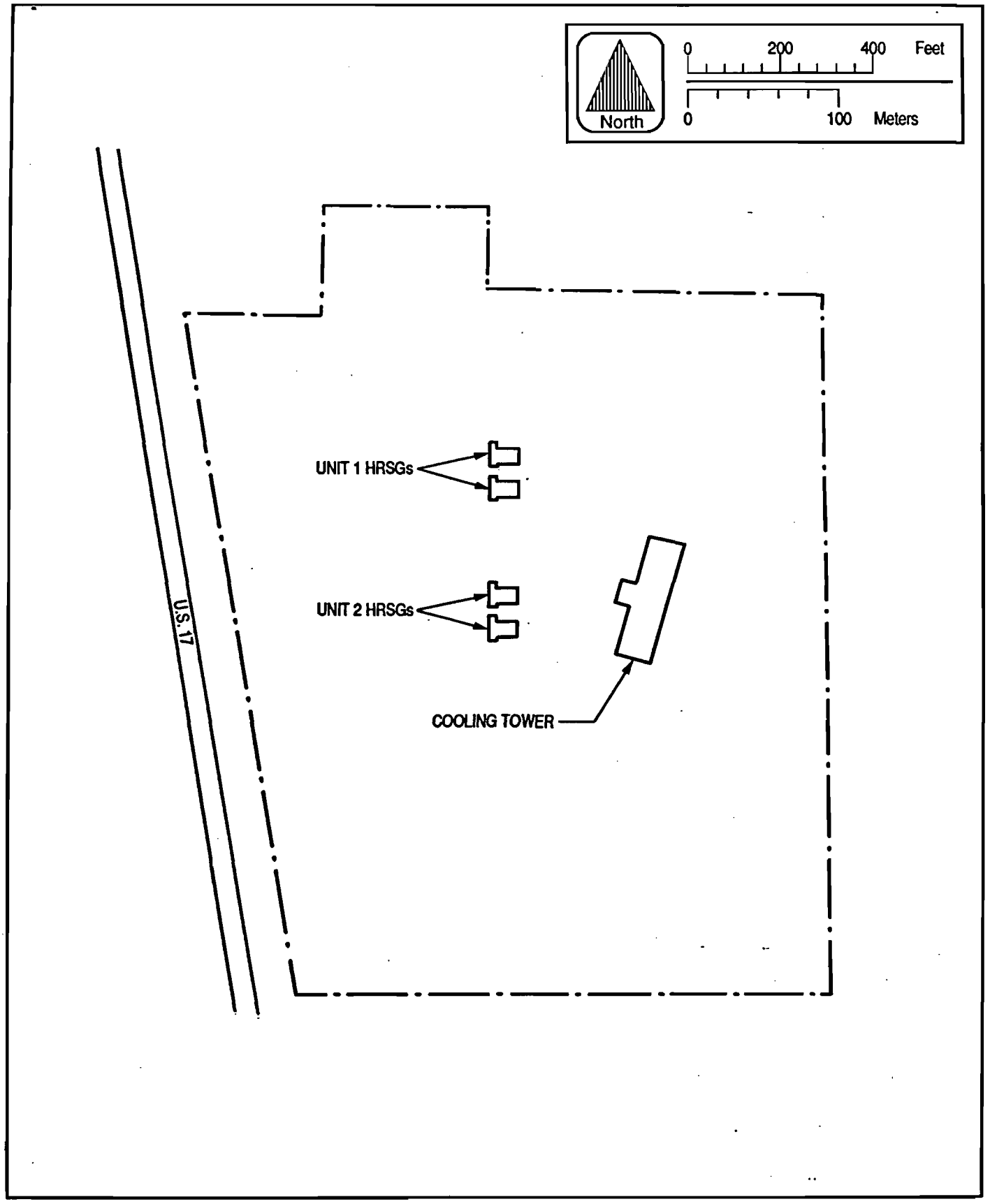

Figure 1-2 FACILITY PLOT PLAN

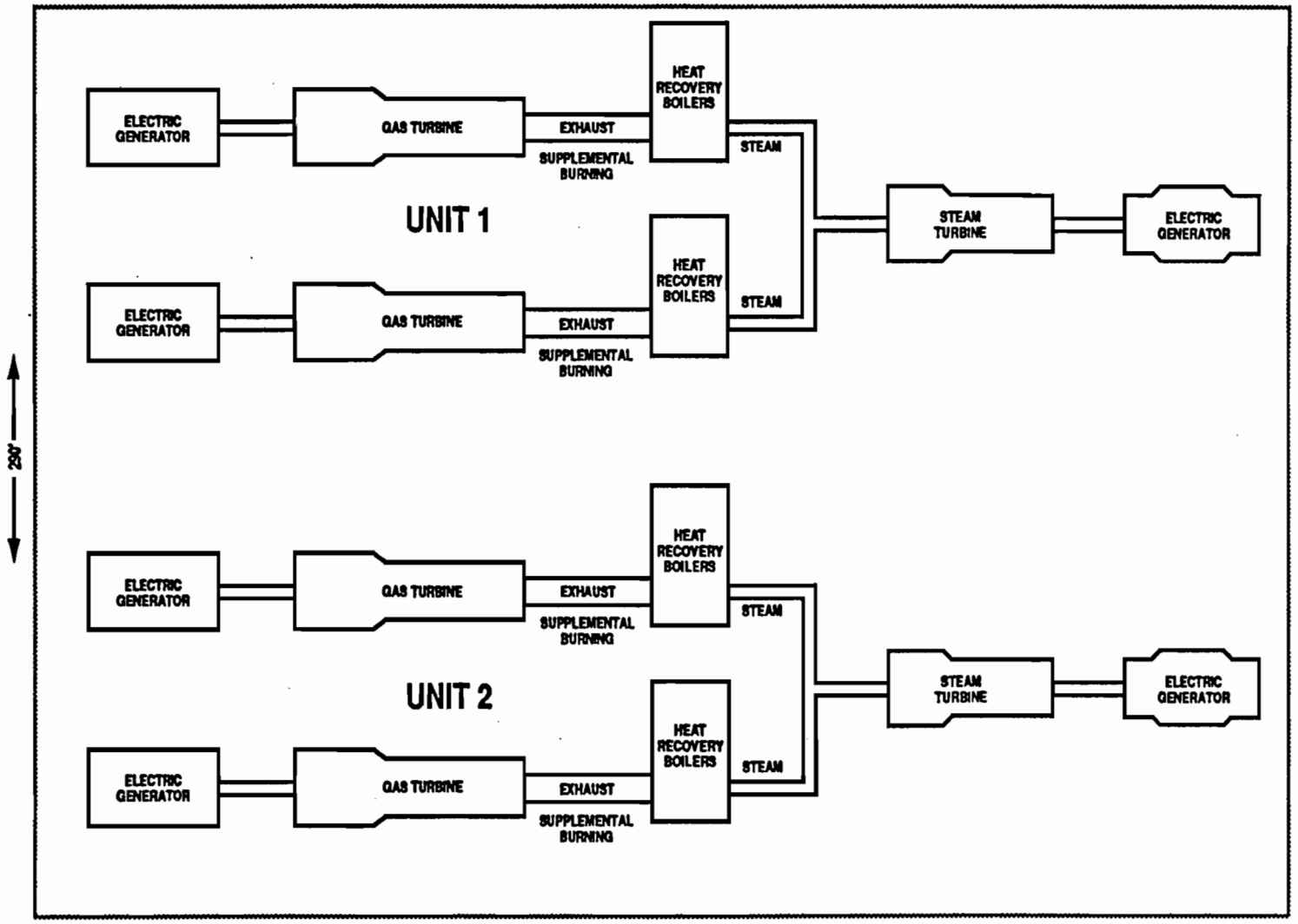

Figure 2-1 FPL PUTNAM COMBINED CYCLE POWER PLANT

emission rates for the CTs are presented in Table 2-1. Table 2-2 presents technical descriptions of the duct burners. Emissions of all criteria pollutants are presented in Table 2-3. The basis for emission estimates is presented in Table 2-4.

2.2 PROJECT DESCRIPTION

The proposed improvements to the HRSGs will not result in an increase in potential emissions from the facility. The HRSGs recover heat from the CT exhaust gases and use that heat to generate steam electric energy. The HRSGs themselves do not generate emissions, with the exception of their supplemental duct burners, which can be used to raise the temperature of CT exhaust gases (see Figure 2-2). The changes proposed for the Putnam HRSGs will not involve the existing burners which will comply with NSPS; rather, the changes relate solely to the steam system and are intended to increase its reliability and efficiency. The changes include the following items:

1. Replacement of steam tube modules,
2. Addition of tubing and replacement of steam drum internals to achieve lower steam and water velocities and reduced erosion,
3. Addition of low-pressure separation vessels,
4. Steam performance improvements to existing de-aerators,
5. Replacement of evaporator forced-circulation pumps,
6. Replacement of boiler feed pump impellers and mechanical seals, and
7. Replacement of miscellaneous steam and water piping.

The above changes will not affect the normal operations of the Putnam plant units, nor will they influence the extent or priority of their utilization. Thus, plant emissions will be unaffected by the changes.

2.3 NEW SOURCE PERFORMANCE STANDARDS (NSPS)

NSPS (40 CFR part 60 Subpart Db) is applicable to the HRSG duct burners because the facility will be reconstructed under the definition in 40 CFR 60. FDER has adopted these NSPS by reference in Rule 17-2.660, Florida Administrative Code (F.A.C.). The NSPS contained in Subpart Db for natural

Table 2-1. Design Parameters and Emission Factors for Combustion Turbines at FPL Putnam Plant

Parameter	Fuel: Natural Gas	Fuel: No. 2 Fuel Oil	Fuel: No. 6 Fuel Oil
CT Parameters			
Nominal Capacity (MW)	70	68	64
Heat Rate (Btu/kw)	13,832.2	13,390.9	13,323.4
Fuel Flow (lb/hr)	44,100.0	47,200.0	46,091.9
Heat Input (10^6 Btu)	968.3	910.6	852.7
Air Flow (lb/hr)	2,458,490.0	2,458,490.0	2,458,490.0
Exhaust Gas Flow (lb/hr)	2,502,590.0	2,505,690.0	2,502,690.0
Exhaust Temperature (°F)	980.0	985.0	935.0
Exhaust Flow (acfm)	1,565,638.8	1,573,021.2	1,516,773.2
Stack Parameters			
Temperature (°F)	328	328	328
Exhaust Flow (acfm)	856,752.3	857,813.6	856,786.6
Diameter (ft)	10.3	10.3	10.3
Velocity (ft/s)	85.0	85.0	85.0
Emissions			
NO_x Concentration (ppmvd)	145.0	230.0	220.0
Fuel-Bound Nitrogen (%)	0	0.015	0.35
NO_x Emissions--Thermal (lb/hr)	490.0	830.0	740.0
NO_x Emissions--Fuel Bound (lb/hr)	0.0	23.3	212.0
NO_x Emissions--Total (lb/hr)	490.0	853.3	952.0
NO_x Emissions (TPY)	2,146.2	3,737.3	4,169.9
NO_x Emissions (lb/10^6 Btu)	0.51	0.94	1.12
SO_2 Emissions (lb/hr)	2.90	448.4	613.0
SO_2 Emissions (TPY)	11.5	1,964.0	2,685.0

Note: Sulfur Content: Natural Gas = 1 gr/100 scf; Oil = 0.5%
Combustion turbine performance based on 85°F compressor inlet temperature.

See Tables A-1 through A-8 for operating conditions at other temperatures.

Calculations based on manufacturer design data.

Parameters can vary 1 to 4 percent from design due to operating and equipment conditions.

Sources: Westinghouse, 1989
FPL, 1973
KBN, 1990

Table 2-2. Duct Burner Emissions Estimates

Parameter	Fuel		
	Natural Gas	No. 2 Fuel Oil	No. 6 Fuel Oil
Fuel Flow (lb/hr)	11,386.5	12,958.7	13,513.5
Heat Input (10^6Btu/hr)	250	250	250
Fuel-Bound Nitrogen (%)	0	0.015	0.35
NO_x Emissions--Thermal (lb/hr)	25.0	30.0	30.0
NO_x Emissions--Fuel Bound (lb/hr)	0.0	6.4	62.2
NO_x Emissions--Total (lb/hr)	25.0	36.4	92.2
NO_x Emissions (TPY)	109.5	159.4	403.7
SO_2 Emissions (lb/hr)	0.735	123.1	179.7
SO_2 Emissions (TPY)	3.2	539.2	787.2

Source: Westinghouse, 1989.

Table 2-3. Estimated Emissions Before and After Implementation of Putnam HRSG Improvements

Parameter	CT/Natural Gas		CT/Fuel Oil		HRSG/Natural Gas		HRSG/Fuel Oil		Total--Before		Total--After	
	Before	After	Before	After	Before	After	Before	After	Natural Gas	Oil	Natural Gas	Oil
Fuel Flow (lb/hr)	44,100	44,100	47,200	47,200	11,387	11,387	12,959	12,959	55,487	60,159	55,487	60,159
Heat Input (10^6Btu/hr)	968.3	968.3	910.6	910.6	250	250	250	250	1,218.3	1,160.6	1,218.3	1,160.6
NO_x (lb/hr)	490	490	853.3	853.3	25	25	36.4	36.4	515	889.7	515	889.7
(kg/hr)	223	223	388	388	11	11	17	17				
SO_2 (lb/hr)	2.9	2.9	448.4	448.4	0.735	0.735	123.1	123.1	3.6	571.5	3.6	571.5
(kg/hr)	1.32	1.32	204	204								
CO (lb/hr)	6	6	5	5	10.3	10.3	9	9	16.29	14.0	16.29	14.0
PM10 (lb/hr)	1	1	8	8	1.3	1.3	3.6	3.6	2.29	11.60	2.29	11.60
VOC (lb/hr)	1	1	1	1	0.36	0.36	0.36	0.36	1.36	1.36	1.36	1.36
H_2SO_4 (lb/hr)	0.234	0.234	36.1	36.1	0.059	0.059	9.9	9.9	0.293	46.02	0.293	46.02
Pb (lb/hr)	0	0	0.0081	0.0081	0	0	0.0022	0.0022	0.000	0.010	0.000	0.010
Be (lb/hr)	0	0	0.0023	0.0023	0	0	0.0006	0.0006	0.000	0.003	0.000	0.003
Hg (lb/hr)	0.0110	0.0110	0.0027	0.0027	0.0028	0.0028	0.0008	0.0008	0.014	0.003	0.014	0.003
Fl (lb/hr)	0	0	0.03	0.03	0	0	0.008	0.008	0.000	0.038	0.000	0.038
As (lb/hr)	0	0	0.0038	0.0038	0	0	0.0011	0.0011	0.000	0.005	0.000	0.005

Table 2-4. Basis for Emission Calculations for Putnam Plant Changes

Pollutant	Combustion Turbine[a]			HRSG[b]		
	Natural Gas	Fuel Oil	Residual Oil	Natural Gas	Fuel Oil	Residual Oil
NO_x	c	d	e	f	g	h
SO_2	i	j	j	i	j	j
CO	k	k	k	l	m	m
PM10	k	k	k	n	o	p
VOC	k	k	k	q	r	s
H_2SO_4	t	t	t	t	t	t
Pb	u	v	w	u	b	w
Be	u	x	y	u	x	y
Hg	z	aa	bb	z	aa	bb
Fl	u	cc	dd	u	cc	dd
As	u	ee	ff	u	ee	ff

Note: All data based on 95°F.

[a] 85°F Conditions.
[b] Maximum firing rate.
[c] Manufacturer's estimate.
[d] Manufacturer's estimate includes fuel-bound nitrogen (FBN) of 0.015 percent; 100-percent conversion of FBN to NO_x.
[e] From manufacturer with addition of 0.35-percent FBN; assumes 40-percent conversion of FBN to NO_x.
[f] Emissions of 0.1 lb/10^6 Btu; manufacturer's estimate.
[g] Emissions of 0.12 lb/10^6 Btu plus FBN addition of 0.015 percent; 100-percent conversion of FBN.
[h] Emissions of 0.12 lb/10^6 Btu plus FBN addition of 0.35 percent; assumes 10-percent conversion of FBN.
[i] 1 grains/100 scf of natural gas; 95-percent conversion to SO_2.
[j] 0.5-percent sulfur for distillate oil and 0.7-percent sulfur for residual oil; 95-percent conversion to SO_2.
[k] manufacturer's estimate.
[l] AP-42--40 lb/10^6 scf of natural gas.
[m] AP-42--5 lb/1,000 gallons of oil.
[n] AP-42--5 lb/10^6 ft^3 of natural gas.
[o] AP-42--2 lb/10^3 gallons of oil.
[p] AP-42--49 lb/10^3 gallons of oil.
[q] AP-42--1.4 lb/10^6 ft^3 of natural gas.
[r] AP-42--0.2 lb/10^3 gallons of oil.
[s] AP-42--0.76 lb/10^3 gallons of oil.
[t] Assumes 5-percent conversion of sulfur to H_2SO_4.
[u] No reported emissions of these pollutants.
[v] EPA, 1988--8.9 lb/10^{12} Btu heat input.
[w] EPA, 1988--28 lb/10^{12} Btu heat input.
[x] EPA, 1988--2.5 lb/10^{12} Btu heat input.
[y] EPA, 1988--4.2 lb/10^{12} Btu heat input.
[z] EPA, 1980--4.9 pg/J = 11.4 lb/10^{12} Btu heat input.
[aa] EPA, 1988--3 lb/10^{12} Btu heat input.
[bb] EPA, 1988--3.2 lb/10^{12} Btu heat input.
[cc] EPA, 1981--14 pg/J = 32.5 lb/10^{12} Btu heat input.
[dd] EPA, 1981--50.9 pg/J = 11.8 lb/10^{12} Btu heat input.
[ee] EPA, 1988--4.2 lb/10^{12} Btu heat input.
[ff] EPA, 1988--19 lb/10^{12} Btu heat input.

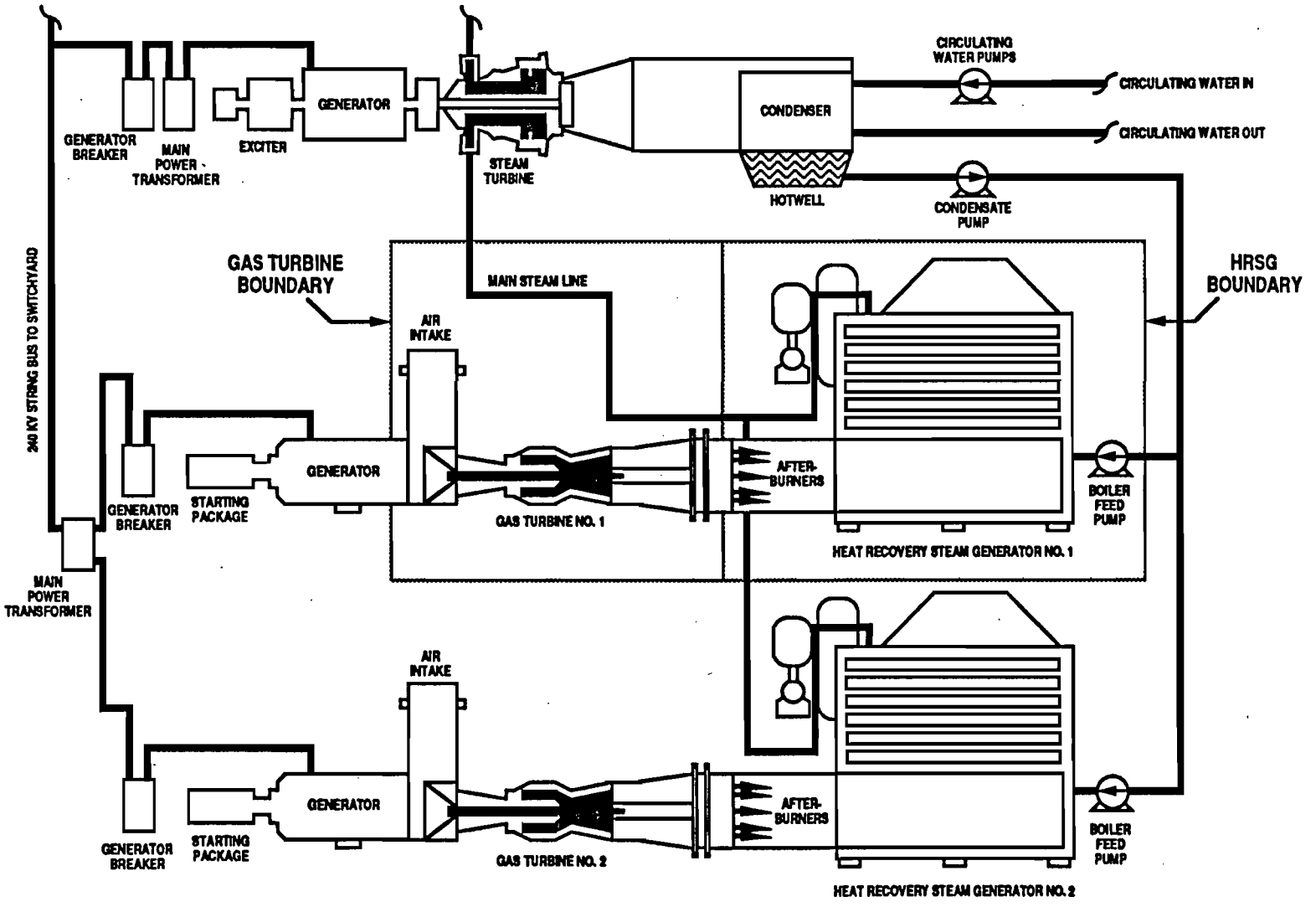

Figure 2-2 FPL PUTNAM PLANT COMBINED CYCLE UNIT

gas and distillate oil firing are presented in Table 2-5. The applicable NSPS for the duct burners are as follows:

	Emission Limits (lb/10^6 Btu)	
Pollutant	Natural Gas	Distillate Oil
SO_2	No limit	0.5% Sulfur[a]
PM	No limit	No limit[b]
NO_x	0.2	0.2

[a] Requires very low sulfur oil as defined in 40 CFR 60.41b.

[b] An opacity limit of 20 percent, except for 27 percent for one 6-minute period per hour.

The NSPS maximum emission rates, based on the maximum heat input of the duct burners, are as follows:

	Emission Rates (lb/hr)	
Pollutant	Natural Gas[a]	Distillate Oil[a]
SO_2	No limit	125.0
PM	No limit	No limit
NO_x	50.0	50.0

[a] 250.0 x 10^6 Btu/hr

Estimated emissions (see Tables 2-2 and 2-3) of the existing duct burners meet the NSPS limit. NSPS Subpart Db monitoring requirements are summarized in Table 2-6. FPL will provide FDER with applicable performance tests after the HRSGs are reconstructed and record sulfur information on distillate fuel oil received.

Table 2-5. NSPS for Natural Gas and Oil-Fired Steam-Generating Units With Heat Input Between 100 and 250 x 10^6 Btu/hr (40 CFR 60, Subpart Db)

Pollutant	Annual Capacity Factor (%)	Standard
Sulfur Dioxide	31 to 100 on oil	0.80 lb/10^6 Btu; 90% reduction[a]
	0 to 30	0.50 lb/10^6 Btu[b]
		No limit for natural gas
Particulate Matter	0 to 100	Conventional or emerging SO_2 control technology used: 0.10 lb/10^6 Btu; SO_2 control technology not used: No PM limit
	0 to 100	20% opacity, except 27% for one 6-minute period per hour
		No limit for natural gas
Nitrogen Oxides	11 to 100	Distillate oil only: Low heat release rate --0.10 lb/10^6 Btu High heat release rate--0.20 lb/10^6 Btu Duct burner in combined cycle[c] --0.20 lb/10^6 Btu
		Residual oil only: Low heat release rate --0.30 lb/10^6 Btu High heat release rate--0.40 lb/10^6 Btu Duct burner in combined cycle --0.40 lb/10^6 Btu
	0 to 10	Residual oil with %N ≤0.3, distillate oil, or natural gas: - No NO_x standard

[a]Percentage reduction requirement does not apply if burning very low sulfur oil (less than or equal to 0.50 lb/10^6 Btu or 0.5% sulfur).
[b]Also applies if oil is fired in a duct burner of a combined cycle unit and 30% or less of the heat input to the steam-generating unit is from oil combustion in the duct burner.
[c]Includes natural gas and distillate oil firing.

Table 2-6. Monitoring Requirements for Natural Gas and Oil-Fired Steam-Generating Units With Heat Input Between 100 and 250 x 10^6 Btu/hr (40 CFR 60, Subpart Db)

Pollutant	Monitoring Requirement
Sulfur Dioxide	Fuel oil with S content >0.50 lb/10^6 Btu: - CFMS for SO_2 and O_2 or CO, or measure S content of oil and outlet of SO_2 control system for 30 consecutive days Fuel oil with S content ≤0.50 lb/10^6 Btu: - Fuel receipts and supplier certification required
Particulate Matter	Fuel oil with S content >0.50 lb/10^6 Btu: - Continuous opacity monitoring Fuel oil with S content ≤0.50 lb/10^6 Btu: - No monitoring required
Nitrogen Oxides	Residual oil with %N ≤0.3, distillate oil, or natural gas, with annual capacity factor >10%: - Install continuous NO_x monitoring system; or - Monitor steam-generating unit operating conditions Duct burner in combined cycle unit: - Continuous NO_x monitor not required[a] Residual oil with %N ≤0.3, distillate oil, or natural gas, with annual capacity factor ≤10%: - No monitoring required

[a] Includes natural gas and distillate oil firing.

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APPENDIX A

EMISSIONS

Table A-1. Design Information and Stack Parameters for Putnam Combustion Turbines-Fuel Oil

Data	Gas Turbine No.2 Oil @ 30°F	Gas Turbine No.2 Oil @ ISO	Gas Turbine No.2 Oil @ 85°F	Gas Turbine No.2 Oil @ 100°F
General:				
Power (MW)	90	79	68	62
Heat Rate (Btu/kwh)	12,614.2	12,962.4	13,390.9	13,698.9
Heat Input (mmBtu/hr)	1,138.1	1,019.1	910.6	852.3
Fuel Oil (lb/hr)	59,490.4	53,272.3	47,199.0	44,555.2
Fuel:				
Heat Content - Oil(HHV)	19,292 Btu/lb	19,292 Btu/lb	19,292 Btu/lb	19,292 Btu/lb
% Sulfur	0.5	0.5	0.5	0.5
CT Exhaust:				
Volume Flow (acfm)	1,649,695	1,607,242	1,573,021	1,554,724
Volume Flow (scfm)	639,295	603,573	574,779	559,383
Mass Flow (lb/hr)	2,786,941	2,631,216	2,505,690	2,438,573
Temperature (°F)	903	946	985	1,008
Molecular Weight	28	28	28	28
HRSG Stack:				
Volume Flow (acfm)	954,099	900,787	857,814	834,836
Temperature (°F)	328	328	328	328
Diameter (ft)*	10.3	10.3	10.3	10.3
Velocity (ft/sec)	95.4	90.1	85.8	83.5
Height (ft)	73.0	73.0	73.0	73.0

* two stacks per HRSG

Table A-2. Maximum Criteria Pollutant Emissions for Putnam Combustion Turbines-Fuel Oil

Pollutant	Gas Turbine No.2 Oil @ 30°F	Gas Turbine No.2 Oil @ ISO	Gas Turbine No.2 Oil @ 85°F	Gas Turbine No.2 Oil @ 100°F
Particulate:				
Basis	Vendor	Vendor	Vendor	Vendor
lb/hr	8.0	8.0	8.0	8.0
TPY	35.0	35.0	35.0	35.0
Sulfur Dioxide:				
Basis	0.5 % Sulfur	0.5 % Sulfur	0.5 % Sulfur	0.5 % Sulfur
lb/hr	565.16	506.09	448.39	423.27
TPY	2,475.4	2,216.7	1,964.0	1,853.9
Nitrogen Oxides:				
Basis	202 ppm*	202 ppm*	202 ppm*	202 ppm*
lb/hr	923.1	871.5	830.0	807.7
TPY	4,043.3	3,817.4	3,635.3	3,537.9
ppm	202	202	202	202
Carbon Monoxide:				
Basis	Vendor	Vendor	Vendor	Vendor
lb/hr	5.0	5.0	5.0	5.0
TPY	21.9	21.9	21.9	21.9
VOC's:				
Basis	Vendor	Vendor	Vendor	Vendor
lb/hr	1.00	1.00	1.00	1.00
TPY	4.4	4.4	4.4	4.4
Lead:				
Basis	EPA(1988)	EPA(1988)	EPA(1988)	EPA(1988)
lb/hr	1.01E-02	9.07E-03	8.10E-03	7.59E-03
TPY	4.44E-02	3.97E-02	3.55E-02	3.32E-02

* actual ppm, does not include fuel bound nitrogen.

Table A-3. Maximum Other Regulated Pollutant Emissions for Putnam Combustion Turbines - Fuel Oil

Pollutant	Gas Turbine No.2 Oil @ 30°F	Gas Turbine No.2 Oil @ ISO	Gas Turbine No.2 Oil @ 85°F	Gas Turbine No.2 Oil @ 100°F
As (lb/hr)	0.0047798178	0.0042802171	0.0038243679	0.0035798317
(TPY)	2.09E-02	1.87E-02	1.68E-02	1.57E-02
Be (lb/hr)	0.0028451296	0.0025477483	0.0022764095	0.0021308522
(TPY)	1.25E-02	1.12E-02	9.97E-03	9.33E-03
Hg (lb/hr)	3.41E-03	3.06E-03	2.73E-03	2.56E-03
(TPY)	1.50E-02	1.34E-02	1.20E-02	1.12E-02
F (lb/hr)	0.0369866851	0.0331207275	0.0295933232	0.0277010783
(TPY)	1.62E-01	1.45E-01	1.30E-01	1.21E-01
H2SO4 (lb/hr)	45.5	40.8	36.1	34.1
(TPY)	1.99E+02	1.78E+02	1.58E+02	1.49E+02

Sources of Emission Factors: EPA, 1988; EPA, 1980

Table A-4. Maximum Non-Regulated Pollutant Emissions for Putnam Combustion Turbines-Fuel Oil

Pollutant	Gas Turbine No.2 Oil @ 30°F	Gas Turbine No.2 Oil @ ISO	Gas Turbine No.2 Oil @ 85°F	Gas Turbine No.2 Oil @ 100°F
Manganese (lb/hr)	7.33E-03	6.56E-03	5.86E-03	5.49E-03
(TPY)	3.21E-02	2.87E-02	2.57E-02	2.40E-02
Nickel (lb/hr)	1.93E-01	1.73E-01	1.55E-01	1.45E-01
(TPY)	8.47E-01	7.59E-01	6.78E-01	6.35E-01
Cadmium (lb/hr)	1.19E-02	1.07E-02	9.56E-03	8.95E-03
(TPY)	5.23E-02	4.69E-02	4.19E-02	3.92E-02
Chromium (lb/hr)	5.41E-02	4.84E-02	4.33E-02	4.05E-02
(TPY)	2.37E-01	2.12E-01	1.89E-01	1.77E-01
Copper (lb/hr)	3.19E-01	2.85E-01	2.55E-01	2.39E-01
(TPY)	1.40E+00	1.25E+00	1.12E+00	1.05E+00
Vanadium (lb/hr)	7.93E-02	7.11E-02	6.35E-02	5.94E-02
(TPY)	3.48E-01	3.11E-01	2.78E-01	2.60E-01
Selenium (lb/hr)	2.67E-02	2.39E-02	2.14E-02	2.00E-02
(TPY)	1.17E-01	1.05E-01	9.36E-02	8.76E-02
POM (lb/hr)	3.17E-04	2.84E-04	2.54E-04	2.38E-04
(TPY)	1.39E-03	1.24E-03	1.11E-03	1.04E-03
Formaldehyde (lb/hr)	4.61E-01	4.13E-01	3.69E-01	3.45E-01
(TPY)	2.02E+00	1.81E+00	1.62E+00	1.51E+00

Source of Emission Factors: EPA(1988)

Table A-5. Design Information and Stack Parameters Putnam Combined Cycle Plant-Natural Gas Firing

Data	Gas Turbine Natural Gas @ 30°F	Gas Turbine Natural Gas @ ISO	Gas Turbine Natural Gas @ 85°F	Gas Turbine Natural Gas @ 100°F
General:				
Power - Net (MW)	91	80	70	65
Heat Rate -Net (Btu/kwh)	13,029.9	13,389.6	13,832.2	14,150.3
Heat Input (MMBtu/hr)	1,184.7	1,071.2	968.3	913.7
Natural Gas (Mcf/hr)	1,240.6	1,121.7	1,013.9	956.7
(lb/hr)	51,510.6	46,576.0	44,100.0	39,725.4
Fuel:				
Heat Content - Gas (HHV)	955 Btu/cf	955 Btu/cf	955 Btu/cf	955 Btu/cf
CT Exhaust:				
Volume Flow (acfm)	1,641,608	1,599,545	1,565,639	1,547,510
Volume Flow (scfm)	638,504	602,826	574,068	558,691
Mass Flow (lb/hr)	2,783,493	2,627,961	2,502,590	2,435,556
Temperature (°F)	898	941	980	1003
Molecular Weight	28	28	28	28
HRSG Stack:				
Volume Flow (acfm)	952,918	899,672	856,752	833,804
Temperature (°F)	328	328	328	328
Diameter (ft)*	10.3	10.3	10.3	10.3
Velocity (ft/sec)	95.3	90.0	85.7	83.4
Height (ft)	73.0	73.0	73.0	73.0

* two stacks per HRSG

Table A-6. Maximum Criteria Pollutant Emissions for Putnam Combustion Turbines-Natural Gas Firing

Pollutant	Gas Turbine Natural Gas @ 30°F	Gas Turbine Natural Gas @ ISO	Gas Turbine Natural Gas @ 85°F	Gas Turbine Natural Gas @ 100°F
Particulate:	Vendor	Vendor	Vendor	Vendor
lb/hr	1.0	1.0	1.0	1.0
TPY	4.4	4.4	4.4	4.4
Sulfur Dioxide:				
Basis	1 gr/100scf	1 gr/100scf	1 gr/100scf	1 gr/100scf
lb/hr	3.54	3.20	2.90	2.73
TPY	15.5	14.0	12.7	12.0
Nitrogen Oxides:				
Basis	119.2 ppm*	119.2 ppm*	119.2 ppm*	119.2 ppm*
lb/hr	545.1	514.6	490.1	477.0
TPY	2,387.5	2,254.1	2,146.5	2,089.0
ppm	119.2	119.2	119.2	119.2
Carbon Monoxide:				
Basis	Vendor	Vendor	Vendor	Vendor
lb/hr	6.0	6.0	6.0	6.0
TPY	26.3	26.3	26.3	26.3
ppm	30.0	30.0	30.0	30.0
VOC's:				
Basis	Vendor	Vendor	Vendor	Vendor
lb/hr	1.00	1.00	1.00	1.00
TPY	4.38	4.38	4.38	4.38
ppm	1.0	1.0	1.0	1.0
Lead:				
Basis				
lb/hr	neg.	neg.	neg.	neg.
TPY	neg.	neg.	neg.	neg.

* actual ppm.

Table A-7. Maximum Other Regulated Pollutant Emissions for Putnam Combustion Turbines - Natural Gas Firing

Pollutant	Gas Turbine Natural Gas @ 30°F	Gas Turbine Natural Gas @ ISO	Gas Turbine Natural Gas @ 85°F	Gas Turbine Natural Gas @ 100°F
As (lb/hr)	neg.	neg.	neg.	neg.
(TPY)	neg.	neg.	neg.	neg.
Be (lb/hr)	neg.	neg.	neg.	neg.
(TPY)	neg.	neg.	neg.	neg.
Hg (lb/hr)	1.35E-02	1.22E-02	1.10E-02	1.04E-02
(TPY)	5.91E-02	5.34E-02	4.83E-02	4.56E-02
F (lb/hr)	neg.	neg.	neg.	neg.
(TPY)	neg.	neg.	neg.	neg.
H2SO4 (lb/hr)	0.271	0.245	0.222	0.209
(TPY)	1.188	1.074	0.971	0.916

Sources: EPA, 1988; EPA, 1980

Table A-8. Maximum Non-Regulated Pollutant Emissions for Putnam Combustion Turbines-Natural Gas Firing

Pollutant	Gas Turbine Natural Gas @ 30°F	Gas Turbine Natural Gas @ ISO	Gas Turbine Natural Gas @ 85°F	Gas Turbine Natural Gas @ 100°F
Manganese (lb/hr)	neg.	neg.	neg.	neg.
(TPY)	neg.	neg.	neg.	neg.
Nickel (lb/hr)	neg.	neg.	neg.	neg.
(TPY)	neg.	neg.	neg.	neg.
Cadmium (lb/hr)	neg.	neg.	neg.	neg.
(TPY)	neg.	neg.	neg.	neg.
Chromium (lb/hr)	neg.	neg.	neg.	neg.
(TPY)	neg.	neg.	neg.	neg.
Copper (lb/hr)	neg.	neg.	neg.	neg.
(TPY)	neg.	neg.	neg.	neg.
Vanadium (lb/hr)	neg.	neg.	neg.	neg.
(TPY)	neg.	neg.	neg.	neg.
Selenium (lb/hr)	neg.	neg.	neg.	neg.
(TPY)	neg.	neg.	neg.	neg.
POM (lb/hr)	7.71E-04	6.97E-04	6.30E-04	5.95E-04
(TPY)	3.38E-03	3.05E-03	2.76E-03	2.60E-03
Formaldehyde (lb/hr)	1.05E-01	9.46E-02	8.55E-02	8.07E-02
(TPY)	4.58E-01	4.14E-01	3.75E-01	3.53E-01

Source: EPA, 1988

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Toxic Air Pollutant Emission Factors—A Compilation For Selected Air Toxic Compounds And Sources

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October 1988

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Nonylphenol production	2869	General	301	Phenol	108952	8.0 x 10E-4 lb/lb used	From engineering estimates	13
Nonylphenol production	2869	Fugitive	301	Phenol	108952	1.9 x 10E-4 lb/lb used	From engineering estimates	13
Nonylphenol production	2869	Storage	407084	Phenol	108952	1.0 x 10E-5 lb/lb used	From engineering estimates	13
Normal superphosphate production	2574	Curing building	30102806	Fluoride	16984488	3.8 lb/ton P205	Uncontrolled	97
Normal superphosphate production	2874	Mixer and den	30102805	Fluoride	16984488	0.2 lb/ton P205	Wet scrubber (97%)	97
Oil and coal combustion	49	Stack - particulate	102	Polychlorinated dibenzo-p-dioxins		68 ng/g	No penta homologue included, one location, TCDD detection = 20 ng/g	119
Oil and coal combustion	49	Stack - particulate	102	Tetrachlorodibenzo-p-dioxin, 2,3,7,8-	1746016	Not detectable	One location, detection limit = 10 ng/g	119
Oil combustion		Oil-fired boiler or furnace, util/commerc/industr/residential	1	Formaldehyde	50000	405 lb/10E12 Btu	Uncontrolled, based on emissions testing	36
Oil combustion		Industrial, commercial, and residential boilers	1	Lead	7439921	8.9 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement, assumed use distillate oil	36
Oil combustion		Residual oil-fired boilers, util/commerc/industr/residential	1	Manganese	7439965	26 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Oil combustion		Residual oil-fired boilers, util/commerc/industr/residential	1	Manganese	7439965	11.96 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Oil combustion		Residual oil-fired boilers, util/commerc/industr/residential	1	Manganese	7439965	5.72 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Oil combustion		Residual oil-fired boilers, util/commerc/industr/residential	1	Manganese	7439965	2.86 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Oil combustion		Distillate oil-fired boilers, util/commerc/industr/residential	1	Manganese	7439965	14 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Oil combustion		Distillate oil-fired boilers, util/commerc/industr/residenti	1	Manganese	7439965	6.44 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering	36

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
		al					Judgement	
Oil combustion		Distillate oil-fired boilers, util/commerc/industr/residenti al	1	Manganese	7439965	3.08 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Oil combustion		Distillate oil-fired boilers, util/commerc/industr/residenti al	1	Manganese	7439965	1.54 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Oil combustion		Residual oil-fired boiler, util/commerc/industr/residenti al	1	Mercury	7439976	3.2 lb/10E12 Btu	Uncontrolled, based on engineering judgement	36
Oil combustion		Residual oil-fired boiler, util/commerc/industr/residenti al	1	Mercury	7439976	3.2 lb/10E12 Btu	Controlled by multiclone, based on engineering judgement	36
Oil combustion		Residual oil-fired boiler, util/commerc/industr/residenti al	1	Mercury	7439976	2.4 lb/10E12 Btu	Controlled by ESP, based on engineering judgement	36
Oil combustion		Residual oil-fired boiler, util/commerc/industr/residenti al	1	Mercury	7439976	0.83 lb/10E12 Btu	Controlled by scrubber, based on engineering judgement	36
Oil combustion		Distillate oil-fired boiler, util/commerc/industr/residenti al	1	Mercury	7439976	3.0 lb/10E12 Btu	Uncontrolled, based on engineering judgement	36
Oil combustion		Distillate oil-fired boiler, util/commerc/industr/residenti al	1	Mercury	7439976	3.0 lb/10E12 Btu	Controlled by multiclone, based on engineering judgement	36
Oil combustion		Distillate oil-fired boiler, util/commerc/industr/residenti al	1	Mercury	7439976	2.25 lb/10E12 Btu	Controlled by ESP, based on engineering judgement	36
Oil combustion		Distillate oil-fired boiler, util/commerc/industr/residenti al	1	Mercury	7439976	0.78 lb/10E12 Btu	Controlled by scrubber, based on engineering judgement	36
Oil combustion		Residual oil-fired boilers, util/commerc/industr/residenti al	1	Nickel	7440020	1260 lb/10E12 Btu	Uncontrolled, based on engineering judgement	36
Oil combustion		Residual oil-fired boilers, util/commerc/industr/residenti	1	Nickel	7440020	642.6 lb/10E12 Btu	Controlled by multiclone, based on engineering judgement	36

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
		al						
Oil combustion		Residual oil-fired boilers, util/commerc/industr/residenti al	1	Nickel	7440020	352.8 lb/10E12 Btu	Controlled by ESP, based on engineering judgement	36
Oil combustion		Residual oil-fired boilers, util/commerc/industr/residenti al	1	Nickel	7440020	50.4 lb/10E12 Btu	Controlled by scrubber, based on engineering judgement	36
Oil combustion		Distillate oil-fired boilers, util/commerc/industr/residenti al	1	Nickel	7440020	170 lb/10E12 Btu	Uncontrolled, based on engineering judgement	36
Oil combustion		Distillate oil-fired boilers, util/commerc/industr/residenti al	1	Nickel	7440020	86.7 lb/10E12 Btu	Controlled by multiclone, based on engineering judgement	36
Oil combustion		Distillate oil-fired boilers, util/commerc/industr/residenti al	1	Nickel	7440020	47.6 lb/10E12 Btu	Controlled by ESP, based on engineering judgement	36
Oil combustion		Distillate oil-fired boilers, util/commerc/industr/residenti al	1	Nickel	7440020	6.8 lb/10E12 Btu	Controlled by scrubber, based on engineering judgement	36
Oil combustion		Residual oil-fired boilers, util/commerc/industr/residenti al	1	Arsenic	7440382	19 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Oil combustion		Distillate oil-fired boilers, util/commerc/industr/residenti al	1	Arsenic	7440382	4.2 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Oil combustion		Distillate oil-fired boilers, util/commerc/industr/residenti al	1	Arsenic	7440382	2.06 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Oil combustion		Distillate oil-fired boilers, util/commerc/industr/residenti al	1	Arsenic	7440382	0.50 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Oil combustion		Distillate oil-fired boilers, util/commerc/industr/residenti al	1	Arsenic	7440382	0.42 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Oil combustion		Residual oil-fired boilers, util/commerc/industr/residenti	1	Arsenic	7440382	9.31 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering	36

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
		al					judgement	
Oil combustion		Residual oil-fired boilers, util/commerc/industr/residenti al	1	Arsenic	7440382	2.28 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Oil combustion		Residual oil-fired boilers, util/commerc/industr/residenti al	1	Arsenic	7440382	1.90 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Oil combustion		Residual oil-fired boilers, util/commerc/industr/residenti al	1	Beryllium	7440417	4.2 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Oil combustion		Distillate oil-fired boilers, util/commerc/industr/residenti al	1	Beryllium	7440417	2.5 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Oil combustion		Distillate oil-fired boilers, util/commerc/industr/residenti al	1	Beryllium	7440417	1.58 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Oil combustion		Distillate oil-fired boilers, util/commerc/industr/residenti al	1	Beryllium	7440417	0.35 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Oil combustion		Distillate oil-fired boilers, util/commerc/industr/residenti al	1	Beryllium	7440417	0.15 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Oil combustion		Residual oil-fired boilers, util/commerc/industr/residenti al	1	Beryllium	7440417	2.65 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Oil combustion		Residual oil-fired boilers, util/commerc/industr/residenti al	1	Beryllium	7440417	0.59 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Oil combustion		Residual oil-fired boilers, util/commerc/industr/residenti al	1	Beryllium	7440417	0.25 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Oil combustion		Residual oil-fired boilers, util/commerc/industr/residenti al	1	Cadmium	7440439	15.7 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Oil combustion		Distillate oil-fired boilers, util/commerc/industr/residenti	1	Cadmium	7440439	10.5 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
		al						
Oil combustion		Distillate oil-fired boilers, util/commerc/industr/residenti al	1	Cadmium	7440439	7.45 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Oil combustion		Distillate oil-fired boilers, util/commerc/industr/residenti al	1	Cadmium	7440439	1.58 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Oil combustion		Distillate oil-fired boilers, util/commerc/industr/residenti al	1	Cadmium	7440439	0.63 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Oil combustion		Residual oil-fired boilers, util/commerc/industr/residenti al	1	Cadmium	7440439	46.86 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Oil combustion		Residual oil-fired boilers, util/commerc/industr/residenti al	1	Cadmium	7440439	9.90 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Oil combustion		Residual oil-fired boilers, util/commerc/industr/residenti al	1	Cadmium	7440439	3.96 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Oil combustion		Residual oil-fired boilers, util/commerc/industr/residenti al	1	Chromium	7440473	21 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Oil combustion		Distillate oil-fired boilers, util/commerc/industr/residenti al	1	Chromium	7440473	47.5 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Oil combustion		Distillate oil-fired boilers, util/commerc/industr/residenti al	1	Chromium	7440473	27.8 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Oil combustion		Distillate oil-fired boilers, util/commerc/industr/residenti al	1	Chromium	7440473	13.92 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Oil combustion		Distillate oil-fired boilers, util/commerc/industr/residenti al	1	Chromium	7440473	3.84 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Oil combustion		Residual oil-fired boilers, util/commerc/industr/residenti	1	Chromium	7440473	12.18 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering	36

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
		al					judgement	
Oil combustion		Residual oil-fired boilers, util/commerc/industr/residential	1	Chromium	7440473	6.09 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Oil combustion		Residual oil-fired boilers, util/commerc/industr/residential	1	Chromium	7440473	1.68 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Oil combustion		Residual oil-fired boilers, util/commerc/industr/residential	1	Copper	7440508	278 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Oil combustion		Distillate oil-fired boilers, util/commerc/industr/residential	1	Copper	7440508	280 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Oil combustion		Distillate oil-fired boilers, util/commerc/industr/residential	1	Copper	7440508	165.2 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Oil combustion		Distillate oil-fired boilers, util/commerc/industr/residential	1	Copper	7440508	42 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Oil combustion		Distillate oil-fired boilers, util/commerc/industr/residential	1	Copper	7440508	25.2 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Oil combustion		Residual oil-fired boilers, util/commerc/industr/residential	1	Copper	7440508	165.2 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Oil combustion		Residual oil-fired boilers, util/commerc/industr/residential	1	Copper	7440508	42.0 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Oil combustion		Residual oil-fired boilers, util/commerc/industr/residential	1	Copper	7440508	25.2 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Oil combustion		Utility boilers	101004	Lead	7439921	28 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement, assumed use residual oil	36
Oil combustion		Distillate watertube boilers	10300501	PCM		<0.12 pg/J heat input	Uncontrolled	114

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Oil combustion		Scotch marine boilers, distillate oil	10300501	POM		17.7 pg/J	Uncontrolled	114
Oil combustion		Cast iron sectional boilers, distillate oil	10300501	POM		<14.9 pg/J	Uncontrolled, home heating application	114
Oil combustion		Hot air furnace, distillate oil	10300501	POM		<0.14 pg/J	Uncontrolled, same reference also lists <15.4 for same boiler/fuel type	114
Oil combustion	49	Boiler flue gas	1	Tetrachlorodibenzo-p-dioxin, 2,3,7,8-	1746016	Not detectable	Low ash, 2% sulfur oil, sampled after heat exch., before ESP, 2378-TCDD detec. limit=<4.2-<7.9 ng/m3	119
Oil combustion	49	Flue gas	1	Tetrachlorodibenzofuran, 2,3,7,8-	51207319	Not detectable	Low ash, 2% sulfur oil, sampled after heat exch., before ESP, 2378-TCDD detec. limit=<0.67-<1.3ng/m3	119
Oil combustion, commercial		Residual oil-fired tangential furnaces	103004	Vanadium	7440622	3660 pg/J	Uncontrolled, based on reported emissions and engineering judgement	54
Oil combustion, commercial		Residual oil-fired wall furnaces	103004	Vanadium	7440622	3660 pg/J	Uncontrolled, based on reported emissions and engineering judgement	54
Oil combustion, commercial		Tangential furnace, residual oil	103004	Selenium	7782492	10.1 pg/J	Uncontrolled, based on reported emissions data and engineering judgement	54
Oil combustion, commercial		Wall furnace, residual oil	103004	Selenium	7782492	10.1 pg/J	Uncontrolled, based on reported emissions data and engineering judgement	54
Oil combustion, commercial		Scotch marine boilers, residual oil	10300401	POM		0.95 pg/J heat input	Uncontrolled, represents benzo(a)pyrene only	114
Oil combustion, commercial		Distillate oil-fired tangential furnaces	103005	Vanadium	7440622	30.0 pg/J	Uncontrolled, based on reported emissions data and engineering judgement	54
Oil combustion, commercial		Distillate oil-fired wall furnaces	103005	Vanadium	7440622	30.0 pg/J	Uncontrolled, based on reported emissions data and engineering judgement	54
Oil combustion, commercial		Tangential furnace, distillate oil	103005	Selenium	7782492	10.1 pg/J	Uncontrolled, based on reported emissions data and engineering judgement	54

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Oil combustion, commercial		Wall furnace, distillate oil	103005	Selenium	7782492	10.1 pg/J	Uncontrolled, based on reported emissions data and engineering judgement	54
Oil combustion, industrial		Tangential furnaces	102	Vanadium	7440622	260 pg/J	Controlled by scrubber, based on reported emissions and engineering judgement	54
Oil combustion, industrial		Tangential furnaces	102	Vanadium	7440622	1300 pg/J	Uncontrolled, based on reported emissions and engineering judgement	54
Oil combustion, industrial		Wall furnaces	102	Vanadium	7440622	260 pg/J	Controlled by scrubber, based on reported emissions and engineering judgement	54
Oil combustion, industrial		Wall furnaces	102	Vanadium	7440622	1300 pg/J	Uncontrolled, based on reported emissions and engineering judgement	54
Oil combustion, industrial		Tangential furnace	102	Selenium	7782492	2.0 pg/J	Controlled by scrubber, based on reported emissions data and engineering judgement	54
Oil combustion, industrial		Tangential furnace	102	Selenium	7782492	10.1 pg/J	Uncontrolled, based on reported emissions data and engineering judgement	54
Oil combustion, industrial		Wall furnace	102	Selenium	7782492	2.0 pg/J	Controlled by scrubber, based on reported emissions data and engineering judgement	54
Oil combustion, industrial		Wall furnace	102	Selenium	7782492	10.1 pg/J	Uncontrolled, based on reported emissions data and engineering judgement	54
Oil combustion, industrial		Steam atomized watertube, residual oil	10200401	POM		2.3 pg/J heat input	Uncontrolled, represents mostly particulate POM	114
Oil combustion, industrial		Watertube, residual oil	10200401	POM		0.63 pg/J heat input	Uncontrolled, represents both gaseous and particulate POM	114
Oil combustion, residential		Distillate oil-fired boilers		Vanadium	7440622	10.1 pg/J	Uncontrolled, based on reported emissions data and engineering judgement	54
Oil combustion, residential		Distillate oil-fired furnaces		Selenium	7782492	2.9 pg/J	Uncontrolled, based on reported emissions data and engineering judgement	54

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Oil combustion, utility		Wall-fired, residual oil	10100401	POM		3.9 pg/J heat input	Uncontrolled, ave. of 4 values ranging from 0.45-12.3 pg/J, represents gaseous & particulate POM	114
Oil combustion, utility		Face-fired, residual oil	10100401	POM		0.37 pg/J heat input	Uncontrolled, represents both gaseous and particulate POM	114
Oil combustion, utility		Tangential-fired, residual oil	10100404	POM		2.5 pg/J heat input	Cyclone controls, represents both gaseous and particulate POM	114
Oil combustion, utility	4911	Residual oil-fired tangential furnaces	101004	Vanadium	7440622	303 pg/J	Controlled by ESP, based on reported emissions and engineering judgement	54
Oil combustion, utility	4911	Residual oil-fired tangential furnaces	101004	Vanadium	7440622	1516 pg/J	Uncontrolled, based on reported emissions and engineering judgement	54
Oil combustion, utility	4911	Residual oil-fired wall furnaces	101004	Vanadium	7440622	303 pg/J	Controlled by ESP, based on reported emissions and engineering judgement	54
Oil combustion, utility	4911	Residual oil-fired wall furnaces	101004	Vanadium	7440622	1516 pg/J	Uncontrolled, based on reported emissions and engineering judgement	54
Oil combustion, utility	4911	Tangential, residual oil	101004	Selenium	7782492	2.0 pg/J	Controlled by ESP, based on reported emissions date and engineering judgement	54
Oil combustion, utility	4911	Tangential, residual oil	101004	Selenium	7782492	10.1 pg/J	Uncontrolled, based on reported emissions data and engineering judgement	54
Oil combustion, utility	4911	Wall furnace, residual oil	101004	Selenium	7782492	2.0 pg/J	Controlled by ESP, based on reported emissions data and engineering judgement	54
Oil combustion, utility	4911	Wall furnace, residual oil	101004	Selenium	7782492	10.1 pg/J	Uncontrolled, based on reported emissions data and engineering judgement	54
Oil shale retorting	1311	Modified in situ retort		POM		3.3 g/hr	Based on offgas concentration and flow rate	114
Oil shale retorting	2911	Entire process		Mercury	7439976	2.2 x 10E-4 lbs/barrel oil produced	Includes Hg compound form, assumes fac. using 13,000 tons/day raw shale to prod. 12,000 bbl/day oil	40

PB81-225559

Emissions Assessment of Conventional Stationary Combustion Systems: Volume V: Industrial Combustion Sources

TRW, Inc.
Redondo Beach, CA

Prepared for

Industrial Environmental Research Lab.
Research Triangle Park, NC

1981

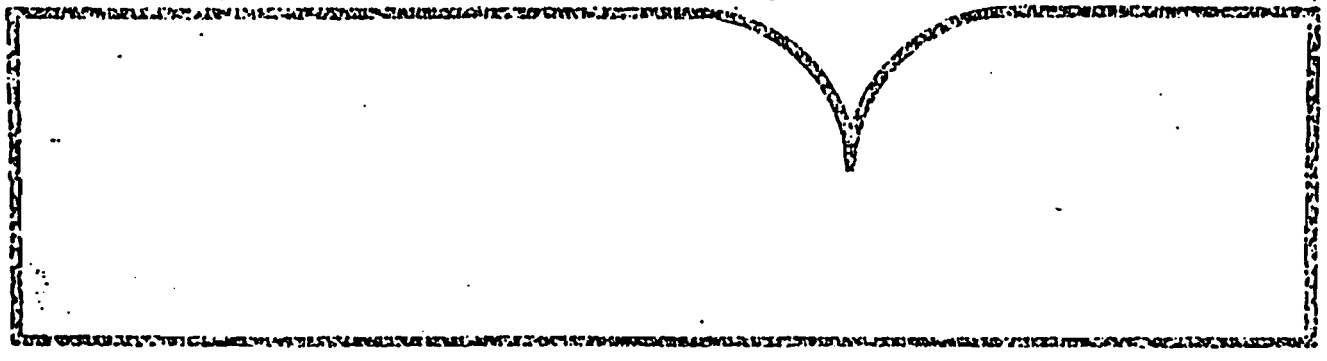

TABLE 61. COMPARISON OF EXISTING TRACE ELEMENT EMISSION FACTOR DATA WITH RESULTS OF CURRENT STUDY OF OIL-FIRED INDUSTRIAL COMBUSTION SOURCES, pg/J

	Distillate oil-fired boilers			Residual oil-fired boilers			
		Existing data			Existing data		
Element	Current study	Ref. 42	Ref. 43	Current study	Ref. 42	Ref. 21	Ref. 28
Aluminum (Al)	178	15	250	177	156	87	132
Arsenic (As)	3.5	1.3	1.5	1.2	9.1	18	12
Barium (Ba)	1.2	8.4	16	3.3	9.5	29	31
Calcium (Ca)	75	845	450	229	780	320	1428
Cadmium (Cd)	1.3	2.5	11	0.66	0.2	52	6.9
Cobalt (Co)	3.6	2.3	1.0	11	23	50	10
Chromium (Cr)	24	36	29	29	50	30	21
Copper (Cu)	37	205	160	10	93	64	350
Fluorine (F)	—	14	—	—	1.0	2.7	149
Iron (Fe)	383	545	140	83	379	411	453
Mercury (Hg)	—	1.7	1.2	—	1.9	0.9	1.5
Potassium (K)	85	60	230	261	213	777	392
Lithium (Li)	0.5	1.6	1.2	1.1	1.0	1.4	1.7
Magnesium (Mg)	42	40	210	24	111	297	2384
Nickel (Ni)	255	112	290	728	804	964	433
Lead (Pb)	24	48	42	2	7	80	34
Antimony (Sb)	—	1.7	5.7	—	21	10	25
Silicon (Si)	735	173	—	8655	1610	400	595
Vanadium (V)	195	30	2.9	366	250	3656	714
Zinc (Zn)	42	40	110	33	46	29	66

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U.S. DEPARTMENT OF COMMERCE
National Technical Information Service
PB-296 390

Emission Assessment of Conventional Stationary Combustion Systems; Volume II Internal Combustion Sources

TRW, Inc, Redondo Beach, CA

Prepared for

Industrial Environmental Research Lab, Research Triangle Park, NC

Feb 1979

TABLE 52. COMPARISON OF TRACE ELEMENT EMISSION FACTORS FOR DISTILLATE OIL-FUELED GAS TURBINES AND DISTILLATE OIL ENGINES

Trace Element	Mean Emission Factor, pg/J	
	Distillate Oil Fueled Gas Turbine	Distillate Oil Reciprocating Engine
Aluminum	64	66
Antimony	9.4	12
Arsenic	2.1	2.2
Barium	8.4	14
Beryllium	0.14	0.03
Boron	28	11
Bromine	1.8	4.0
Cadmium	1.8	3.1
Calcium	330	237
Chromium	20	26
Cobalt	3.9	5.7
Copper	578	453
Iron	256	325
Lead	25	26
Magnesium	100	44
Manganese	145	16
Mercury	0.39	0.13
Molybdenum	3.6	12.5
Nickel	526	564
Phosphorus	127	97
Potassium	185	179
Selenium	2.3	2.1
Silicon	575	301
Sodium	590	1625
Tin	35	9.1
Vanadium	1.9	0.95
Zinc	294	178

EXHIBIT 8

FLORIDA POWER & LIGHT COMPANY
GROUNDWATER MONITORING PLAN
PUTNAM POWER PLANT

NOTE: Due to its length, the Groundwater Monitoring Plan is attached separately and is attached only to the original Request for Modification of Conditions of Certification. Copies are available upon request.

ORIGINAL
CERTIFICATION
CONDITIONS

FLORIDA POWER & LIGHT COMPANY
PUTNAM PLANT
CONDITIONS OF CERTIFICATION

(Incorporating modifications from 1976, 1978, 1980, 1984, 1986, and 1991)

The permittee shall comply with the following conditions of certification:

1. A. Auxiliary Boilers:

Fuel consumed should not contain more than 0.7% sulfur nor should stack emissions exceed those specified in chapter 17-2.600(6).

B. Combustion Turbines:

(i) Only fuel oil with not more than 0.7 percent sulfur content or natural gas may be fired.

(ii) Opacity shall not exceed 20 percent opacity except for one 6-minute period per hour during which opacity shall not exceed 27 percent.

C. Heat Recovery Steam Generators:

(i) Only the following fuels may be fired: (a) natural gas or (b) fuel oil with not more than 0.5 percent sulfur content by weight.

(ii) Emissions shall not exceed the following limitations:

(a) Opacity emissions shall not exceed 20 percent (6-minute average), except for one 6-minute period per hour of not more than 27 percent.

(b) Excess opacity resulting from malfunctions is permitted provided that best operational practices to minimize emissions are adhered to and the duration of excess opacity shall be minimized, but in no case exceed two hours in any 24-hour period unless specifically authorized by the Department for longer duration.

(c) Excess opacity resulting from startup or shutdown is permitted, provided that best operational practices to minimize emissions are adhered to and the duration of excess emissions shall be minimized.

(d) Nitrogen oxides emissions shall not exceed 0.2 lb/mmBtu heat input when natural gas or distillate oil is combusted or 0.4 lb/mmBtu heat input when residual oil is combusted. Compliance is determined on a 30-day rolling average basis. The nitrogen oxides standard applies at all times, including periods of startup, shutdown, or malfunction.

(iii) To determine compliance with the emissions limit for sulfur dioxide, receipts from the fuel supplier shall be maintained for each shipment which certify that the oil complies with the specifications for fuel oil numbers 1 and 2, as defined by the American Society of Testing and Materials in ASTM D396-78, Standard Specifications for Fuel Oils. Quarterly reports based on such receipts shall be submitted to the Northeast District Office certifying that only oil containing no more than 0.5 weight percent sulfur or oil that has a sulfur dioxide emission rate equal to or less than 0.5 lb/mmBtu heat input and which meets the ASTM specifications was combusted in the duct burners during the preceding quarter. All quarterly reports shall be postmarked by the 30th day following the end of each calendar quarter.

(iv) To determine compliance with the opacity limit, Method 9 shall be used as required under 40 CFR § 60.8 (July 1, 1990) Edition). The initial performance test shall be performed within 60 days after achieving the maximum production rate for the HRSGs, but not later than 180 days after initial startup. Annual compliance tests shall be performed at least once during each federal fiscal year (October 1 - September 30). Thirty (30) days prior to the initial compliance test and fifteen (15) days prior to each annual compliance test, notice shall be provided to the Northeast District Office. The results of each test shall be submitted to the Northeast District Office within 45 days of test completion. Other Department-approved methods may be used for compliance testing after prior Department approval.

(v) To determine compliance with the nitrogen oxides emissions limit, FPL shall conduct the performance test described in 40 CFR § 60.46b(f) (July 1, 1990 Edition) and required under 40 CFR § 60.8 (July 1, 1990 Edition) using the nitrogen oxides and oxygen measurement procedures in 40 CFR Part 60 Appendix A, Method 20 (July 1, 1990 Edition). The initial compliance test shall be performed within 60 days after achieving the maximum production rate for the HRSGs, but not later than 180 days after initial startup. Annual compliance tests shall be performed at least once during each federal fiscal year (October 1 - September 30). Thirty (30) days prior to the initial

compliance test and fifteen (15) days prior to each annual compliance test, notice shall be provided to the Northeast District Office. The results of each test shall be submitted to the Northeast District Office within 45 days of test completion.

(vi) FPL shall maintain records of opacity and must submit excess emissions reports for any calendar quarter during which there are excess emissions from the HRSGs. If there are no excess emissions during the calendar quarter, FPL shall submit a report stating that no excess emissions occurred during the quarterly reporting period. The quarterly reports shall be submitted to the Department's Northeast District Office.

(vii) FPL shall satisfy any applicable nitrogen oxides emissions records maintenance requirements set forth in 40 CFR § 60.49b(g) (July 1, 1990 Edition).

(viii) All records required under this condition shall be maintained by FPL for a period of two years following the date of such record.

2. Stack Height: Minimum stack heights for the paired combined cycle unit exhaust stacks shall be 71 feet above grade. Stacks with a height of at least 150 feet shall be constructed if monitoring data per Condition 5 indicates ambient air standards have been violated.

Wind Restriction: The permittee will burn fuel oil containing no more than 0.50% sulfur when sustained winds exceed 20 miles per hour for any continuous period of three hours or longer.

Wind Monitoring: The permittee shall measure wind velocity and wind direction at hourly intervals in the plant vicinity, only for those hours during which combustion turbines at either of the combined cycle units of the plant operates on oil with greater than 0.5 percent sulfur content. Wind data for the hours during which oil with greater than 0.5 percent sulfur content was burned each month, or, if applicable, a statement that no oil with greater than 0.5 percent sulfur content was burned during that month, shall be reported to the Northeast District Assistant Deputy Secretary of the Department by the last day of the month following each reporting period. Wind velocity and direction measurements required by this paragraph shall be made in accordance with recognized methods and procedures.

3. The permittee shall install a sampling platform on one stack or shall provide sampling ports and such temporary access facilities as may be prescribed by the Department in performing stack sampling.

4. The permittee shall install and operate continuous monitoring devices on one of the paired combined cycle unit exhaust stacks for each unit for the following: Opacity, Nitrogen Oxides. Records of such monitoring shall be available for inspection.

5. The permittee shall install and operate continuously for a 24-hour period every six days, two ambient air, West-Gaeke, monitoring devices for sulfur dioxide and two suspended particulate sampling devices. The location of these ambient air samplers shall be determined by consultation with the Northeast District Assistant Deputy Secretary of the Department. The data collected will be reported to the Northeast District Assistant Deputy Secretary quarterly by the 45th day following the end of the reporting period, utilizing the SAROAD or other mutually acceptable format.

6. With the exception of cooling tower blowdown, water effluents shall conform to the limitations of Chapter 17-3, F.A.C., including, but not limited to, those contained in Condition 7 below. For cooling tower blowdown, in addition to those limitations contained in Chapter 17-3, F.A.C., and Condition 7 below, a mixing zone is hereby established for the parameters of iron, chlorine, copper, nickel and zinc with the dimensions of 800 meters in length and 90 meters in width, except that the southernmost section of the mixing zone shall be 150 meters in width as shown on Figure 5 of Attachment "A" hereto so as to take into account a particular shoreline configuration.

7. Monitoring shall be conducted at the frequencies listed below on the following waste streams, where applicable: Cooling Tower Blowdown, West EP Pond, North Fuel Oil Tank Farm, and the Physical Chemical Treatment System. Each of these waste streams discharge to the St. Johns River. Cooling Tower Blowdown and the Physical Chemical Treatment System discharge may discharge simultaneously or separately through the same pipe. Monitoring reports shall be submitted quarterly to the Department's Northeast District Assistant Deputy Secretary:

Parameter	Monitoring Limitations	Frequency	Waste Streams
Flow	Cooling tower blowdown shall be minimized to the degree allowed by best engineering Practices	Continuous recorders, pump logs or calculation	Cooling Tower Blowdown, West EP Pond, North Fuel Oil Tank Farm Area, Physical Chemical Treatment System
Temperature	Not to exceed 98°F. at the P.O.D. and not to exceed 92°F. 5°F. above ambient at the boundary of a three-dimensional zone of mixing described by a cylinder of 50 meters radius running horizontally from the P.O.D. and which extends vertically to the river surface and river bottom	Continuous (recorder or logs) at any point between the blowdown discharge at the cooling tower and the P.O.D. or cooling water water into the river	Cooling Tower Blowdown
Phosphate	50 ppm	Weekly	Physical Chemical Treatment System during periods of discharge from the neutralization basin
Dissolved Solids	6000 ppm	Daily	Cooling Tower Blowdown, Physical Chemical Treatment System
pH	6.0 - 8.5	Daily	Cooling Tower Blowdown, West EP Pond, North Fuel Oil Tank Farm Area, Physical Chemical Treatment System
Floating Solids and and Visible Foam	None visible	None	Cooling Tower Blowdown, West EP Pond, North Fuel Oil Tank Farm Area, Physical Chemical Treatment System

8. 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 identified in this certification more frequently than or at a level in excess of that authorized 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 of pollutants or expansion in steam generating capacity must be reported by submission of a new application.

9. 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 provide prompt notification to the Assistant Deputy Secretary of the Northeast District of the Department by telecommunication sent by 3:00 p.m. of the next normal work day following the occurrence of such noncompliance, and shall submit the following information in writing, within ninety-six (96) hours of becoming aware of such conditions:

(a) A description of the discharge and cause of noncompliance; and

(b) The period of noncompliance, including exact dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate and prevent recurrence of the noncomplying discharge.

10. 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.

11. 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 such accelerated or additional monitoring as necessary to determine the nature and impact of the noncomplying discharge.

12. Bypassing: Any diversion or bypass of facilities necessary to maintain compliance with the terms and conditions of this certification is prohibited, except (i) where unavoidable to prevent loss of life or severe property damage, or (ii) where excessive storm drainage or runoff would damage any facilities necessary for compliance with the conditions of this certification. The permittee shall promptly notify the Assistant Deputy Secretary of the Northeast District of the Department of each such diversion or bypass in accordance with the procedure contained in Condition 9 of this certification.

13. Removed Substances: Solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of wastewaters shall be disposed of in a manner such as to prevent any pollutant from such materials from entering waters of the state.

14. 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 any records are required to be kept under terms and conditions of this permit; and

(b) To have access to and copy any records required to be kept under the conditions of this certification; and

(c) To inspect any monitoring equipment or monitoring method required in this certification and to sample any discharge of pollutants.

15. Revocation or Suspension: After notice and opportunity for a hearing, this certification may be suspended, or revoked in whole or in part during its terms for cause, including, but not limited to, the provisions of § 403.512, Chapter 403, Florida Statutes, or for failure to comply with the terms and conditions of the certification.

16. New Pollutant Standards: If an effluent or emission standard or prohibition (including any schedule of compliance specified in such effluent or emission standard or prohibition) is established for a pollutant which is present in this certification and such standard or prohibition is more stringent than any limitation for such pollutant in this certification, this certification shall be revised in accordance with the new effluent or emission standard or prohibition and the permittee so notified.

17. Civil and Criminal Liability: Nothing in this certification shall be construed to relieve the permittee from civil or criminal penalties for noncompliance with any condition of this certification, applicable rules or regulations of the Department, or Chapter 403, Florida Statutes.

18. Nothing in this certification shall be construed to preclude the institution of any legal action or relieve the permittee from the responsibilities, requirements, liabilities, or penalties established pursuant to any

applicable state statutes or regulations, including Departmental rules and regulations promulgated by the Department pursuant to Chapter 403, Florida Statutes.

19. Property Rights: The issuance of this certification does not convey any property rights in either real or personal property, or 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.

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

21. No debris shall be discharged to waters of the state from the intake screens with the exception of viable nekton.

22. Discharge of cooling tower blowdown shall not begin until total residual chlorine concentrations are below 0.14 mg/l. Free available chlorine shall not exceed a daily average concentration of 0.2 mg/l and a maximum concentration of 0.5 mg/l during a maximum of one 2-hour period a day at the point of discharge. Chlorine concentration monitoring shall be conducted two times per week using multiple grab sampling. The results of such a monitoring shall be reported to the District Manager on the same frequency as reported to the U. S. Environmental Protection Agency.

23. Any biocide discharge from any point source shall comply with the requirements of the Federal Insecticide, Fungicide, and Rodenticide Act, as amended (7 U.S.C. 136 et seq.) and the use of such pesticide shall be in a manner consistent with the labeling.

24. There shall be no release from containment devices or structures of polychlorinated biphenyl compounds to the environment.

25. There shall be no surface discharge of turbid waters to waters of the state from the spoil disposal/borrow pit system. Any spoil excavated during construction of maintenance dredging shall be deposited on an upland area. A berm or other control device shall be constructed around the spoil disposal area to ensure against spillage or discharge of excavated material which may cause turbidity in

excess of 50 Jackson Turbidity Units above background in waters of the state.

26. The barge slip shall be of a sheet-pile type construction with a poured concrete cap. Riprap shall be placed on the river bank adjacent to the barge slip to prevent erosion due to removal of natural vegetation. Spilled oil shall be removed from the barge slip prior to the departure of any barge. Such oil shall be disposed of by the plant's oil treatment system.

27. Construction of the utilities tunnel under U.S. 17 shall be expedited to occur in a minimal amount of time. Such construction shall be performed in accordance with the standards of the Florida Department of Transportation and in close coordination with:

Mr. C. A. Benedict
District Engineer, Fifth Division
Florida Department of Transportation
Post Office Box 47
Deland, Florida 32720

and with

Mr. J. A. Crookshank, Jr.
Maintenance Engineer, Putnam County
Post Office Drawer X
St. Augustine, Florida 32084

28. During construction and plant operation, necessary measures shall be employed to settle, filter or absorb silt-containing or pollutant-loaded stormwater runoff to prevent contamination of waters of the state. Such measures may include sediment traps, barriers, and use of berms or vegetation. Exposed or disturbed soil shall be sodded as soon as possible to minimize silt and sediment runoff into waters of the state.

29. Turbidity control shall be installed prior to any construction or maintenance dredging to ensure that turbidity of state waters is not increased more than 50 Jackson Turbidity Units.

30. The Groundwater Monitoring Plan for the Putnam Power Plant, approved on February 25, 1985, and on file with the Department, is incorporated by reference.

Copies of any subsequent revisions to the Groundwater Monitoring Plan which are approved by the Department's Northeast District Office shall be filed with the Department's Siting Coordination Office and provided to

the parties hereto by certified mail, and, in the absence of a request for a hearing thereon within 15 days of receipt of such revision, the revisions shall become part of this certification without the need for further filing or the submission of filing fees.

31. Review of Site Certification: This certification shall be final unless revoked or suspended pursuant to law. Five years from the date of issuance of any National Pollutant Discharge Elimination System Permit issued pursuant to the Federal Water Pollution Control Act Amendments of 1972, for the Combined Cycle Units, the Department shall review all monitoring data that have been submitted to it during the preceding five-year period for the purpose 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 and all parties of record in this certification proceeding.

32. Monitoring Program Review: The results of the air, water, and groundwater monitoring programs will be reviewed by the Department and Florida Power & Light Company at the end of each year of operation to determine the necessity and/or extent of continuation. The methods and procedures utilized in the monitoring program shall be approved by the Department and shall also be reviewed annually by the Department and Florida Power & Light Company, and may be modified by agreement of all parties of record in this certification proceeding.

33. Modification of Conditions: The conditions of this certification may be modified in the following manner:

(a) The Board, pursuant to § 403.516(1), Florida Statutes, hereby delegates to the Secretary the authority to modify, after notice and opportunity for hearing, any conditions pertaining to air and water monitoring and sampling, variances, or exceptions to water quality standards.

(b) All other modifications shall be made in accordance with § 403.516, Florida Statutes.

bjh/PutnamCond

5/18/76 order

BEFORE THE GOVERNOR AND CABINET

OF THE STATE OF FLORIDA

In the Matter of:	)	
	)	
FLORIDA POWER & LIGHT COMPANY, PALATKA STATION: Modification of Conditions of Certification No. PPS-74-01,	)	Order No.
	)	
Putnam County, Florida,	)	
	)	
Permittee.	)	
	)	
	)	

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

Honorable Reubin O'D. Askew
Governor

Honorable Bruce A. Smathers
Secretary of State

Honorable Robert L. Shevin
Attorney General

Honorable Philip F. Ashler
Treasurer and Insurance Commissioner

Honorable Gerald A. Lewis
Comptroller

Honorable Doyle Conner
Commissioner of Agriculture

Honorable Ralph D. Turlington
Commissioner of Education

O R D E R

BY THE GOVERNOR AND CABINET:

The Governor and Cabinet, having fully considered the Stipulation of Parties Modifying Certain Conditions of Certification, a copy of which is attached hereto as Exhibit A, and being otherwise duly advised in the premises, it is therefore,

ORDERED by the Governor and Florida Cabinet, in exercising their functions under Section 403.501 through Section 403.515, and Section 20.261(12), Florida Statutes 1975, that the Conditions of Site Certification No. PPS-74-01 be and the same are hereby modified in accordance with the proposed modifications set forth in the Stipulation of Parties Modifying Certain Conditions of Certification which is attached hereto as Exhibit A.

Accordingly, the proposed modifications set forth in the Stipulation of Parties Modifying Certain Conditions of Certification are expressly confirmed and incorporated herein.

DONE this 18th day of May, 1976.

ENTERED this 18th day of May, 1976, at Tallahassee, Florida.

FOR THE GOVERNOR AND FLORIDA CABINET:

REUBIN O'D. ASKEW
Governor

VOTE:

FOR:

Honorable Reubin O'D. Askew
Honorable Bruce A. Smathers
Honorable Robert L. Shevin
Honorable Gerald A. Lewis
Honorable Philip F. Ashler
Honorable Ralph D. Turlington
Honorable Doyle Conner

AGAINST:

Copies furnished to:

All Parties of Record

BEFORE THE DEPARTMENT OF ENVIRONMENTAL REGULATION

In The Matter Of:	)	
	)	
FLORIDA POWER & LIGHT COMPANY,	)	
PALATKA STATION:	)	Docket No. _____
Modification of conditions	)	
of certification No. PPS-74-01	)	
	)	
PUTNAM COUNTY, FLORIDA,	)	
	)	
Permittee.	)	
	)	

STIPULATION OF PARTIES MODIFYING CERTAIN CONDITIONS OF CERTIFICATION

All of the parties who previously entered appearances in the original site certification proceeding conducted pursuant to Part II of Chapter 403, Florida Statutes, and resulting in the issuance of the above noted Certification No. PPS-74-01, hereby stipulate and agree (pursuant to §120.57(3), Florida Statutes, and §17-17.16, Florida Administrative Code), as follows:

1. The signatories to this Stipulation include all of the parties to the above mentioned certification proceeding, including the Department of Environmental Regulation (previously the Department of Pollution Control).

2. On October 16, 1974, the Permittee, Florida Power & Light Company, was issued site certification (No. PPS-74-01) by the Board of the Department of Pollution Control authorizing it to construct and operate an expansion of the Permittee's electric power plant at its Palatka site (also known as the "Putnam Plant") subject to terms of the "Conditions of Certification" attached hereto as Exhibit "A".

3. On June 2, 1975, by letter, Permittee requested certain modifications and amendments to the "Conditions of Certification" previously issued.

4. The requested modifications and amendments are supported by the "Rationale and Justifications for Proposed Modification of the Conditions of Certification of PPS-74-01" attached hereto as Exhibit "B".

5. The "Conditions of Certification" previously made a part of the original Certification Agreement and certification are amended and modified to read as follows:

"CONDITIONS OF CERTIFICATION

"The permittee shall comply with the following conditions of certification:

"1. Fuel consumed should not contain more than 0.7 % sulfur nor should stack emissions exceed those specified in Chapter 17-2.04(e).

"2. Stack Height: Minimum stack heights shall be 53 feet above grade. Stacks with a height of at least 150 feet shall be constructed prior to burning residual fuel oil containing more than 0.35% sulfur, except as provided for in "Warranty Testing".

Warranty Testing: The permittee may burn fuel oil containing more than 0.35% sulfur, but not more than 0.7% sulfur, during an initial twelve month warranty testing period: provided, however, that during this test period, the burning of fuel oil containing more than 0.35% sulfur shall be suspended by the permittee during such times that sustained winds may exceed 20 miles per hour for any continuous period of three hours or longer.

Wind Monitoring: The permittee shall measure wind velocity and wind direction at hourly intervals in the plant vicinity, during each period that fuel oil containing more than 0.35% sulfur is burned. Such wind data shall be reported monthly to the Lower St. Johns Subdistrict Manager of the Department by the last day of each month following the reporting period. Wind velocity and direction measurements required by this paragraph shall be made in accordance with recognized methods and procedures; the permittee shall submit to the Department the details of its measuring plans at least 30 days prior to burning of fuel oil containing more than 0.35% sulfur.

"3. The permittee shall install a sampling platform on one stack or shall provide sampling ports and such temporary access facilities as may be prescribed by the Department in performing stack sampling.

"4. The permittee shall install and operate continuous monitoring devices on each stack for the following: Opacity, Nitrogen Oxides. Records of such monitoring shall be available for inspection.

"5. The permittee shall install and operate continuously for a 24-hour period every three days two ambient air, West-Gaeke, monitoring devices for sulfur dioxide and two suspended particulate sampling devices. After six months of operation, the Department may allow sampling on a six day interval. The location of these ambient air samplers shall be determined by consultation with the Lower St. Johns Subdistrict Manager of the Department. The data collected will be reported to the Subdistrict

Manager quarterly by the last day of each month following the reporting period, utilizing the SAROAD or other mutually acceptable format.

"6. Water effluents shall conform to the limitations of Chapter 17-3, F.A.C., including but not limited to those contained in Paragraph 7 below.

"7. The following parameters shall be reported monthly to the Subdistrict Manager:

Effluent Characteristics	Limitations	Monitoring
a. Flow	To existing plant discharge area. Cooling tower blowdown shall be minimized to the degree allowed by best engineering practice; furthermore, the combined flow to the St. Johns River from the cooling tower and the chemical waste treatment system shall not exceed 2,200 gpm.	Continuous recorders o pump logs
b. Temperature	Not to exceed 98°F. at the P.O.D. and not to exceed 92°F. or 5°F. above ambient at the boundary of a 3-dimensional zone of mixing described by a cylinder of 50 meters radius running horizontally from the P.O.D. and which extends vertically to the river surface and river bottom.	Continuous (recorder o logs) at any point between the blowdown o charge at the cooling tower and the P.O.D. o cooling water into th river.
c. Phosphate to Blowdown tank	50 ppm	Weekly
d. Dissolved solids	6000 ppm	Daily
e. pH	6.0 - 8.5	Daily
f. Floating solids and visible foam	None visible	None

"8. 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 identified in this certification more frequenlty than or at a level in excess of that authorized 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 of pollutants or expansion in steam generating capacity must be reported by submission of a new application.

"9. 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 provide prompt notification to the Lower St. Johns Subdistrict Manager of the Department by telecommunication sent no later than 3:00 p.m. of the next normal work day following the occurrence of such non-compliance, and shall submit the following information in writing, within ninety-six (96) hours of becoming aware of such conditions:

A. A description of the discharge and cause of noncompliance; and

B. The period of noncompliance, including exact dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate and prevent recurrence of the noncomplying discharge.

"10. 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.

"11. 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 such accelerated or additional monitoring as necessary to determine the nature and impact of the noncomplying discharge.

"12. Bypassing:
Any diversion or bypass of facilities necessary to maintain compliance with the terms and conditions of this certification is prohibited, except (i) where unavoidable to prevent loss of life or severe property damage, or (ii) where excessive storm drainage or runoff would damage any facilities necessary for compliance with the conditions of this certification. The permittee shall promptly notify the Lower St. Johns Subdistrict Manager of the Department of each such diversion or bypass in accordance with the procedure contained in condition #9 of this certification.

"13. Removed Substances:
Solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of wastewaters shall be disposed of in a manner such as to prevent any pollutant from such materials from entering waters of the state.

"14. 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 any records are required to be kept under terms and conditions of this permit; and

b. To have access to and copy any records required to be kept under the conditions of this certification; and

c. To inspect any monitoring equipment or monitoring method required in this certification and to sample any discharge of pollutants.

"15. Revocation or Suspension:
After notice and opportunity for a hearing, this certification may be suspended, or revoked in whole or in part during its term for cause including, but not limited to, the provisions of §403.512, Chapter 403, Florida Statutes, or for failure to comply with the terms and conditions of the certification.

"16. New Pollutant Standards:
If an effluent or emission standard or prohibition (including any schedule of compliance specified in such effluent or emission standard or prohibition) is established for a pollutant which is present in this certification and such standard or prohibition is more stringent than any limitation for such pollutant in this certification, this certification shall be revised in accordance with the new effluent or emission standard or prohibition and the permittee so notified.

"17. Civil and Criminal Liability:
Nothing in this certification shall be construed to relieve the permittee from civil or criminal penalties for noncompliance with any condition of this certification, applicable rules or regulations of the Department, or Chapter 403, Florida Statutes.

"18. Nothing in this certification shall be construed to preclude the institution of any legal action or relieve the permittee from the responsibilities, requirements, liabilities, or penalties established pursuant to any applicable State Statutes, or Regulation, including Departmental rules and regulations promulgated by the Department pursuant to Chapter 403, F.S.

"19. Property Rights:
The issuance of this certification does not convey any property rights in either real or personal property, or 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.

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

"21. No debris shall be discharged to waters of the State from the intake screens with the exception of viable nekton. Additionally, the permittee shall, beginning no later than April 1, 1977, undertake a study to evaluate methods of returning viable nekton collected on the intake screens to ambient temperature waters and shall submit a report presenting results no later than July 1, 1978.

"22. After December 31, 1976 or six months after commencement of boiler operations, whichever event occurs later, free available chlorine shall not exceed an average concentration of 0.2 mg/l and a maximum concentration of 0.5 mg/l during a maximum of one, two-hour period a day. Chlorine concentration monitoring shall be conducted two times per week, during the period of maximum expected residual, at any point between the exit from the cooling tower and the P.O.D. of cooling water in the river. The results of such a monitoring shall be reported quarterly to the Subdistrict Manager. Additionally, a study shall be instituted to evaluate all practicable methods to reduce total chlorine (free and combined) levels, including, but not necessarily limited to (1) minimization of chlorine addition

commensurate with control requirements, (2) reduction of flow during chlorination, and (3) discontinuation of blowdown during chlorination and subsequent periods of high concentration. Results of this study, including facilities and/or methods proposed to reduce total chlorine residuals shall be submitted within twenty-four months of commencement of plant operation. Subsequently, chlorination procedures to reduce total chlorine residuals shall be implemented to the extent practicable.

"23. Any biocide discharge from any point source shall comply with the requirements of the Federal Insecticide, Fungicide, and Rodenticide Act, as amended (7 U.S.C. 136 et. seq.) and the use of such pesticide shall be in a manner consistent with the labeling.

"24. There shall be no release from containment devices or structures of polyclorinated biphenyl compounds to the environment.

"25. There shall be no surface discharge of turbid waters to waters of the State from the spoil disposal/barrow pit system. Any spoil excavated during construction or maintenance dredging shall be deposited on an upland area. A berm or other control device shall be constructed around the spoil disposal area to insure against spillage or discharge of excavated material which may cause turbidity in excess of 50 Jackson Turbidity Units above background in waters of the State.

"26. The Barge Slip shall be of a sheet pile type construction with a poured concrete cap. Riprap shall be placed on the river bank adjacent to the barge slip to prevent erosion due to removal of natural vegetation. Spilled oil shall be removed from the barge slip prior to the departure of any barge. Such oil shall be disposed of by the plant's oil treatment system.

"27. Construction of the utilities tunnel under U. S. 17 shall be expedited to occur in a minimal amount of time. Such construction shall be performed in accordance with the standards of the Florida Department of Transportation and in close coordination with:

Mr. C. A. Benedict
District Engineer, Fifth Division
Florida Department of Transportation
P. O. Box 47
DeLand, Florida 32720

and with:

Mr. J. A. Crookshank, Jr.
Maintenance Engineer, Putnam County
P. O. Drawer "X"
St. Augustine, Florida 32084

"28. During construction and plant operation necessary measures shall be employed to settle, filter or absorb silt-containing or pollutant-loaded stormwater runoff to prevent contamination of waters of the State. Such measures may include sediment traps, barriers and use of berms or vegetation. Exposed or disturbed soil shall be sodded as soon as possible to minimize silt and sediment runoff into waters of the State.

"29. Turbidity control shall be installed prior to any construction or maintenance dredging to insure that turbidity of State waters is not increased more than 50 Jackson Turbidity Units.

"30. Review of Site Certification:
This certification shall be final unless revoked or suspended pursuant to law. Five years from the date of issuance of any National Pollutant Discharge Elimination System Permit issued pursuant to the Federal Water Pollution Control Act Amendments of 1972, for the Combined Cycle Units, the Department shall review all monitoring data that have been submitted to it during the preceding five year period, for the purpose 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 and all parties of record in this certification proceeding.

"31. Monitoring Program Review:
The results of the air and water monitoring programs will be reviewed by the Department and Florida Power & Light Company at the end of each year of operation to determine the necessity and/or extent of continuation. The methods and procedures utilized in the monitoring program shall be approved by the Department and also be reviewed annually by the Department and Florida Power & Light Company, and may be modified by agreement of all parties of record in this certification proceeding.".

6. The Governor and Cabinet are hereby requested to take all actions necessary to adopt, confirm, and implement this stipulation and agreement, pursuant to the authority granted to them by Part II, Chapter 403, Florida Statutes, the Florida Electric Power Plant Siting Act as amended by Section 5.(1), the Florida Environmental Reorganization Act of 1975 (Chapter 75-22), including the modification of the previously executed Certification Agreement.

WITNESS our hands and seals effective as of the 7th day of May, 1976.

Signed, sealed and delivered in the presence of:

Linda Bechtol

As to Joseph W. Landers, Jr.

As to Randolf G. Whittle, Jr.

Joseph W. Landers, Jr., Secretary
Department of Environmental Regulation
2562 Executive Center Circle, East
Tallahassee, Florida 32301

Randolf G. Whittle, Jr., Acting Director
Division of State Planning
Department of Administration
660 Apalachee Parkway
Tallahassee, Florida 32304

Carolyn C. Mason

As to Joseph A. McGlothlin

As to Raymond B. Bunton

As to Florida Power & Light Company

(SEAL)
FLORIDA POWER & LIGHT COMPANY

Joseph A. McGlothlin

Joseph A. McGlothlin, Esquire
Attorney, Public Service Commission
700 South Adams Street
Tallahassee, Florida 32304

Raymond B. Bunton, Designee
Putnam County Board of County Commissioners
Palatka, Florida

FLORIDA POWER & LIGHT COMPANY

By: _____
Vice-President

Attest: _____
Secretary

CONDITIONS OF CERTIFICATION

The permittee shall comply with the following conditions of certification:

1. Fuel consumed should not contain more than 0.7% sulfur nor should stack emissions exceed those specified in Chapter 17-2.04(e).

2. The stack height shall be not less than 150 feet high.

3. The permittee shall install a sampling platform on one stack or shall provide sampling ports and such temporary access facilities as may be prescribed by the Department in performing stack sampling.

4. The permittee shall install and operate monitoring devices on each stack for the following: Opacity, Nitrogen Oxides. Records of such monitoring shall be available for inspection.

5. The permittee shall install and operate two continuous monitoring devices for sulfur dioxide and two particulate samplers. The location of these ambient air samplers shall be determined by consultation with the Northeast Regional Administrator of the Department. The data collected will be reported to the Regional Administrator monthly by the 10th of each subsequent month.

6. Water effluents shall conform to the limitation of Chapter 17-3, FAC.

7. The following parameters shall be reported monthly to the Regional Administrator:

Effluent Characteristics	Limitations	Monitoring
a. flow	1430 gpm-to existing plant intake	continuous - recorders or pump logs
b. temperature	Not to exceed 92°F. or 5° above ambient	continuous
c. Phosphate from Blow down tank	50 ppm	daily

d.	Dissolved Solids	6000 ppm	daily
e.	PH	6.0-8.5	daily
f.	Floating Solids visible foam	none visible	none

8. The phosphate concentration of the 50 gpm "Blow Down Tank" shall not exceed 50 ppm. The dilution as required to the "Blow Down Tank" and "Holdup Tank" will not be allowed. The discharge of phosphate not to exceed 50 ppm and Total Dissolved Solids not to exceed 6000 ppm shall be achieved by appropriate treatment.

9. Effluent to the existing plant intake shall not be more than 1430 gpm and shall be placed into the intake in such a manner as to preclude direct discharge to the St. Johns River.

10. 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 identified in this certification more frequently than or at a level in excess of that authorized 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 of pollutants or expansion in steam generating capacity must be reported by submission or a new application.

11. 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 provide the Northeast Regional Administrator of the Department with the following information, in writing, within forty eight (48) hours of becoming aware of such condition:

    A. A description of the discharge and cause of noncompliance; and

    B. The period of noncompliance, including exact dates and times; or, if not corrected, the anticipated time, the noncompliance is expected to continue, and steps being taken to reduce, eliminate and prevent recurrence of the noncomplying discharge.

12. 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.

13. 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 such accelerated or additional monitoring as necessary to determine the nature and impact of the noncomplying discharge.

14. Bypassing:
Any diversion or bypass of facilities necessary to maintain compliance with the terms and conditions of this certification is prohibited, except (i) where unavoidable, or (ii) where excessive storm drainage or runoff would damage any facilities necessary for compliance with the conditions of this certification. The permittee shall promptly notify the Northeast Regional Administrator of the Department in writing of each such diversion or bypass within 24 hours.

15. Removed Substances:
Solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of wastewaters shall be disposed of in a manner such as to prevent any pollutant from such materials from entering waters of the State.

16. Right of entry:
The permittee shall allow the Director of the Florida Department of Pollution Control 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 any records are required to be kept under the terms and conditions of this permit; and

b. To have access to and copy any records required to be kept under the conditions of this certificatio and

c. To inspect any monitoring equipment or monitoring method required in this certification and to sample any discharge or pollutants.

17. Revocation or Suspension:
After notice and opportunity for a hearing, this certification may be suspended, or revoked in whole or in part during its term for cause including, but not limited to, the provision of Section 403.512, Chapter 403, Florida Statutes.

18. New Pollutant Standards:
If an effluent or emission standard or prohibition (including any schedule of compliance specified in such effluent or emission standard or prohibition) is established for a pollutant which is present in this certification and such standard or prohibition is more stringent than any limitation for such pollutant in this certification, this certification shall be revised in accordance with the new effluent or emission standard or prohibition and the permittee so notified.

19. Civil and Criminal Liability:
Nothing in this certification shall be construed to relieve the permittee from civil or criminal penalties for noncompliance with any condition of this certification applicable rules or regulations of the Department or Chapter 403, Florida Statutes.

20. Nothing in this certification shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable State Statutes, or Regulation, including Departmental rules and regulations promulgated by the Department pursuant to Chapter 403, F.S.

21. Property Rights:
The issuance of this certification does not convey any property rights in either real or personal property, or 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.

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

23. No debris shall be discharged to waters of the State from the intake screens with the exception of viable nekton. Additionally, the permittee shall evaluate methods of returning viable nekton collected on the intake screens to ambient temperature waters and shall submit a report presenting results within twelve (12) months of the date of commencement of plant operation.

24. Free available chlorine shall not exceed an average concentration of 0.2 mg/l and a maximum concentration of 0.5 mg/l during a maximum of one, two-hour period a day. No discharge of total residual chlorine is allowed from one unit while another unit at the same station is being chlorinated. Monitoring shall be conducted two times per week during the period of maximum expected residual. The results of such a monitoring shall be reported quarterly to the Regional Administrator. Additionally, a study shall be instituted to evaluate all practicable methods to reduce total chlorine (free and combined) levels, including, but not necessarily limited to (1) minimization of chlorine addition commensurate with control requirements, (2) reduction of flow during chlorination, and (3) chemical scavenging. Results of this study including facilities and/or methods proposed to reduce total chlorine residuals shall be submitted within twelve months of commencement of plant operation. Subsequently, chlorination procedures to reduce total chlorine residuals shall be implemented to the extent practible.

25. Any biocide discharge from any point source shall comply with the requirements of the Federal Insecticide, Fungicide, and Rodenticide Act, as amended (7 U.S.C. 136 et seq.) and the use of such pesticide shall be in a manner consistent with the labeling.

26. There shall be no discharge of polychlorinated biphenyl transformer fluids to waters of the State.

27. There shall be no surface discharge of turbid waters to waters of the State from the spoil disposal/borrow pit system. Any spoil excavated during construction or maintenance dredging shall be deposited on an upland area. A berm or other control device shall be constructed around the spoil disposal area to insure against spillage or discharge of excavated material which may cause turbidity in excess of 50 Jackson Turbidity Units above background in waters of the State

28. The Barge Slip shall be of a sheet pile type construction with a poured concrete cap. Riprap shall be placed on the river bank adjacent to the barge slip to prevent erosion due to removal of natural vegetation. Spilled oil shall be removed from the barge slip prior to the departure of any barge. Such oil shall be disposed of by the plant's oil treatment system.

29. Construction of the utilities tunnel under US 17 shall be expedited to occur in a minimal amount of time. Such construction shall be performed in accordance with the standards of the Florida Department of Transportation and in close coordination with:

Mr. C. A. Benedict
District Engineer, Fifth Division
Florida Department of Transportation
P. O. Box 47
Deland, Florida 32720

and with:

Mr. J. A. Crookshank, Jr.
Maintenance Engineer, Putnam County
P. O. Drawer "X"
St. Augustine, Florida 32084

30. During construction and plant operation necessary measures shall be employed to settle, filter or absorb silt containing or pollutant loaded stormwater runoff to prevent contamination of waters of the State. Such measures may include sediment traps, barriers and use of berms or vegetation. Exposed or disturbed soil shall be sodded as soon as possible to minimize silt and sediment runoff into waters of the State.

31. Turbidity control shall be installed prior to any construction or maintenance dredging to insure that turbidity of State waters is not increased more than 50 Jackson Turbidity Units.

32. The permittee as condition precedent to issuance of this certification shall submit an application fee, the total amount of which shall not exceed $25,000 to be applied toward the costs of any study investigation, hearing or processing procedures conducted pursuant to Section 403.501 through 403.516, F.S.

33. Renewal of Site Certification:
This certification shall expire five years from date of issuance. It is renewable by the Department upon receipt of a request from the permittee. The permittee shall file a written request for renewal of site certification no later than 120 days prior to the expiration date. Within 60 days of receipt of a request for renewal of site certification the Department shall request any additional necessary information.

The Department shall renew the site certification upon a finding of the permittee's compliance with the conditions of this original certification.

EXHIBIT "B"

RATIONALE AND JUSTIFICATIONS
FOR PROPOSED MODIFICATION OF THE CONDITIONS OF
CERTIFICATION OF PPS-74-01

Permittee and the Department of Environmental Regulation (the "department") propose the following modifications and amendments to the original conditions of certification (only those original conditions which are changed, modified, or renumbered are included below):

~~2.---The-stack-height-shall-be-not-less-than-150-feet-high.~~

2. Stack Height: Minimum stack heights shall be 53 feet above grade. Stacks with a height of at least 150 feet shall be constructed prior to burning residual fuel oil containing more than 0.35% sulfur, except as provided for in "Warranty Testing".

Warranty Testing: The permittee may burn fuel oil containing more than 0.35% sulfur, but not more than 0.7% sulfur, during an initial twelve month warranty testing period: provided, however, that during this test period, the burning of fuel oil containing more than 0.35% sulfur shall be suspended by the permittee during such times that sustained winds may exceed 20 miles per hour for any continuous period of three hours or longer.

Wind Monitoring: The permittee shall measure wind velocity and wind direction at hourly intervals in the plant vicinity, during each period that fuel oil containing more than 0.35% sulfur is burned. Such wind data shall be reported monthly to the Lower St. Johns Subdistrict Manager of the Department by the last day of each month following the reporting period. Wind velocity and direction measurements required by this paragraph shall be made in accordance with recognized methods and procedures; the permittee shall submit to the Department the details of its measuring plans at least 30 days prior to burning of fuel oil containing more than 0.35% sulfur.

Rationale and Justification

Based upon the appropriate application of modeling (previously submitted during the public hearing of this matter), to stack heights of approximately 60 feet, and based upon the use of the lower 0.35% sulfur fuel, the permittee believes that the impact on air quality will be less than that shown in the model testified to at the original certification hearings. The modification will allow the permittee to test the units under warranty conditions during the first twelve months of boiler operation, while safeguarding air quality. An estimated capital cost savings to the permittee of $4,000,000 will be realized through the use of lower sulfur fuel.

4. The permittee shall install and operate continuous monitoring devices on each stack for the following: opacity, nitrogen oxides. Records of such monitoring shall be available for inspection.

Rationale and Justification

Clarification requested by the department.

5. The permittee shall install and operate continuously for a 24-hour period every three days two ~~continuous~~ ambient air, West-Gaeke, monitoring devices for sulfur dioxide and two suspended particulate ~~samplers~~ sampling devices. After six months of operation, the Department may allow sampling on a six day interval. The location of these ambient air samplers shall be determined by consultation with the ~~Northeast Regional Administrator of the~~ Department Lower St. Johns Subdistrict Manager of the Department. The data collected will be reported to the ~~Regional Administrator~~ Subdistrict Manager ~~monthly~~ quarterly by the ~~10th~~ last day of each ~~subsequent~~ month following the reporting period, utilizing the SAROAD or other mutually acceptable format.

Rationale and Justification

The language modification is based upon agreement between permittee and DER Technical Staff as being satisfactory, from a scientific standpoint, to insure that the Department standards will be complied with. Furthermore, the more restrictive limitations of condition #2, resulting in a reduced air quality impact after the twelve month warranty testing period reduce the necessity for continuous monitoring. The change will result in a capital saving to the permittee of approximately $20,000.

6. Water effluents shall conform to the limitations of Chapter 17-3, F.A.C., including but not limited to those contained in paragraph 7 below.

Rationale and Justification

Grammatical; adds clarification.

7. The following parameters shall be reported monthly to the ~~Regional Administrator~~ Subdistrict Manager:

Rationale and Justification

Conforms language to the Environmental Reorganization Act of 1975.

Effluent Characteristics	Limitations	Monitoring
a. Flow	~~1,39~~0 gpm to existing plant ~~intake~~ discharge area. Cooling tower blowdown shall be minimized to the degree allowed by best engineering practice; furthermore, the combined flow to the St. Johns River from the cooling tower and the chemical waste treatment system shall not exceed 2,200 gpm.	Continuous recorders or pump logs.

Rationale and Justification

Relocation of the discharge pipe was made to reduce the cost by approximately $50,000 and to improve the efficiency of the old plant. This modification, requested by permittee, will require permittee's cooling tower to be operated at the maximum number of concentration cycles allowed by best engineering practice, while taking into account the dependence of cooling tower operation upon the quality of the make-up water taken from the St. Johns River and the seasonal fluctuations thereof.

b. Temperature	Not to exceed 98°F. at the P.O.D., and not to exceed 92°F. or 5°F. above ambient at the boundary of a 3-dimensional zone of mixing described by a cylinder of 50 meters radius running horizontally from the P.O.D. and which extends vertically to the river surface and river bottom.	Continuous (recorder or logs) at any point between the blowdown discharge at the cooli tower and the P.O.D. o cooling water into the river.

Rationale and Justification

The change is made on permittee's request and demonstration pursuant to §17-3.05(3)(f), F.A.C. which authorizes the Department to establish zones of mixing for blowdown discharges from recirculated cooling water systems (cooling towers) and to measure compliance at the P.O.D. A more detailed explanation of this change is incorporated in Attachment "A" which is made a part of this Exhibit "B".

Phosphate from to Blowdown tank	50 ppm	~~Daily~~ Weekly

Rationale and Justification

This modification requested by permittee will also allow sampling at a point where water chemistry samples are normally taken. Frequency of sampling was decreased to avoid excess data collection on the basis that the phosphate impact on the receiving body of water from blowdown will be negligible. To comply with the initial phosphate monitoring condition would require excess manhours for a negligible environmental impact.

Dissolved Solids	6000 ppm	Daily
pH	6.0 - 8.5	Daily
Floating solids and visible foam	None visible	None

~~8.--The-phosphate-concentration-of-the-50-gpm-"Blowdown Tank"-shall-not-exceed-50-ppm.--The-dilution-as-required-to-the "Blowdown-Tank"-and-"holdup-Tank"-will-not-be-allowed.--The-discharge-of-phosphate-not-to-exceed-50-ppm-and-Total-Dissolved Solids-not-to-exceed-6000-ppm-shall-be-achieved-by-appropriate treatment.~~

Rationale and Justification

Duplicative of conditions 7c. and d. as modified; deleted to avoid confusion and misinterpretation.

~~9.--Effluents-to-the-existing-plant-intake-shall-not-be more-than-1439-gpm-and-shall-be-placed-into-the-intake-in-such a-manner-as-to-preclude-direct-discharge-to-the-St.-Johns-River.~~

Rationale and Justification

Duplicative of conditions 7a. and b. as modified; deleted to avoid confusion and misinterpretation.

8. Renumbered; same as original condition 10.

9. ~~11.~~ Noncompliance Notification:

If, for any reason, the permittee does not comply with or will be unable to comply with any limitation specification in this certification, the permittee shall provide prompt notification to the ~~Northeast-Regional-Administrator~~ Lower St. Johns Subdistrict Manager of the Department by telecommunication sent no later than 3:00 p.m. of the next normal work day following the occurrence of such non-compliance, and shall submit with the following information in writing, within ~~forty-eight (48)~~ ninety-six (96) hours of becoming aware of such conditions:

A. A description of the discharge and cause of noncompliance; and

B. The period of noncompliance, including exact dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate and prevent recurrence of the noncomplying discharge.

Rationale and Justification

Conforms language to Environmental Reorganization Act. The ninety-six hour time limit will allow permittee adequate time to comply information required to be submitted.

10. Renumbered; same as original condition 12.

11. Renumbered; same as original condition 13.

12. ~~14.~~ Bypassing:

Any diversion or bypass of facilities necessary to maintain compliance with the terms and conditions of this certification is prohibited, except ~~(1)~~ (i) where unavoidable to prevent loss of life or severe property damage, or (ii) where excessive storm drainage or runoff would damage any facilities necessary for compliance with the conditions of this certification. The permittee shall promptly notify the ~~Northeast Regional Administrator~~ Lower St. Johns Subdistrict Manager of the Department ~~in writing~~ of each such diversion or bypass ~~within 24 hours~~ in accordance with the procedure contained in condition #9 of this certification.

Rationale and Justification

Conforms numbers; conforms language to Environmental Reorganization Act, and NPDES permit requirements.

13. Renumbered; same as original condition 15.

14. ~~16.~~ Right of entry:

The permittee shall allow the ~~Director~~ Secretary of the Florida Department of ~~Pollution Control~~ 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 any records are required to be kept under the terms and conditions of this permit; and

b. To have access to and copy any records required to be kept under the conditions of this certification; and

c. To inspect any monitoring equipment or monitoring method required in this certification and to sample any discharge of pollutants

Rationale and Justification

Conforms language to Environmental Reorganization Act.

15. ~~17.~~ Revocation or Suspension:

After notice and opportunity for a hearing, this certification may be suspended, or revoked in whole or in part during its term for cause including, but not limited to, the provision of §403.512, Chapter 403, Florida Statutes, or for failure to comply with the terms and conditions of the certification.

Rationale and Justification

Technical amendment requested by the department.

16. and 17. Renumbered; same as original conditions 18. and ~~19.~~

18. ~~20.~~ Nothing in this certification shall be construed to preclude the institution of any legal action or relieve the permittee from ~~any~~ the responsibilities, requirements, liabilities, or penalties established pursuant to any applicable state statutes, or regulation, including departmental rules and regulations promulgated by the Department pursuant to Chapter 403, F.S.

Rationale and Justification

Change requested by the department to clarify that the permittee must, in addition to the specific terms of the certification, comply with the general requirements of applicable statutes and rules. Should any such terms or conditions of the certification conflict with such requirements of applicable statutes or regulations, the terms of the certification shall prevail. The department and the permittee agree that neither this condition #18 nor any other term of this certification shall constitute a waiver of permittee's right to challenge, in an appropriate administrative forum or in a court of competent jurisdiction, any existing or future statutory provision or rule or regulation of the department or any other agency which may apply to the certified site.

19. and 20. Renumbered; same as original conditions 21. and 22.

21. ~~23.~~ No debris shall be discharged to waters of the State from the intake screens with the exception of viable nekton. Additionally, the permittee shall, beginning no later than April 1, 1977, undertake a study to evaluate methods of returning viable nekton collected on the intake screens to ambient temperature waters and shall submit a report presenting results ~~within twelve~~

~~(12)-months-of-the-date-of-commencement-of-plant-operation~~ no later than July 1, 1978.

Rationale and Justification

This modification will allow the permittee to evaluate nekton return methods after the expected plant shakedown period.

22. ~~24.~~ After December 31, 1976, or six months after commencement of boiler operations, whichever event occurs later, free available chlorine shall not exceed an average concentration of 0.2 mg/l and a maximum concentration of 0.5 mg/l during a maximum of one, two-hour period a day. ~~No-discharge-of-total residual-chlorine-is-allowed-from-one-unit-while-another-unit-at the-same-station-is-being-chlorinated.~~ Chlorine concentration monitoring shall be conducted two times per week during the period of maximum expected residual at any point between the exit from the cooling tower and the P.O.D. of cooling water in the river. The results of such a monitoring shall be reported quarterly to the ~~Regional-Administrator~~ Subdistrict Manager. Additionally, a study shall be instituted to evaluate all practicable methods to reduce total chlorine (free and combined) levels, including, but not necessarily limited to (1) minimization of chlorine addition commensurate with control requirements, (2) reduction of flow during chlorination, and (3) ~~chemical-scavenging~~ discontinuation of blowdown during chlorination and subsequent periods of high concentration. Results of this study including facilities and/or methods proposed to reduce total chlorine residuals shall be submitted within ~~twelve~~ twenty-four months of commencement of plant operation. Subsequently, chlorination procedures to reduce total chlorine residuals shall be implemented to the extent practicable.

Rationale and Justification

Conforms language to Environmental Reorganization Act. Permits boiler shakedown period prior to requiring compliance; recognizes that both units use a common cooling tower; specifies permissible sampling points; coordinates DER and EPA study factors; allows study submission one year after initial twelve month warranty period.

23. Renumbered; same as original condition 25.

24. ~~26.~~ There shall be no ~~discharge~~ release from containment devices or structures of polychlorinated biphenyl ~~transformer fluids~~ compounds ~~to waters of the state~~ the environment.

Rationale and Justification

Requested by department as being consistent with present environmental control of such compounds.

25. through 29. Renumbered; same as original conditions 27. through 31.

~~32.--The permittee as condition precedent to issuance of this certification shall submit an application fee, the total amount of which shall not exceed $25,000 to be applied toward the costs of any study investigation, hearing or processing procedures conducted pursuant to Section 403.501 through 403.5167, F.S.~~

Rationale and Justification

Condition already met.

30. ~~33.~~ Renewal Review of Site Certification: ~~This certification shall expire five years from date of issuance. It is renewable by the Department upon receipt of a request from the permittee.--The permittee shall file a written request for renewal of site certification no later than 120 days prior to the expiration date.--Within 60 days of receipt of a request for renewal of site certification the Department shall request additional necessary information.~~

~~The Department shall renew the site certification upon a finding of the permittee's compliance with the conditions of this original certification.~~

This certification shall be final unless revoked or suspended pursuant to law. Five years from the date of issuance of any National Pollutant Discharge Elimination System Permit issued pursuant to the Federal Water Pollution Control Act Amendments of 1972, for the Combined Cycle Units, the Department shall review all monitoring data that have been submitted to it during the

preceding five year period, for the purpose 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 and all parties of record in this certification proceeding.

Rationale and Justification

Makes this condition consistent with those currently being imposed by the DER on other power plant certification applicants.

31. Monitoring Program Review:

The results of the air and water monitoring programs will be reviewed by the Department and Florida Power & Light Company at the end of each year of operation to determine the necessity and/or extent of continuation. The methods and procedures utilized in the monitoring program shall be approved by the Department and also be reviewed annually by the Department and Florida Power & Light Company, and may be modified by agreement of all parties of record in this certification proceeding.

Rationale and Justification

Makes this condition consistent with those currently being imposed by the DER on other power plant certification applicants.

ATTACHMENT A

INFORMATION REGARDING
THE COOLING TOWER BLOWDOWN DISCHARGE
AT THE PALATKA PLANT

The discharge from the cooling tower blowdown of the Palatka Plant will be located approximately 20 to 30 feet south of the existing fuel unloading dock (see Figure 2 for detailed location relative to other discharge pipes).

The proposed discharge will be located at a level approximately 12 feet below the surface of the water as measured by mean low water level. The bottom of the pipe will be two feet from the river bottom and pointed toward marker "11" (Fl 4 sec 16 feet x 5m) with respect to the plan view and parallel to the water surface with respect to elevation view.

The attached portion of the National Ocean Survey Chart for the pertinent area provides suffcient data to evaluate the approximate profile characteristics of the river bottom (see Figure 3). Figure 4 provides data on soundings near the Palatka Plant Unit 1 & 2 condenser cooling water discharge area. These data were collected by Florida Power & Light Company personnel on December 27, 1973.

At the proposed point of discharge the East-West distance across the river is approximately 700 meters. The distance from the proposed discharge to a point across the river in line with marker "11" is approximately 1350 meters (see Figure 1).

A sketch of an approximate bottom profile is attached as Figure 5. The location of the pipe will provide for the maximum thermal dilution. Although there are no velocity data for currents available at the exact point of discharge, sufficient and reliable data regarding the flow rates of the St. John's river in the immediate vicinity of the plant are contained in the enclosed study "Surface Water Resources of St. John's River Florida" prepared for Florida Power & Light Company by Reynolds, Smith and Hills of Jacksonville, Florida. The pertinent pages are pages 12 and 13 relating to a description of Station No. 2444.50, page 15, Table 2, continued, Table 3 on page 18, and Exhibit 6 describing the average discharge (cfs) vs. drainage area. The plant location is approximately where the plotted line intersects with 6,000 cfs average discharge rate on the horizontal axis of Exhibit 6.

It is planned to attach a reducer at the end of the 10-inch diameter pipe to increase the mixing capabilities of the discharge stream. The exact size will depend on the amount of head pressure loss that is sustainable on the system.

Attached as Exhibit 1 are water temperature plume calculations for the Putnam Plant cooling tower blowdown into the St. Johns River. It is significant that the cross-sectional area of the plume (defined as 0.1°F above ambient) is only about 0.3% of the cross-sectional area of the river at the Palatka Plant. This is determined as follows:

$$\% \text{ of cross-sectional river area affected by plume} = \frac{\text{Estimated cross sectional area of plume} \times 100}{\text{Estimated cross-sectional area of river,}}$$

where the cross-sectional area of the plume is estimated to be 180 sq. ft. to the 0.1°F above ambient isotherm, and the cross-sectional area of the river is estimated to be approximately 52,000 sq. ft. at the mean low water level.

Attached as Figure 6 is a sketch of the condenser-cooling tower system indicating typical operating parameters. Of particular importance is the fact that only 0.4% of the original condenser heat load of the condenser is discharged to the river.

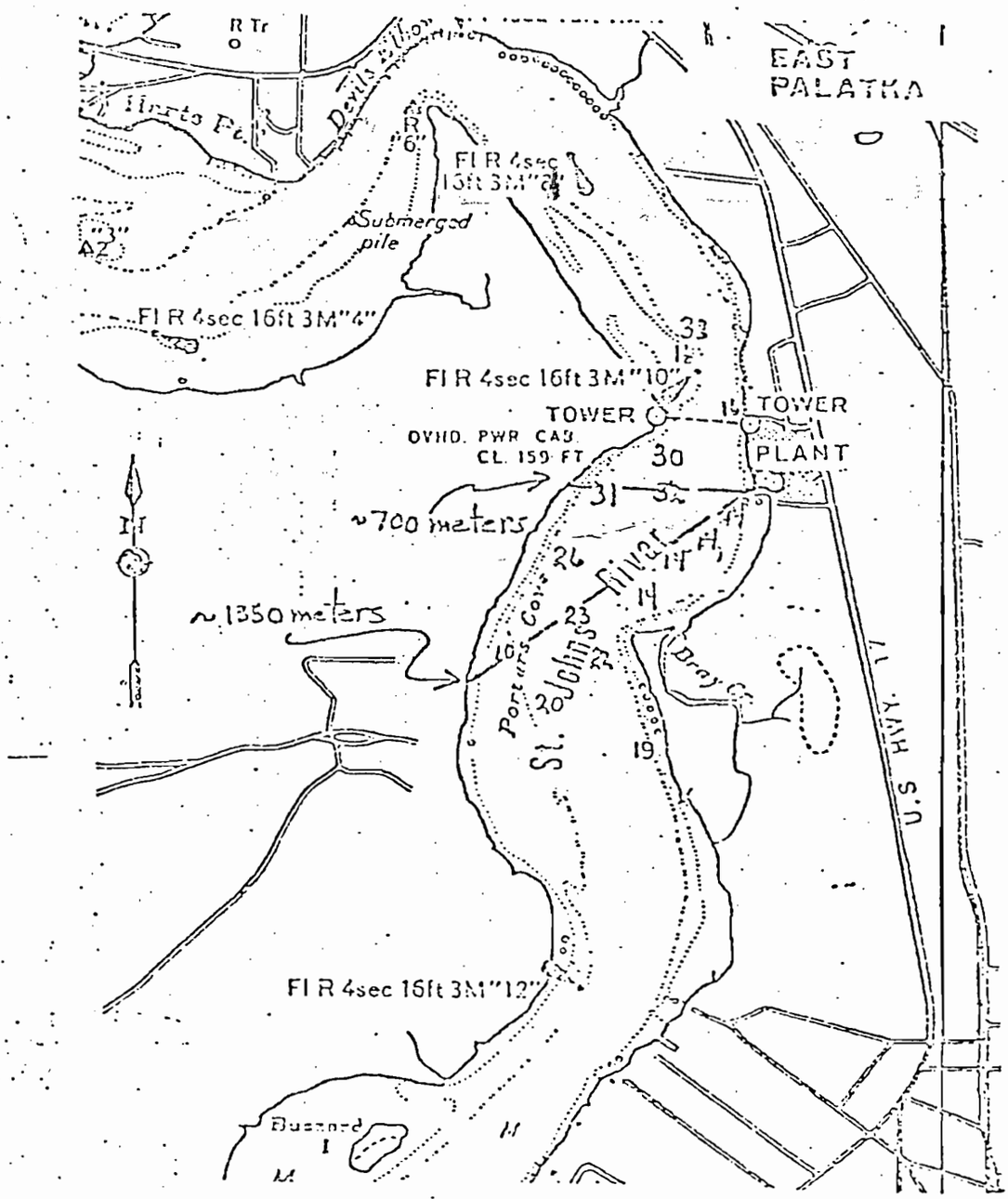


Figure 1.

PALATKA PLANT
MAP OF AREA

scale
300 METERS

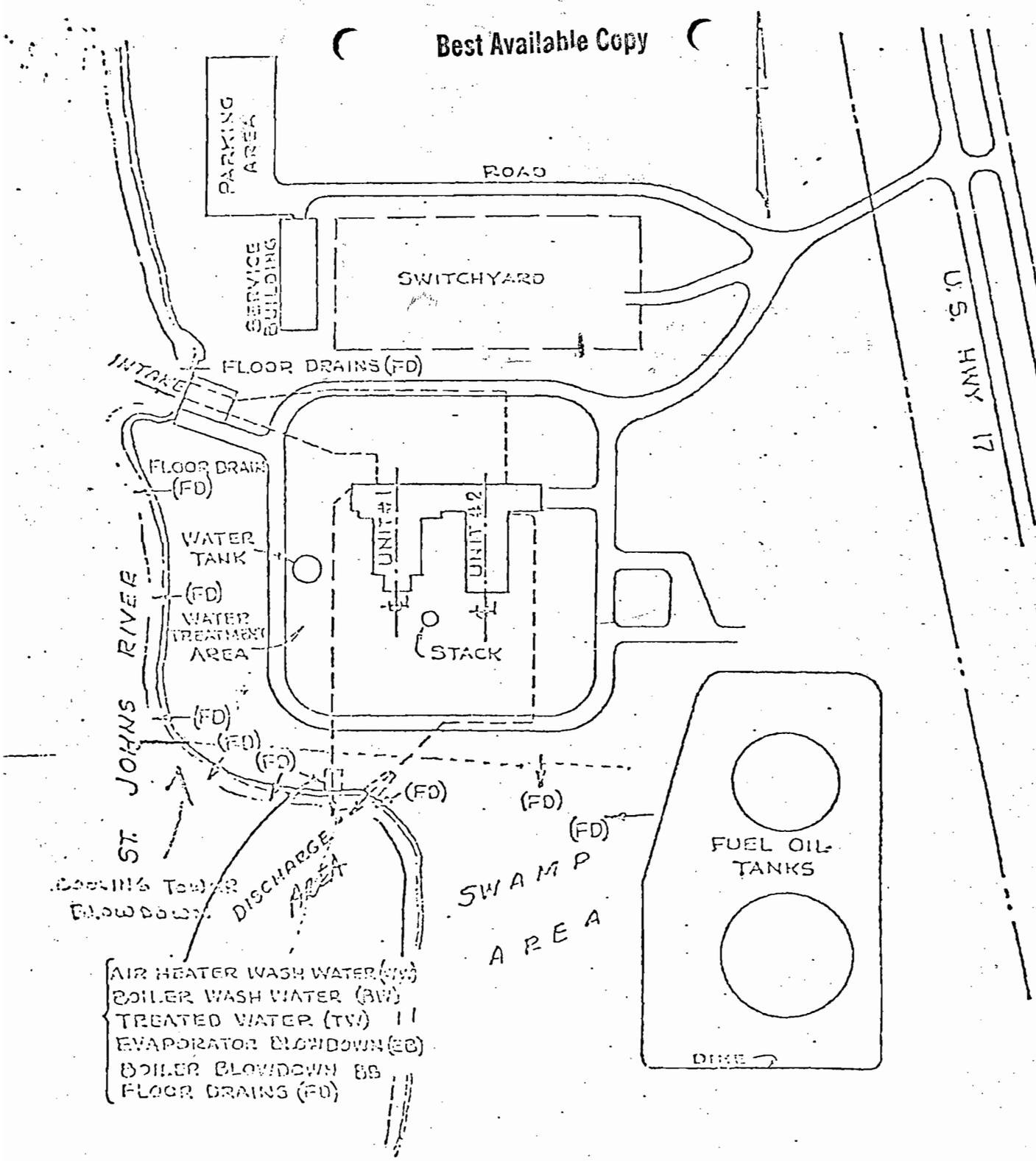


FIGURE 2

PALATKA - PLANT LAYOUT

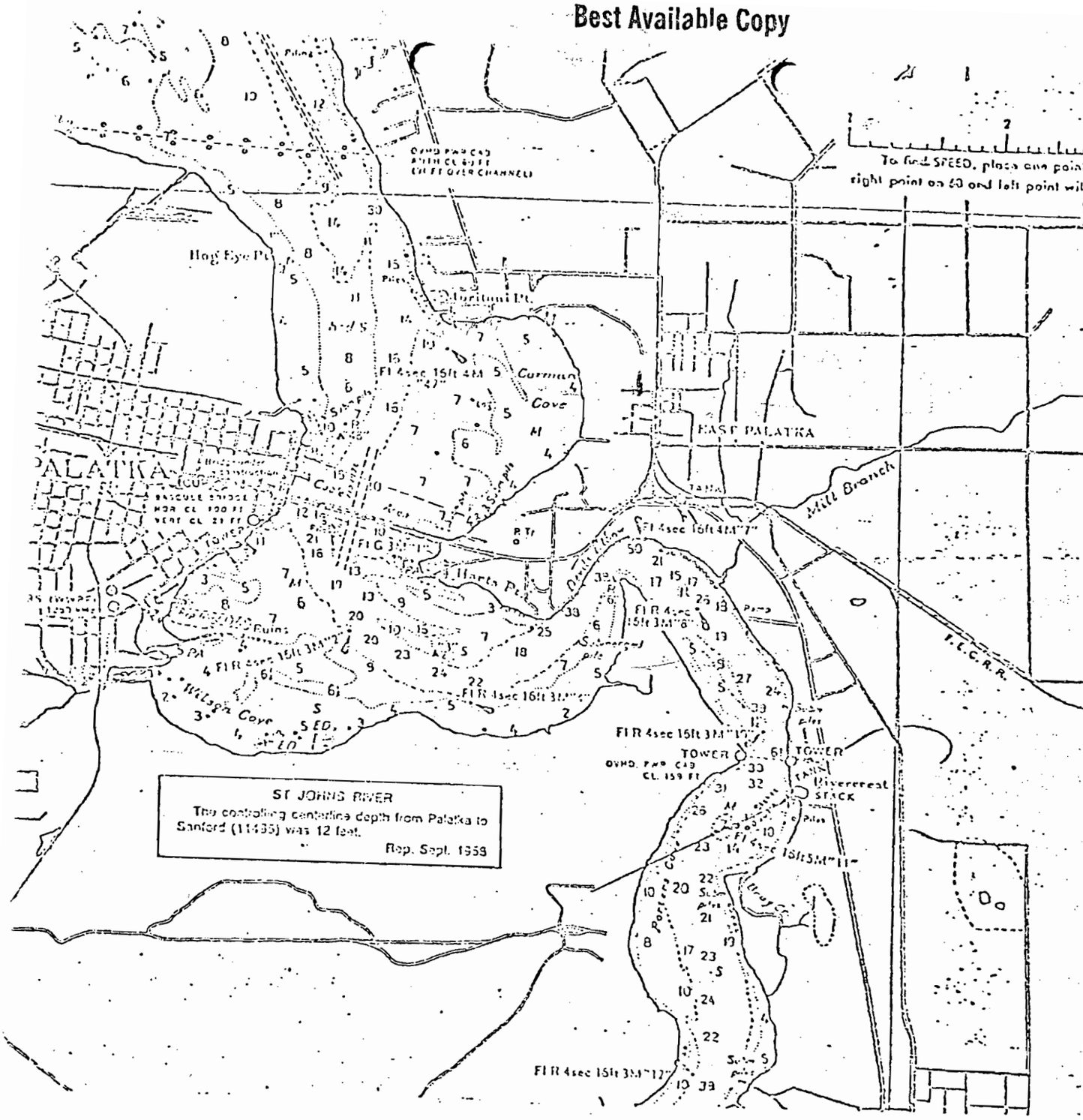
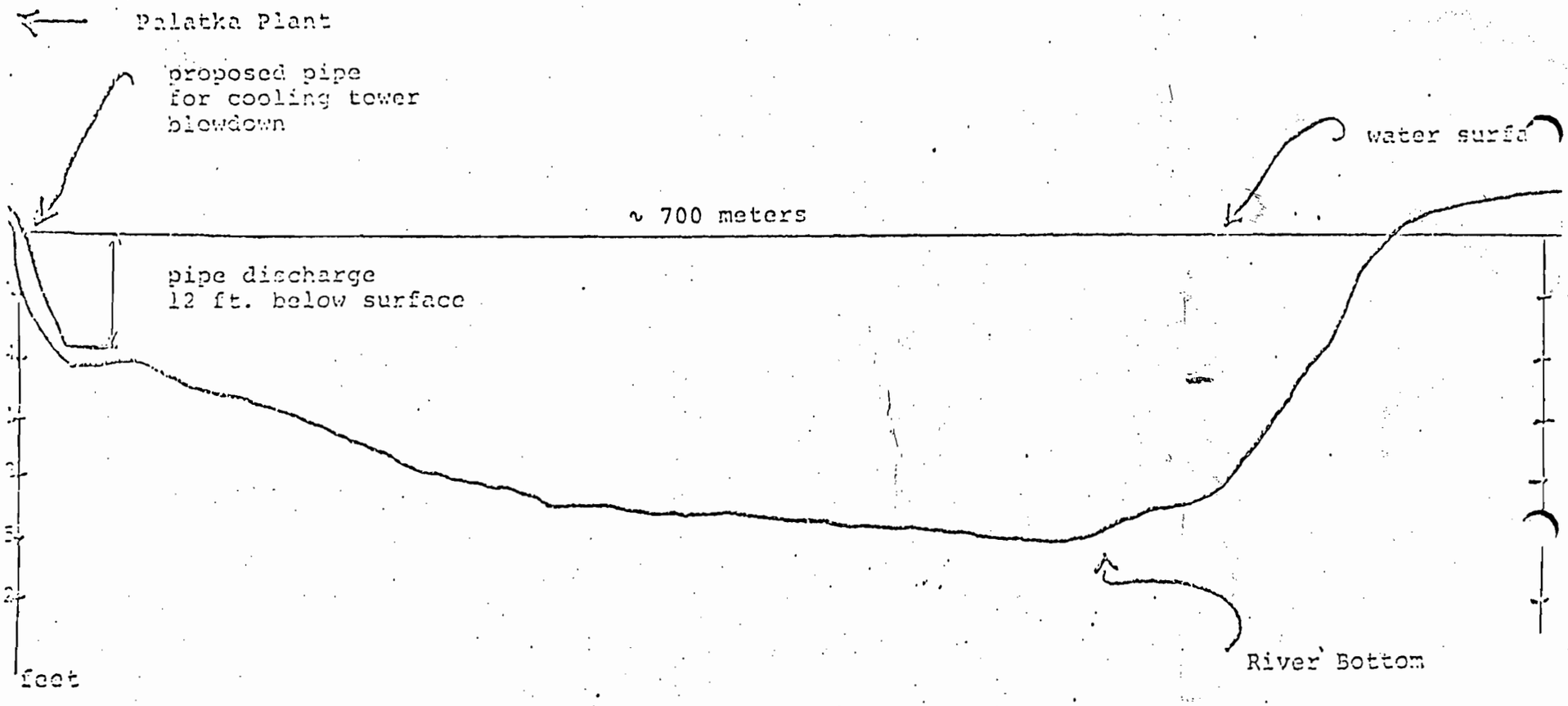


FIGURE 3

CROSS SECTIONAL VIEW OF RIVER
AT PALATKA PLANT
(EAST-WEST CROSS SECTION)



Approximated from data obtained
Coast and Geodetic Survey

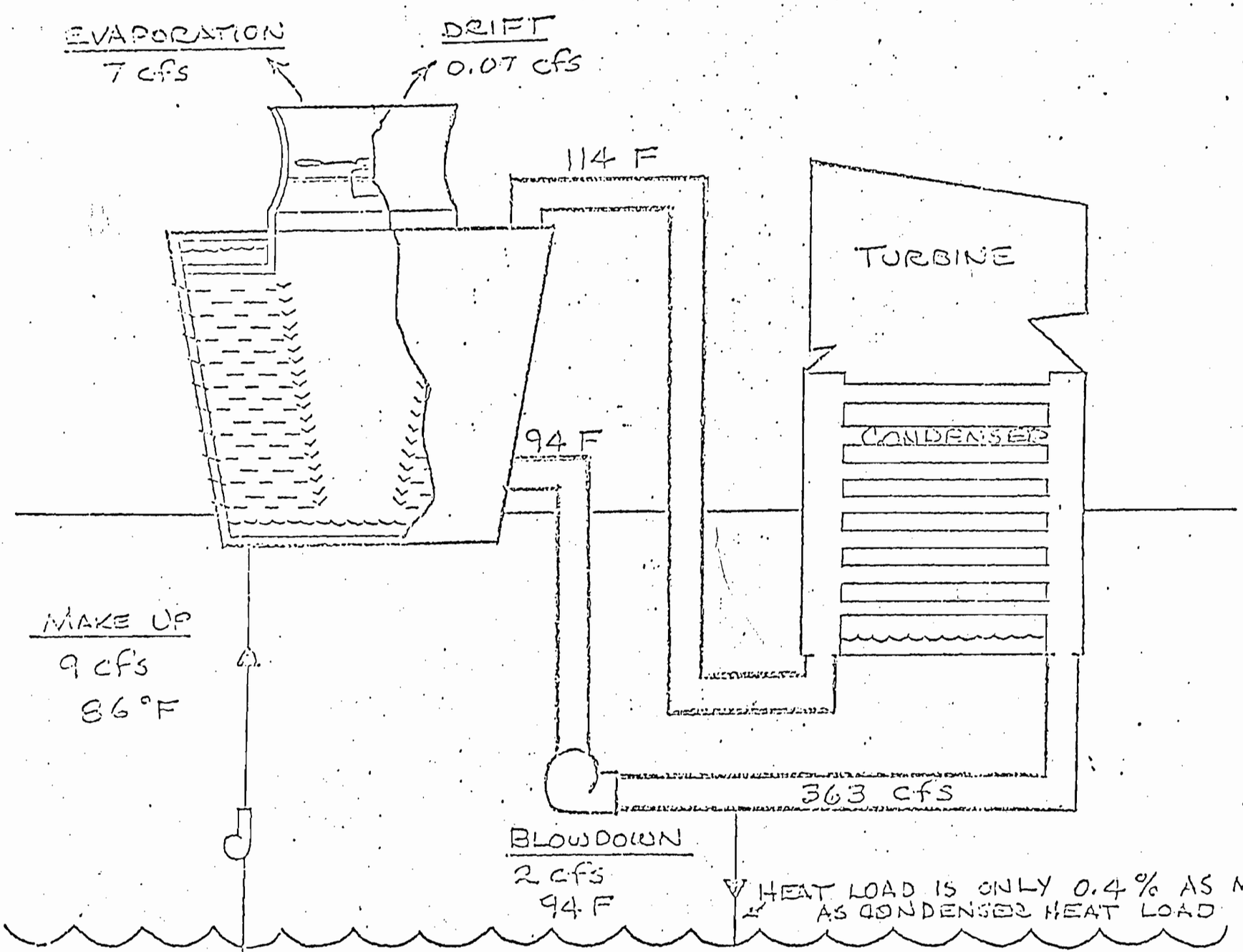

EVAPORATION
7 cfs
DRIFT
0.07 cfs
114 F
TURBINE
94 F
CONDENSER
MAKE UP
9 cfs
86°F
363 cfs
BLOWDOWN
2 cfs
94 F
HEAT LOAD IS ONLY 0.4% AS MUCH
AS CONDENSER HEAT LOAD

FIGURE 6

EXHIBIT 1

EAST PALATKA PLANT

COMBINED CYCLE UNITS

WATER TEMPERATURE PLUME CALCULATIONS

FOR

COOLING TOWER BLOWDOWN TO ST. JOHNS RIVER

October 1975

PROCEDURES USED:

Submerged buoyant discharges achieve dilution through initial jet momentum and buoyant rise of the plume to the water surface. The dilution at the water surface from a submerged buoyant discharge is influenced by the depth of submergence, the angle of the discharge with respect to the bottom, the absence or presence of ambient currents, and the discharge densimetric Froude number. The procedures used to calculate the dilution achieved in the rise of the plume to the surface and the distribution of excess temperatures at the surface were based on principals and theories of submerged buoyant discharges set forth and discussed in "Workbook of Thermal Plume Prediction, Volume I, Submerged Discharge, EPA-R2-72-005a, August 1972."

SITE CONDITIONS:

The point of discharge is on the east side of the St. Johns River about 3.4 river miles upstream from the U. S. G. S. Gaging Station at Palatka. A cross-sectional view of the river at the point of discharge is shown on attached drawing. Published flow records for the gaging station began in 1968, and represent flow from a contributing drainage area of 7,320 square miles. The maximum flow recorded was 31,300 cfs on November 5, 1970 and the minimum flow was a reverse flow due to tidal influence of 20,400 cfs recorded on March 24, 1968. The average discharge for the past six years of record is 8,200 cfs. A long term average would probably be in the range of 6,000 cfs.

Daily water temperatures, discharge, and maximum and minimum tide levels for the gage at Palatka are reported in Water Resources

Data for Florida, Parts I and Part II. Copies of this data for water year 1974 are attached hereto.

CRITERIA:

A conservative approach was taken in calculating the plume parameters. Although the period of slack tide is relatively short, the calculations were made for discharge into still water. The following criteria were used:

Discharge Rate - 1,430 gpm, 3.2 cfs

Pipe Diameter - 10"

Angle of Discharge - Horizontal

Depth of Water at Low Tide - 9 feet

Excess Temperature - 10°F

River Flow - Zero

RESULTS:

Water temperatures and plume dimensions resulting from the calculations are shown on attached drawing along with a plan view of the excess temperatures (rise above ambient) at the water surface.

Attachments

(1) Water Temperatures, W.R.D., Florida, 1974, Part 2, page 49

(2) Discharges , W.R.D., Florida, 1974, Part 1, page 80

(3) Maximum Gage Height Part 1, page 81

(4) Minimum Gage Height Part 1, page 82

(5) Cross-Sectional View of River at Palatka Plant

(6) Plume Parameters - Cooling Tower Blowdown

...OF ST. JOHNS RIVER BASIN

02260550 St. Johns River at Palatka, Fla.

LOCATION.--Lat 29°39'44", long 81°37'37", in SW quarter sec.2, T.10 S., R.27 E., Putnam County, at eighth section road center of span of new bridge on U. S. Highway 17 at Palatka, 6.3 mi (10.1 km) downstream from Rice Creek and 75 mi (120 km) upstream from mouth.

DRAINAGE AREA.--7,330 sq mi (18,980 sq km), approximately, including Paynes Prairie, a diked sinkhole area of about 670 sq mi (1,750 sq km), which is noncontributing except for passage.

PERIOD OF RECORD.--Chemical analyses: June to October 1962, November 1966 to July 1971 (weekly), January 1975 to current year. Water temperatures: October 1970 to July 1971 (weekly), January 1975 to current year.

EXTREMES, January to September 1974.--Specific conductance: Maximum daily, 1,760 microhos June 18, 21, 22; minimum daily, 299 microhos Feb. 17, 18.
Water temperatures: Maximum, 30.5°C Aug. 31, Sept. 1-3; minimum, 14.0°C Feb. 27.
Period of record: Specific conductance (1971): Maximum daily, 1,260 microhos June 18, 21, 22; minimum daily, 220 microhos Feb. 17, 18.
Water temperatures (1971): Maximum, 30.5°C Aug. 31, Sept. 1-3; minimum, 14.0°C Feb. 27.

TEMPERATURE (DEG. C) OF WATER, PERIOD JANUARY TO SEPTEMBER 1975
(ONCE-DAILY)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	16.5	16.5	23.5	23.5	26.0	27.5	29.5	30.5
2	---	---	---	---	17.5	17.5	24.0	23.5	28.0	27.5	29.5	30.5
3	---	---	---	---	18.5	17.5	24.0	25.0	27.5	27.5	29.5	30.5
4	---	---	---	---	19.0	18.5	23.5	24.0	27.5	27.5	29.5	30.0
5	---	---	---	---	19.5	19.5	23.5	24.0	28.0	27.5	29.5	30.0
6	---	---	---	---	19.0	19.5	23.0	24.5	27.5	27.5	29.5	29.5
7	---	---	---	---	19.0	20.0	21.0	25.5	28.0	27.5	29.5	29.0
8	---	---	---	---	19.5	21.0	21.5	25.0	28.5	27.5	29.5	29.5
9	---	---	---	---	19.5	22.0	22.0	25.0	29.5	28.0	29.5	29.5
10	---	---	---	---	19.0	23.0	21.5	25.5	29.5	28.0	29.5	29.5
11	---	---	---	---	18.5	23.0	22.0	25.5	29.5	28.0	29.0	29.0
12	---	---	---	---	19.5	23.5	23.0	25.0	29.0	28.0	29.0	29.0
13	---	---	---	---	19.0	23.5	23.0	25.5	29.0	28.0	29.0	29.0
14	---	---	---	---	19.0	22.0	23.0	25.5	29.0	28.0	29.0	29.0
15	---	---	---	---	20.0	21.0	22.0	25.0	28.0	28.0	29.0	29.5
16	---	---	---	19.5	18.5	21.5	21.5	25.5	28.5	28.0	29.0	29.5
17	---	---	---	19.5	18.0	21.0	21.5	25.5	28.5	28.0	29.0	29.5
18	---	---	---	20.0	18.0	20.5	21.5	25.5	29.0	28.5	29.0	29.5
19	---	---	---	20.5	17.5	21.5	21.5	25.5	29.0	28.0	29.0	29.5
20	---	---	---	20.5	18.0	21.5	21.5	27.0	29.5	27.5	29.0	29.5
21	---	---	---	20.5	18.5	22.0	22.0	27.5	29.5	27.5	29.0	29.0
22	---	---	---	20.5	19.5	22.0	22.0	27.5	29.5	28.0	29.0	29.0
23	---	---	---	21.0	18.0	22.0	22.0	28.0	29.5	27.0	29.0	29.0
24	---	---	---	21.0	18.5	21.0	22.0	28.0	29.0	28.0	29.0	29.5
25	---	---	---	21.0	17.5	21.5	22.0	28.5	29.0	28.0	29.0	29.0
26	---	---	---	21.5	19.5	21.0	22.0	28.5	29.0	28.0	29.0	27.5
27	---	---	---	21.0	19.0	20.5	22.0	28.5	27.5	28.5	29.0	27.5
28	---	---	---	20.0	19.5	21.0	23.0	28.0	27.5	28.5	29.5	27.5
29	---	---	---	20.5	---	22.0	21.5	28.0	27.5	28.5	30.0	27.5
30	---	---	---	20.0	---	23.0	23.0	28.0	27.5	28.0	30.0	27.0
31	---	---	---	20.0	---	23.0	---	28.0	---	28.0	30.5	---
MONTH	---	---	---	---	18.0	21.0	22.5	26.0	28.0	28.5	29.5	29.5
YEAR	MAX	30.5	MIN	14.0	MEAN	25.0						

02244440 St. Johns River at Palatka, Fla.

LOCATION.--Lat 29°38'40", long 81°37'35", in SW quarter sec. 7, T.10 S., R.27 E., Putnam County, near center of span under bridge on U.S. Highway 17 at Palatka, 6.3 mi (10.1 km) downstream from Dunns Creek and 78 mi (126 km) upstream from mouth.

DRAINAGE AREA.--7,045 sq mi (18,273 sq km), revised. Includes Haynes Prairie, a diked sinkhole area of about 650 sq mi (1,684 sq km), revised, which is noncontributing except for pumpage.

PERIOD OF RECORD.--January 1969 to current year.

GAGE.--Water-stage and deflection-meter recorder. Datum of gage is 10.00 ft (3.048 m) below mean sea level.

AVERAGE DISCHARGE.--5 years, 8,175 cfs (231.5 cu m/s), 5,924,000 acre-ft/yr (7.30 cu hm/yr).

EXTREMES.--Current year: Maximum daily discharge, 28,200 cfs (799 cu m/s) Oct. 31; maximum gage height, 13.01 ft (3.965 m) Sept. 24; maximum daily reverse flow, 9,210 cfs (261 cu m/s) Mar. 14; minimum gage height, 9.23 ft (2.813 m) Jan. 25, Mar. 21.
Period of record: Maximum daily discharge, 31,300 cfs (886 cu m/s) Nov. 5, 1970; maximum gage height, 13.90 ft (4.237 m) Sept. 30, 1969; maximum daily reverse flow, 20,400 cfs (578 cu m/s) June 6, 1969, corrected; minimum gage height, 8.54 ft (2.603 m) Feb. 14, 1971.

REMARKS.--Records fair. Flow affected by tide. Discharge computed using continuous velocity record obtained from recording deflection meter. The stage record published is the maximum and minimum tide event for each calendar day. Records of chemical analyses and water temperatures for the current year are published in Part 2 of this report.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22,400	20,100	13,900	14,000	4,270	12,800	14,900	10,700	6,830	19,300	22,900	22,100
2	15,500	17,400	16,600	11,900	4,940	13,600	17,300	8,070	9,430	20,800	21,300	21,500
3	12,000	15,000	6,730	5,000	10,900	12,600	9,930	7,440	4,220	21,000	19,400	13,700
4	10,500	16,000	11,100	12,000	-547	11,000	10,700	3,470	-6,520	21,700	18,900	18,000
5	7,700	13,900	17,000	6,000	144	7,770	4,150	2,990	-7,940	21,300	17,100	11,300
6	3,860	79	7,930	10,000	4,550	8,350	755	-3,540	-1,570	21,600	19,900	13,500
7	1,750	6,770	3,410	13,000	7,310	6,490	6,150	-1,740	4,340	21,900	18,600	19,400
8	8,940	9,950	-713	10,000	5,930	2,990	9,270	-231	5,330	19,000	19,500	20,000
9	13,000	10,700	3,900	7,000	912	5,980	677	844	7,110	19,100	17,900	15,600
10	10,500	-6,180	10,500	14,000	-504	5,250	279	4,900	8,570	21,300	19,700	12,400
11	9,730	-7,650	11,600	8,000	3,510	5,630	5,200	15,100	13,200	20,900	14,200	13,300
12	9,750	-857	15,100	7,000	4,590	263	6,570	14,200	6,000	15,100	10,500	15,900
13	9,730	13,600	14,700	6,000	6,760	-6,670	8,130	-3,120	6,530	3,320	17,800	19,700
14	9,210	18,400	15,000	10,000	11,200	-9,210	11,400	1,200	1,910	13,100	19,400	16,500
15	15,100	17,500	13,100	12,000	13,600	6,040	9,690	2,530	5,020	17,900	24,300	17,400
16	17,400	18,900	3,270	16,400	7,050	13,700	4,590	5,250	6,090	23,800	20,900	15,500
17	9,700	12,400	10,900	15,700	-4,140	10,700	4,350	4,820	13,400	21,300	19,930	21,100
18	-753	11,000	13,700	11,200	2,420	10,300	-2,650	5,350	10,800	19,700	14,700	14,900
19	3,600	11,700	6,000	3,510	10,300	12,300	1,620	7,760	5,600	20,300	16,900	16,500
20	3,310	12,100	13,700	9,310	8,330	11,100	3,750	2,740	7,150	18,300	16,800	15,100
21	6,810	13,600	20,700	11,200	7,640	13,600	3,230	-5,230	9,640	16,600	11,000	21,300
22	4,150	11,100	19,400	8,530	10,100	-3,470	5,990	-3,440	7,100	5,040	16,500	22,000
23	4,610	9,000	15,000	8,040	7,200	-3,130	6,450	4,330	8,030	9,850	18,900	885
24	3,570	11,500	16,000	9,940	5,460	315	3,840	4,230	17,500	14,800	24,800	-4,150
25	6,700	12,700	14,600	10,200	1,450	569	-6,810	2,830	2,910	21,600	23,000	137
26	11,300	14,100	18,000	11,800	4,010	-4,910	-4,890	7,970	874	23,000	24,600	17,200
27	15,900	14,200	12,000	11,100	1,610	4,460	49	5,150	2,110	23,100	22,300	27,000
28	19,000	16,800	14,000	12,700	8,400	9,070	6,830	1,410	11,700	22,500	24,200	27,900
29	22,300	6,070	16,000	12,800	------	17,700	6,160	6,390	18,300	17,900	23,600	25,300
30	24,700	8,740	13,000	10,100	------	17,600	10,300	9,440	19,900	18,500	25,200	17,700
31	22,200	------	11,000	5,000	------	16,800	------	10,300	------	20,400	25,000	------
TOTAL	341,327	339,720	372,657	313,530	147,435	209,722	153,072	133,093	203,614	573,123	603,900	493,473
MEAN	11,010	11,320	12,020	10,110	5,265	6,767	5,102	4,293	6,787	18,490	19,640	16,450
MAX	23,200	20,100	20,700	15,700	13,600	17,700	14,900	15,100	19,900	23,500	25,200	27,900
MIN	-753	-7,650	-713	3,510	-4,140	-9,210	-6,810	-5,230	-7,940	3,320	10,500	-4,150
AC-FT	677,000	656,000	739,200	621,900	292,400	415,100	303,600	264,000	403,900	1,137M	1,198M	978,800

CAL YR 1973 TOTAL 3,376,445.00 MEAN 9,251 MAX 23,200 MIN -17,700 AC-FT 6,697,000
WTR YR 1974 TOTAL 3,882,693.00 MEAN 10,630 MAX 28,200 MIN -9,210 AC-FT 7,697,000

NOTE.--Negative figures indicate reverse flow.

02235450 St. Johns River at Palatka, Fla.

MAXIMUM GAGE HEIGHTS IN FEET, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12.03	11.65	11.23	11.38	10.72	10.79	10.65	10.73	10.80	11.64	11.44	11.26
2	12.06	11.56	11.23	11.14	10.81	10.96	10.66	10.70	10.83	11.60	11.42	11.23
3	12.11	11.54	11.65	11.17	10.76	10.53	10.76	10.73	11.01	11.49	11.51	11.69
4	12.14	11.67	11.42	10.96	10.93	10.56	10.83	10.71	11.26	11.43	11.54	11.43
5	12.17	11.62	11.02	10.89	11.13	10.61	11.01	10.96	11.56	11.52	11.87	11.79
6	12.42	11.87	11.27	10.80	11.14	10.55	11.05	11.12	11.55	11.58	11.64	11.97
7	12.09	11.94	11.39	11.05	11.19	10.73	10.85	11.20	11.40	11.56	11.65	11.88
8	12.42	11.82	11.71	11.21	11.09	10.72	10.95	11.22	11.29	11.65	11.57	12.01
9	12.48	11.77	11.64	11.17	11.16	10.71	10.97	11.33	11.21	11.61	11.66	12.24
10	12.49	12.31	11.60	11.24	11.14	10.70	10.80	11.27	11.10	11.57	11.76	12.32
11	12.54	12.55	11.59	11.20	11.11	10.74	10.97	11.03	11.01	11.44	11.84	12.34
12	12.43	12.43	11.44	11.25	11.03	10.79	10.87	10.81	11.03	11.71	12.04	12.37
13	12.40	12.14	11.41	11.23	11.00	11.27	10.83	10.97	11.10	11.97	12.03	12.30
14	12.50	11.90	11.26	11.21	10.84	11.38	10.59	11.00	11.26	11.85	11.96	12.34
15	12.35	11.73	11.26	11.13	10.63	11.25	10.44	10.95	11.38	11.73	11.96	12.35
16	12.21	11.51	11.44	10.93	10.83	10.92	10.56	10.97	11.40	11.71	11.95	12.34
17	12.39	11.48	11.37	10.65	11.25	10.70	10.79	10.95	11.25	11.64	11.98	12.29
18	12.53	11.70	11.29	10.77	11.06	10.67	10.79	10.90	11.22	11.59	12.00	12.25
19	12.46	11.66	11.45	11.04	11.37	10.60	10.93	10.91	11.34	11.61	12.09	12.41
20	12.55	11.43	11.44	11.00	11.00	10.69	10.97	10.91	11.33	11.56	12.18	12.34
21	12.65	11.57	11.25	10.95	10.99	10.47	10.96	11.32	11.33	11.57	12.23	12.10
22	12.71	11.60	10.80	10.97	10.90	10.71	11.01	11.44	11.33	12.00	12.23	11.95
23	12.64	11.65	11.25	10.98	10.98	11.25	10.89	11.37	11.27	12.02	12.14	12.40
24	12.97	11.68	11.37	10.96	10.85	11.39	10.75	11.13	11.13	11.89	11.95	13.01
25	12.98	11.59	11.42	10.91	10.98	11.59	11.10	11.11	11.62	11.71	11.83	12.92
26	12.82	11.49	11.19	10.83	10.84	11.65	11.16	11.10	11.08	11.50	11.73	12.61
27	12.64	11.47	11.38	10.79	10.84	11.59	11.19	11.03	12.06	11.33	11.65	12.59
28	12.54	11.32	11.48	10.63	10.88	11.43	11.05	11.14	11.99	11.43	11.56	12.33
29	12.33	11.21	11.55	10.54	------	11.27	10.93	11.07	11.95	11.48	11.55	12.15
30	11.86	11.36	11.41	10.58	------	10.95	10.78	11.02	11.68	11.50	11.51	12.17
31	11.34	------	11.42	10.60	------	10.80	------	10.83	------	11.59	11.34	------
MEAN	12.44	11.70	11.38	10.97	10.98	10.92	10.86	11.02	11.35	11.63	11.80	12.18
MAX	12.98	12.55	11.84	11.38	11.39	11.65	11.16	11.44	12.06	12.02	12.23	13.01
MIN	11.34	11.21	10.80	10.54	10.63	10.47	10.44	10.61	10.80	11.33	11.34	11.23

CAL YR 1973 MEAN 11.55 MAX 12.98 MIN 10.56
WTR YR 1974 MEAN 11.44 MAX 13.01 MIN 10.44

02236 St. Johns River Basin

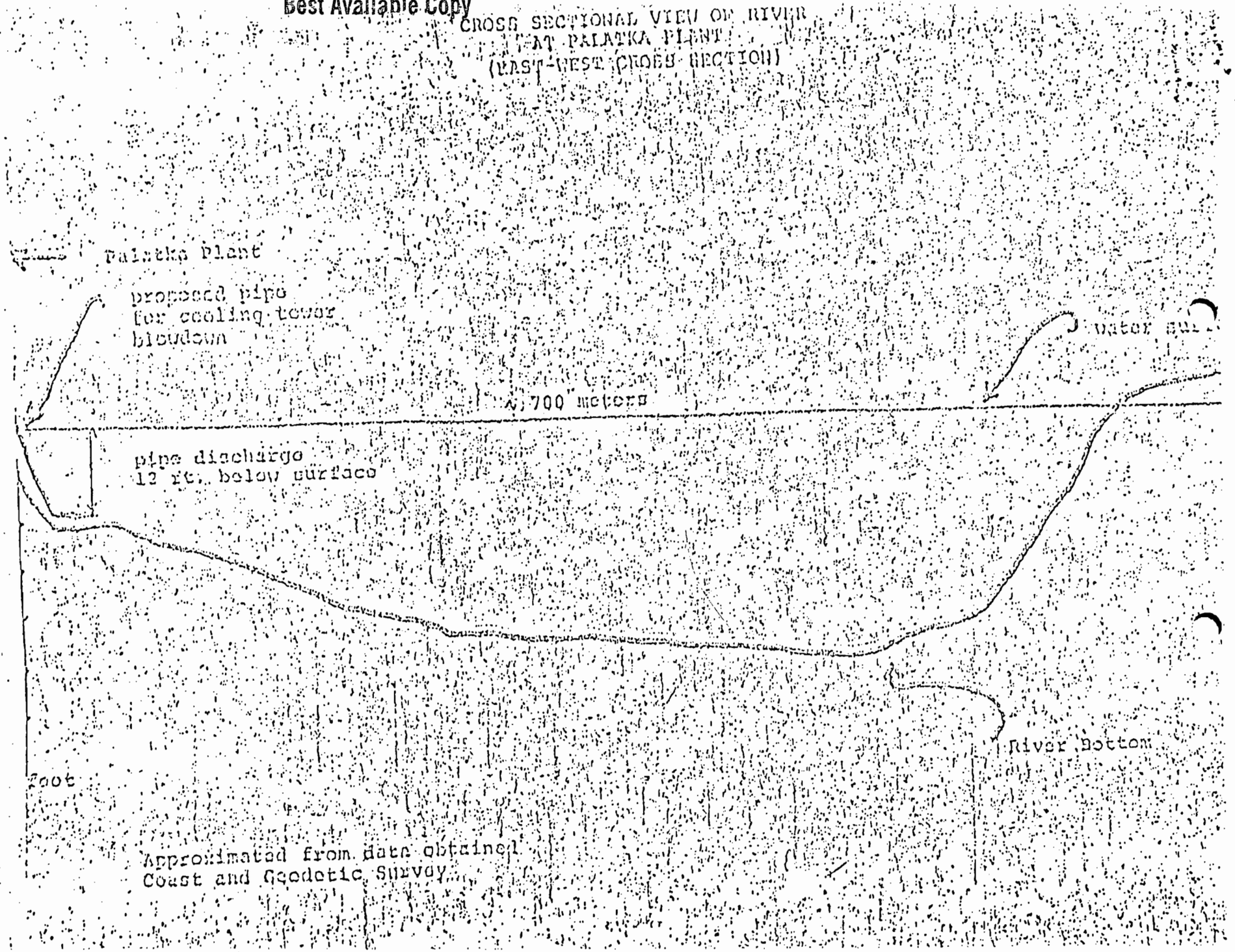
02236000 St. Johns River at Palatka, Fla.

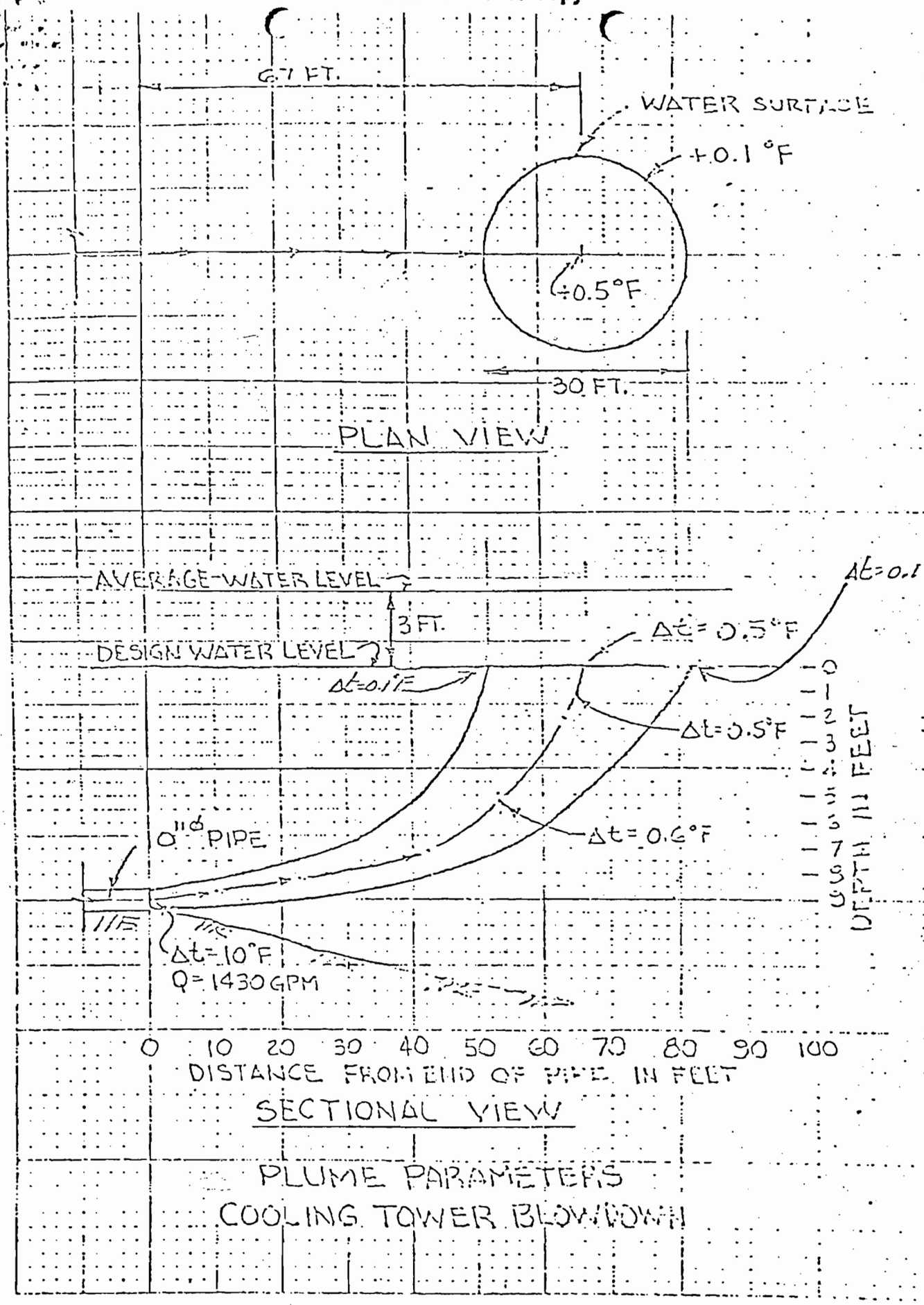
MINIMUM GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10.80	10.35	10.05	9.97	9.55	9.59	9.37	9.35	9.63	10.20	10.10	9.91
2	11.00	10.36	10.07	9.83	9.52	9.36	9.38	9.37	9.65	10.19	10.25	9.93
3	11.15	10.46	10.31	9.83	9.42	9.25	9.53	9.36	9.62	10.26	10.25	9.99
4	11.23	10.33	10.19	9.49	9.76	9.30	9.53	9.41	10.09	10.23	10.35	10.14
5	11.30	10.41	10.05	9.44	9.78	9.34	9.53	9.59	10.32	10.33	10.35	10.45
6	11.41	10.65	9.95	9.41	9.80	9.34	9.51	9.90	10.22	10.32	10.54	10.69
7	11.45	10.58	10.13	9.64	9.61	9.32	9.47	9.90	10.14	10.28	10.33	10.62
8	11.50	10.44	10.44	9.79	9.51	9.33	9.35	9.98	10.11	10.30	10.35	10.63
9	11.48	10.55	10.56	9.89	9.80	9.29	9.32	10.05	10.02	10.43	10.35	11.00
10	11.42	10.52	10.34	9.96	9.83	9.38	9.51	10.06	9.95	10.41	10.38	11.13
11	11.47	11.22	10.12	9.93	9.84	9.31	9.59	9.72	9.76	10.31	10.63	11.26
12	11.53	11.25	10.02	9.97	9.77	9.47	9.65	9.48	9.84	10.44	10.92	11.23
13	11.53	10.70	9.63	9.97	9.54	9.44	9.51	9.74	9.97	10.43	10.79	11.11
14	11.33	10.55	9.87	9.79	9.69	9.43	9.36	9.83	10.03	10.26	10.67	11.06
15	11.23	10.39	9.94	9.87	9.50	10.09	9.25	9.84	10.19	10.53	10.61	11.06
16	11.02	10.33	10.16	9.73	9.51	9.84	9.37	9.78	10.07	10.27	10.63	11.11
17	11.12	10.37	10.20	9.55	9.54	9.66	9.50	9.79	9.93	10.04	10.67	11.09
18	11.55	10.54	10.06	9.46	9.90	9.49	9.70	9.45	9.97	10.09	10.75	11.05
19	11.54	10.51	10.18	9.77	9.84	9.45	9.61	9.53	9.95	10.05	10.83	11.20
20	11.51	10.45	10.32	9.80	9.70	9.31	9.70	9.67	9.98	10.03	10.86	11.21
21	11.49	10.42	9.72	9.67	9.72	9.23	9.77	10.02	9.95	10.28	11.03	10.99
22	11.59	10.39	9.47	9.70	9.43	9.55	9.52	10.06	9.95	10.59	11.08	10.84
23	11.47	10.39	9.93	9.70	9.62	9.08	9.60	9.47	9.92	10.72	10.98	11.17
24	11.78	10.41	10.29	9.73	9.63	10.06	9.46	9.55	9.86	10.64	10.78	11.17
25	11.88	10.43	9.82	9.65	9.55	9.94	9.55	9.74	10.02	10.38	10.71	12.05
26	11.71	10.26	10.09	9.51	9.69	10.19	9.82	9.77	10.56	10.16	10.56	11.45
27	11.55	10.18	9.89	9.59	9.64	10.36	9.80	9.85	10.93	10.12	10.41	11.35
28	11.41	9.96	9.69	9.23	9.71	10.18	9.70	9.87	10.71	10.04	10.29	11.12
29	11.23	10.24	10.15	9.24	------	9.72	9.64	9.93	10.43	10.31	10.20	10.94
30	10.74	10.20	10.23	9.29	------	9.75	9.53	9.69	10.32	10.31	10.05	11.07
31	10.14	------	9.76	9.36	------	9.50	------	9.54	------	10.17	9.92	------
MEAN	11.38	10.49	10.07	9.68	9.69	9.61	9.54	9.75	10.09	10.33	10.54	10.95
MAX	11.88	11.25	10.56	9.97	9.90	10.36	9.82	10.06	10.93	10.99	11.08	12.05
MIN	10.14	9.96	9.47	9.23	9.42	9.23	9.25	9.36	9.63	10.03	9.92	9.91

CAL YR 1973 MEAN 10.28 MAX 11.98 MIN 9.21
WTR YR 1974 MEAN 10.18 MAX 12.05 MIN 9.23

CROSS SECTIONAL VIEW OF RIVER
AT PALATKA PLANT
(EAST-WEST CROSS SECTION)





PLUME PARAMETERS

COOLING TOWER BLOWDOWN

6/23/80

JACOB D. VARN
SECRETARY

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

12-16-85

TO: All Parties of Record

FROM: Louis Hubener

DATE: June 18, 1980

RE: Florida Power and Light Company Palatka Station (Putnam Plant), Modification of Conditions of Certification.

Attached please find a copy of the Order for Modification of Certification signed by the Governor and Cabinet on May 20, 1980. Please accept our apologies for the delay, but it seems the Order was misplaced enroute to being signed.

If you have any questions, please do not hesitate to call.

LH/bsh

Attachment

HOPPING BOYD GREEN & SAMS
ATTORNEYS AND COUNSELLORS
SUITE 420, LEWIS STATE BANK BUILDING
POST OFFICE BOX 6526
TALLAHASSEE, FLORIDA 32301
(904) 222-7500

WILLIAM L. BOYD, IV
WILLIAM H. GREEN
WADE L. HOPPING
RICHARD D. MELSON
GARY P. SAMS
JOHN C. WHITE

BRIAN H. BIBEAU
DAVID S. DEE
WILLIAM D. PRESTON

OF COUNSEL
CARLOS ALVAREZ
W. ROBERT FOKES

June 30, 1980

Mr. W. J. Barrow, Jr.
Florida Power & Light Company
Post Office Box 529100
Miami, Florida 33152

Re: FPL Putnam Plant Certification Modification

Dear Buzz:

Enclosed for your files you will find a copy of the Order for Modification of Certification signed by the Governor and Cabinet on May 20, 1980. As you can see, this Order incorporates the changes which we requested on FPL's behalf.

There apparently was some delay in having this order signed as we did not even receive our copy from DER until recently. Should you have any questions concerning this matter, please call.

Sincerely,

William D. Preston

WDP/sb

Enclosure

cc Wade L. Hopping
William H. Green
W. S. Tucker

BEFORE THE GOVERNOR AND CABINET
OF THE STATE OF FLORIDA

In Re: FLORIDA POWER AND LIGHT COMPANY PALATKA STATION (PUTNAM PLANT), MODIFICATION OF CONDITIONS OF CERTIFICATION.

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

Honorable Bob Graham
Governor

Honorable George Firestone
Secretary of State

Honorable Jim Smith
Attorney General

Honorable Gerald A. Lewis
Comptroller

Honorable Bill Gunter
Treasurer and Insurance Commissioner

Honorable Ralph D. Turlington
Commissioner of Education

Honorable Doyle Conner
Commissioner of Agriculture

MODIFICATION OF CERTIFICATION

BY THE GOVERNOR AND CABINET:

The Governor and Cabinet, sitting as the Board, having heard presentations by the parties, having reviewed the stipulation of the parties dated May 5, 1980 (attached and incorporated as Exhibit 1), and being otherwise fully advised herein, it is ORDERED:

1. The stipulation of the parties is approved in accordance with Section 403.516(2), Florida Statutes.

2. Conditions Nos. 1 and 2 imposed upon Florida Power and Light Company's Putnam Plant by this Board's Order dated October 16, 1974, are hereby modified as follows:

"1. Fuel consumed should not contain more than 0.7% sulfur nor should stack emissions exceed those specified in Chapter 17-2.05(6), Table II, E., Florida Administrative Code.

2. Stack Height: Minimum stack heights shall be 71 feet above grade. Stacks with a height of at least 150 feet shall be constructed if monitoring data per Condition 5 indicates ambient air standards would be violated.

Wind Restriction: The permittee will burn fuel oil containing no more than 0.50% sulfur when sustained winds exceed 20 miles per hour for any continuous period of three hours or longer.

Wind Monitoring: The permittee shall measure wind velocity and wind direction at hourly intervals in the plant vicinity. Such wind data shall be reported monthly to the Lower St. Johns Subdistrict Manager of the Department by the last day of each month following the reporting period. Wind velocity and direction measurements required by this paragraph shall be made in accordance with recognized methods and procedures."

DONE AND ENTERED this 20th day of May, 1980, in Tallahassee, Florida, subsequent to a vote of the Governor and Cabinet at a duly constituted Cabinet meeting of May 20, 1980.

BY THE GOVERNOR AND CABINET
SITTING AS THE BOARD:

BOB GRAHAM
Governor

VOTE:

For: Against:

Copies furnished to:

Wade L. Hopping, Esquire
William S. Bilenky, Esquire
Mary F. Clark, Esquire
Louis Hubener, Esquire
Brian E. Michaels, Putnam County

BEFORE THE GOVERNOR AND CABINET
OF THE STATE OF FLORIDA

In Re: FLORIDA POWER & LIGHT)
COMPANY PALATKA STATION (PUTNAM PLANT),)
MODIFICATION OF CONDITIONS OF)
CERTIFICATION NO. PPS-74-01.)
)

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

Honorable Bob Graham
Governor

Honorable George Firestone
Secretary of State

Honorable Jim Smith
Attorney General

Honorable Gerald A. Lewis
Comptroller

Honorable Bill Gunter
Treasurer and Insurance Commissioner

Honorable Ralph D. Turlinton
Commissioner of Education

Honorable Doyle Conner
Commissioner of Agriculture

MODIFICATION OF CERTIFICATION

BY THE GOVERNOR AND CABINET:

The Governor and Cabinet, sitting as the Siting Board, having reviewed the Proposed Agreement (attached hereto and incorporated as Exhibit 1) and being otherwise fully advised herein, it is

ORDERED:

1. The Agreement of the parties is approved in accordance with Section 403.516(2), Florida Statutes.

2. Conditions Nos. 1, 2, 4 and 5 of the Site Certification for Florida Power and Light Company's Putnam Plant are hereby modified to read as follows:

> 1. Fuel consumed should not contain more than 0.7% sulfur nor should stack emissions exceed those specified in Florida Administrative Code Rule 17-2.600(6).
>
> 2. Stack Height: (no change)
>
> Wind Restriction: (no change)
>
> Wind Monitoring: The permittee shall measure wind velocity and wind direction at hourly intervals in the plant vicinity,

only for those hours during which either unit of the plant operates on oil. Wind data for the hours during which oil was burned during each month or, if applicable, a statement that no oil was burned during that month, shall be reported to the Northeast District Manager of the Department by the last day of each month following the reporting period. Wind velocity and direction measurements required by this paragraph shall be made in accordance with recognized methods and procedures.

4. The permittee shall install and operate continuous monitoring devices on one of the paired exhaust stacks for the following: Opacity, Nitrogen Oxides. Records of such monitoring shall be available for inspection.

5. The permittee shall install and operate continuously for a 24-hour period every six days, two ambient air, West-Gaeke, monitoring devices for sulfur dioxide and two suspended particulate sampling devices. The location of these ambient air samplers shall be determined by consultation with the Northeast District Manager of the Department. The data collected will be reported to the Northeast District Manager quarterly by the last day of each month following the reporting period utilizing the SAROAD or other mutually aceptable format.

3. Condition No. 32 is hereby added to the Site Certification for Florida Power & Light Company's Putnam Plant, to read as follows:

32. Modification of Conditions

The conditions of this certification may be modified in the following manner:

A. The Board pursuant to 403.516(1), F.S., hereby delegates to the Secretary the authority to modify, after notice and opportunity for hearing, any conditions pertaining to air and water monitoring and sampling, variances, or exceptions to water quality standards.

B. All other modifications shall be made in accordance with Section 403.516, Florida Statutes.

DONE AND ENTERED this 5th day of March 1984, in Tallahassee, Florida, pursuant to the vote of the Governor and

Cabinet sitting as the Siting Board at a duly constituted Cabinet meeting on February 21, 1984.

BY THE GOVERNOR AND CABINET
SITTING AS THE SITING BOARD:

Bob Graham
Governor

Copies furnished to:

Peter C. Cunningham, Esquire
Mary F. Clark, Esquire, DCA
Kenneth Morris, Putnam County
Susan Clark, Esquire, PSC
J. Alan Cox, Esquire, DER

FILING AND ACKNOWLEDGEMENT
FILED, on this date, pursuant to S120.52 (9), Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

Chris Vause — Clerk
3/19/84 — Date

BEFORE THE GOVERNOR AND CABINET
OF THE STATE OF FLORIDA

In Re: FLORIDA POWER & LIGHT COMPANY PALATKA STATION (PUTNAM PLANT), MODIFICATION OF CONDITIONS OF CERTIFICATION NO. PPS-74-01.

CGC # 82-0730

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

Honorable Bob Graham
Governor

Honorable George Firestone
Secretary of State

Honorable Jim Smith
Attorney General

Honorable Gerald A. Lewis
Comptroller

Honorable Bill Gunter
Treasurer and Insurance Commissioner

Honorable Ralph D. Turlington
Commissioner of Education

Honorable Doyle Conner
Commissioner of Agriculture

MODIFICATION OF CERTIFICATION

BY THE GOVERNOR AND CABINET:

The Governor and Cabinet, sitting as the Siting Board, having reviewed the Proposed Agreement of Parties to Modify Conditions of Certification (attached hereto and incorporated as Exhibit 1), and being otherwise fully advised herein, it is ORDERED:

1. The Agreement of the parties is approved in accordance with Section 403.516(2), Florida Statutes.

2. Conditions Nos. 1, 2, 4 and 5 of the Site Certification for Florida Power and Light Company's Putnam Plant are hereby modified to read as follows:

> 1. Fuel consumed should not contain more than 0.7% sulfur nor should stack emissions exceed those specified in Florida Administrative Code Rule 17-2.600(6).
>
> 2. Stack Height: (no change)
>
> Wind Restriction: (no change)
>
> Wind Monitoring: The permittee shall measure wind velocity and wind direction at hourly intervals in the plant vicinity,

only for those hours during which either unit of the plant operates on oil. Wind data for the hours during which oil was burned during each month or, if applicable, a statement that no oil was burned during that month, shall be reported to the Northeast District Manager of the Department by the last day of each month following the reporting period. Wind velocity and direction measurements required by this paragraph shall be made in accordance with recognized methods and procedures.

4. The permittee shall install and operate continuous monitoring devices on one of the paired exhaust stacks for the following: Opacity, Nitrogen Oxides. Records of such monitoring shall be available for inspection.

5. The permittee shall install and operate continuously for a 24-hour period every six days, two ambient air, West-Gaeke, monitoring devices for sulfur dioxide and two suspended particulate sampling devices. The location of these ambient air samplers shall be determined by consultation with the Northeast District Manager of the Department. The data collected will be reported to the Northeast District Manager quarterly by the last day of each month following the reporting period utilizing the SAROAD or other mutually aceptable format.

3. Condition No. 32 is hereby added to the Site Certification for Florida Power & Light Company's Putnam Plant, to read as follows:

32. Modification of Conditions

The conditions of this certification may be modified in the following manner:

A. The Board pursuant to 403.516(1), F.S., hereby delegates to the Secretary the authority to modify, after notice and opportunity for hearing, any conditions pertaining to air and water monitoring and sampling, variances, or exceptions to water quality standards.

B. All other modifications shall be made in accordance with Section 403.516, Florida Statutes.

DONE AND ENTERED this ___ day of March 1984, in Tallahassee, Florida, pursuant to the vote of the Governor and

Cabinet sitting as the Siting Board at a duly constituted Cabinet meeting on February 21, 1984.

BY THE GOVERNOR AND CABINET
SITTING AS THE SITING BOARD:

Bob Graham
Governor

Copies furnished to:

Peter C. Cunningham, Esquire
Mary F. Clark, Esquire, DCA
Kenneth Morris, Putnam County
Susan Clark, Esquire, PSC
J. Alan Cox, Esquire, DER

BEFORE THE STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

IN RE:	)	
	)	
Florida Power & Light Company, Palatka Station: Modification of Conditions of Certification No. PPS-74-01, Putnam County, Florida,	)	CASE NO.
	)	
Permittee.	)	

PROPOSED AGREEMENT OF PARTIES
TO MODIFY CONDITIONS OF CERTIFICATION

The parties who previously entered formal appearances in the original site certification proceedings hereby STIPULATE AND AGREE as follows:

1. The signatories to this Agreement include all of the parties to the above mentioned certification proceedings.

2. On October 16, 1974, Florida Power & Light Company (the "Permittee") was issued site certification by the Board of the Department of Pollution Control authorizing the construction and operation of the "Putnam Plant" subject to certain Conditions of Certification.

3. Upon stipulation of the parties, the Governor and Cabinet modified the Conditions of Certification pursuant to Section 403.516(2), Florida Statutes, on May 18, 1976 and May 20, 1980. In addition, by stipulation dated September 26, 1978, the Conditions of Certification were modified by agreement of the parties, pursuant to Section 403.516(2), Florida Statutes, and Condition No. 31.

4. By letter dated November 22, 1983, the Permittee proposed additional modifications to Condition Nos. 1, 2, 4 and 5, respectively, of the Conditions of Certification, and proposed the addition of a new Condition No. 32.

5. Wherefore, pursuant to Section 403.516(2), Florida Statutes, and Florida Administrative Code Rule 17-17.211, the parties hereto agree that Condition No. 1 of the Certification should be and is hereby amended and modified to read as follows:

1. Fuel consumed should not contain more than 0.7% sulfur nor should stack emissions exceed those specified in Florida Administrative Code Rule 17-2.600(6).

6. Wherefore, pursuant to Section 403.516(2), Florida Statutes, Florida Administrative Code Rule 17-17.211 and Condition No. 31, the parties hereto agree that Condition No. 2 of the Certification should be and is hereby amended and modified to read as follows:

2. Stack Height: (no change)

Wind Restriction: (No change)

Wind Monitoring: The permittee shall measure wind velocity and wind direction at hourly intervals in the plant vicinity, only for those hours during which either unit of the plant operates on oil. Wind data for the hours during which oil was burned during each month or, if applicable, a statement that no oil was burned during that month, shall be reported to the Northeast District Manager of the Department by the last day of each month following the reporting period. Wind velocity and direction measurements required by this paragraph shall be made in accordance with recognized methods and procedures.

7. Wherefore, pursuant to Section 403.516(2), Florida Statutes, Florida Administrative Code Rule 17-17.211 and Condition No. 31, the parties hereto agree that Condition No. 4 of the Certification should be and is hereby amended and modified to read as follows:

4. The permittee shall install and operate continuous monitoring devices on one of the paired exhaust stacks for the following: Opacity, Nitrogen Oxides. Records of such monitoring shall be available for inspection.

8. Wherefore, pursuant to Section 403.516(2), Florida Statutes, Florida Administrative Code Rule 17-17.211 and Condition No. 31, the parties hereto agree that Condition No. 5 of the Certification should be and is hereby amended and modified to read as follows:

5. The permittee shall install and operate continuously for a 24-hour period every six days, two ambient air, West-Gaeke, monitoring devices for sulfur dioxide and two suspended particulate sampling devices. The location of these ambient air samplers shall be determined

by consultation with the Northeast District Manager of the Department. The data collected will be reported to the Northeast District Manager quarterly by the last day of each month following the reporting period utilizing the SAROAD or other mutually acceptable format.

9. Wherefore, pursuant to Section 403.516(2), Florida Statutes and Florida Administrative Code Rule 17-17.211, the parties hereto agree that Condition 32 be added to delegate to the Secretary of the Department of Environmental Regulation the authority to modify certain conditions as follows:

32. Modification of Conditions

The conditions of this certification may be modified in the following manner:

A. The Board pursuant to 403.516(1), F.S., hereby delegates to the Secretary the authority to modify, after notice and opportunity for hearing, any conditions pertaining to air and water monitoring and sampling, variances, or exceptions to water quality standards.

B. All other modifications shall be made in accordance with Section 403.516, Florida Statutes.

10. The Governor and Cabinet, as the Siting Board, may take all actions necessary to ratify, confirm and implement this Stipulation pursuant to the authority granted to them by Chapter 403, Part II, Florida Statutes, the Florida Electrical Power Plant Siting Act.

WITNESS our hands and seals on the dates shown below.

FOR THE STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL
REGULATION

Tem Cole for
VICTORIA J. TSCHINKEL DATE
Secretary
Department of Environmental
Regulation
2600 Blair Stone Road
Tallahassee, Florida 32301

FOR FLORIDA POWER & LIGHT
COMPANY

1/11/84
WILLIAM H. GREEN DATE
Counsel for Florida Power
& Light Company
Hopping Boyd Green & Sams
Post Office Box 6526
Tallahassee, Florida 32314

FOR THE STATE OF FLORIDA
DEPARTMENT OF COMMUNITY
AFFAIRS

Mary Clark 1/13/84

MARY CLARK DATE
General Counsel
Department of Community
Affairs
2571 Executive Center
Circle, E.
Tallahassee, Florida 32301

FOR THE STATE OF FLORIDA
PUBLIC SERVICE COMMISSION

WILLIAM S. BILENKY DATE
Attorney for Public Service
Commission
101 E. Gaines Street
Tallahassee, Florida 32304

FOR THE PUTNAM COUNTY BOARD
OF COUNTY COMMISSIONERS

Kenneth L. Morris 1/17/84

KENNETH L. MORRIS DATE
Codes Administrator
Putnam County Board of
County Commissioners
Post Office Drawer 1486
Palatka, Florida 32077

State of Florida

Office of Commission Clerk:
STEVEN C. TRIBBLE, CLERK
(904) 488-8371

Public Service Commission

January 13, 1984

Peter C. Cunningham, Esquire
Counsel for Florida Power &
Light Company
Hopping Boyd Green & Sams
Post Office Box 6526
Tallahassee, Florida 32314

Re: Florida Power and Light Company
Putnam Power Plant Units 1 and 2

Dear Mr. Cunningham:

As you requested, this is to confirm our December telephone conversation during which I told you the Commission would prefer not to sign the stipulation concerning the above referenced power plant. The reason for our position is set forth in the attached letter sent by my predecessor, Mr. Pat Wiggins, concerning a previous stipulation regarding the same plant.

Let me know if you have any questions.

Sincerely,

Susan F. Clark

Susan F. Clark
Deputy General Counsel

SFC/lh

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a true and correct copy of the foregoing MODIFICATION OF CERTIFICATION has been furnished by United States Mail to Kenneth L. Morris, Codes Administrator, Putnam County Board of County Commissioners, Post Office Drawer 1486, Palatka, Florida 32077; Mary F. Clark, Esquire, Department of Community Affairs, 2571 Executive Center Circle, East, Tallahassee, Florida 32301; Susan Clark, Esquire, Florida Public Service Commission, 101 East Gaines Street, Tallahassee, Florida 32304; and Peter C. Cunningham, Esquire, Hopping Boyd Green & Sams, Post Office Box 6526, Tallahassee, Florida 32314, this 20th day of March, 1984.

JOHN BOTTCHER
Attorney

State of Florida Department
of Environmental Regulation
2600 Blair Stone Road
Tallahassee, Florida 32301
Telephone: (904)488-9730