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Division of Air  
Resources Management

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*CINDY P.* \_\_\_\_\_

June 28, 1991

Mr. A. Alexander, P.E.  
Deputy Assistant Secretary  
Florida Department of Environmental Regulation  
Central Florida District  
3319 Maguire Boulevard, Suite 232  
Orlando, Florida 32803-3767

RE: Florida Power & Light Company  
Sanford Unit No. 4  
Air Operating Permit No. A064-132055  
Request for Amendment

Dear Mr. Alexander:

As you are likely aware, the Orimulsion test burn at Florida Power & Light Company's (FPL) Sanford Unit No. 4 was a success. We wish to again express our appreciation for the support and consideration of the Department during the test burn.

ORIMULSION TEST BURN SUCCESS

As scheduled, the testing of 100 percent Orimulsion fuel was stopped on May 31, 1991, although the test burn permit does not terminate until June 30, 1992, or until 90 full-power burn days have been consumed. FPL does not anticipate the need for further testing at this time, but will officially notify the Department when a final decision is made in this regard. We will also notify the Department if some unanticipated consideration requires us to pursue further testing.

FPL is presently evaluating the results of the test burn and planning for the possible permanent conversion of certain units, including Sanford Unit Nos. 4 and 5 and Cape Canaveral Unit Nos. 1 and 2, to the permanent use of Orimulsion. Any such conversion would include the associated retrofitting of pollution control equipment. FPL believes that these activities would result in substantial environmental improvements clearly attributable to the success of the Sanford test burn.

PERMITTEE:  
Fla. Power & Light Co.

Permit No. AC 64-180842  
PSD-FL-150  
Expiration Date: June 30, 1992

SPECIFIC CONDITIONS:

- d) The stack sampling facility must comply with Rule 17-2.700(4), F.A.C.
- e) Results obtained from the test burn shall be reported monthly to the Department. The monthly reports shall include but not be limited to:
  - i. Orimulsion and any other fuel usage (recorded in barrels, MMBtu, and schedule of days burned),
  - ii. Number of full power test day equivalents during the month,
  - iii. Characteristics of Orimulsion and any other fuel used during the month (percent sulfur, heating value, and percent ash). This includes fuel used for Units 3 and 5,
  - iv. A monthly summary of the hourly averages of NOx and CO CEM data,
  - v. A monthly summary of opacity readings, including a daily log of excess opacity emissions, and
  - vi. Frequency of excess emissions. Exceedances for opacity shall be any 6-minute average above the opacity limit and for SO<sub>2</sub>, any hourly average above the SO<sub>2</sub> limit.

Monthly reports shall be submitted to the Bureau of Air Regulation and the Central District office within 21 days following the end of the month.

- f) A copy of the stack emission test results shall be submitted no later than 45 days after the last run when a 3-run test is completed.
- g) A detailed report of the pilot pollution control equipment test results shall be submitted within ninety days after permittee has notified the Department that the Orimulsion test burns have been completed. The report shall include an ultimate analysis of the Orimulsion fuel.

9. Other Requirements:

The permit holder may also need to comply with county, municipal, federal, or other state regulations prior to construction.

Jewell Haper-OPA  
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do not automatically affix themselves to the PSD regulations. FPL will be adding hot water heat exchangers, circulating hot water pumps, a hot water storage tank and an Orimulsion fuel flow meter. The hot water system is needed to ensure that the fuel remains at the proper temperature and is delivered to the boiler without physical breakdown of the fuel. The addition of these appurtenances is analogous to the preconditioning system of any new fuel, e.g., a coal pulverization unit, etc. Therefore, we do not believe that the facility is capable of accommodating Orimulsion. We do, however, agree with FPL in that the boiler itself is capable of accommodating Orimulsion and therefore the company should not be required to perform a BACT analysis. In summary, we have concluded that the proposed burning of Orimulsion at FPL's Sanford Unit #4 will trigger PSD, but a BACT analysis will not be required for the boiler.

2. Pollutants Subject to PSD - Table 3-2:

For PSD purposes, potential emission increases from a modification are compared to past actual emissions. This comparison is performed on a tons per year basis. Therefore, we will assume that the Orimulsion testing will occur within a one-year period. The potential emissions associated with burning Orimulsion during the testing appears to have been calculated correctly, based on 120 full power days. FPL did not, however, include the potential emissions resulting from any fuel oil burning which could occur the remainder of the year (245 full power days) when Orimulsion is not being burned.

The past actual emissions were not based on actual operating data, hours of operation, etc. FPL used AP-42 factors and assumed 120 full power days in the calculation of past actual emissions. These calculations should be based on actual operating hours and emission rates. If actual emission rates are not known, then FPL could use AP-42 emission factors.

As a general note, we feel that the proposed particulate emission limitation of 0.338 lb/mmBTU is too high considering that the uncontrolled particulate emission rate is reported to be 0.22 lb/mmBTU (See Table 3-1 of Exhibit 1).

1989

AOL

#4 UNIT  $(18376 \times 10^3 \text{ gal/yr No. 6}) (8 \text{ \# / gal}) (\frac{1 \text{ TON}}{2000 \text{ \#}}) (1.348\% S) = 990.8 \frac{\text{TS}}{\text{yr}} (\frac{64}{32}) = 1982 \text{ TPY SO}_2$   
 $(10 \times 10^3 \text{ gal/yr No. 2}) (7.3 \text{ \# / gal}) (\frac{1 \text{ TON}}{2000 \text{ \#}}) (0.5) = 0.18 \frac{\text{TS}}{\text{yr}} = 0.36 \text{ TPY SO}_2$

AP-42 1970 TPY SO<sub>2</sub>

UNIT	Particulates	NO <sub>x</sub>	SO <sub>2</sub>	CO	HOURS
3	18.1	570	173	41.6	2384
4	151	616	1970	45.9	1336
5	411	1680	5350	125	3474
	<u>580.1</u>	<u>2866</u>	<u>7493</u>	<u>212.5</u>	<u>7194</u>

UNIT 3  $(1860 \times 10^6 \text{ ft}^3 \text{ Natgas/yr}) (1050 \text{ BTU/SCF}) = 1,953,000 \text{ MMBTU}$   
 $(1740 \times 10^3 \text{ gal No. 6/yr}) (150,000 \frac{\text{BTU}}{\text{gal}}) = 261,000 \text{ MMBTU}$   
 $(1.2 \times 10^3 \text{ gal propane}) (91,500 \frac{\text{BTU}}{\text{gal}}) = 110 \text{ MMBTU}$   
2,214,110 MMBTU/yr

UNIT 4  $(10 \times 10^3 \text{ gal No. 2/yr}) (140,000 \frac{\text{BTU}}{\text{gal}}) = 1,400 \text{ MMBTU/yr}$   
 $(18376 \times 10^3 \text{ gal No. 6/yr}) (150,000 \frac{\text{BTU}}{\text{gal}}) = 2,756,400 \text{ MMBTU}$   
2,757,800 MMBTU/yr

UNIT 5  $(6000 \text{ gal No. 2/yr}) (140,000 \frac{\text{BTU}}{\text{gal}}) = 840$   
 $(50,150 \times 10^3 \text{ gal No. 6/yr}) (150,000 \frac{\text{BTU}}{\text{gal}}) = 7,522,500$   
7,523,340 MMBTU/yr

$(7493 \text{ TPY SO}_2) (\frac{2000 \text{ lb}}{\text{TON}}) = 1.20 \frac{\text{SO}_2}{\text{MMBTU}}$

$\frac{12,495,250 \text{ MMBTU}}{\text{yr}}$

12,495,250 MMBTU/yr

$(580.1 \times 2000) = 0.09 \frac{\text{PM}}{\text{MMBTU}}$   
 $\frac{12,495,250}{\text{yr}}$

STANDARD

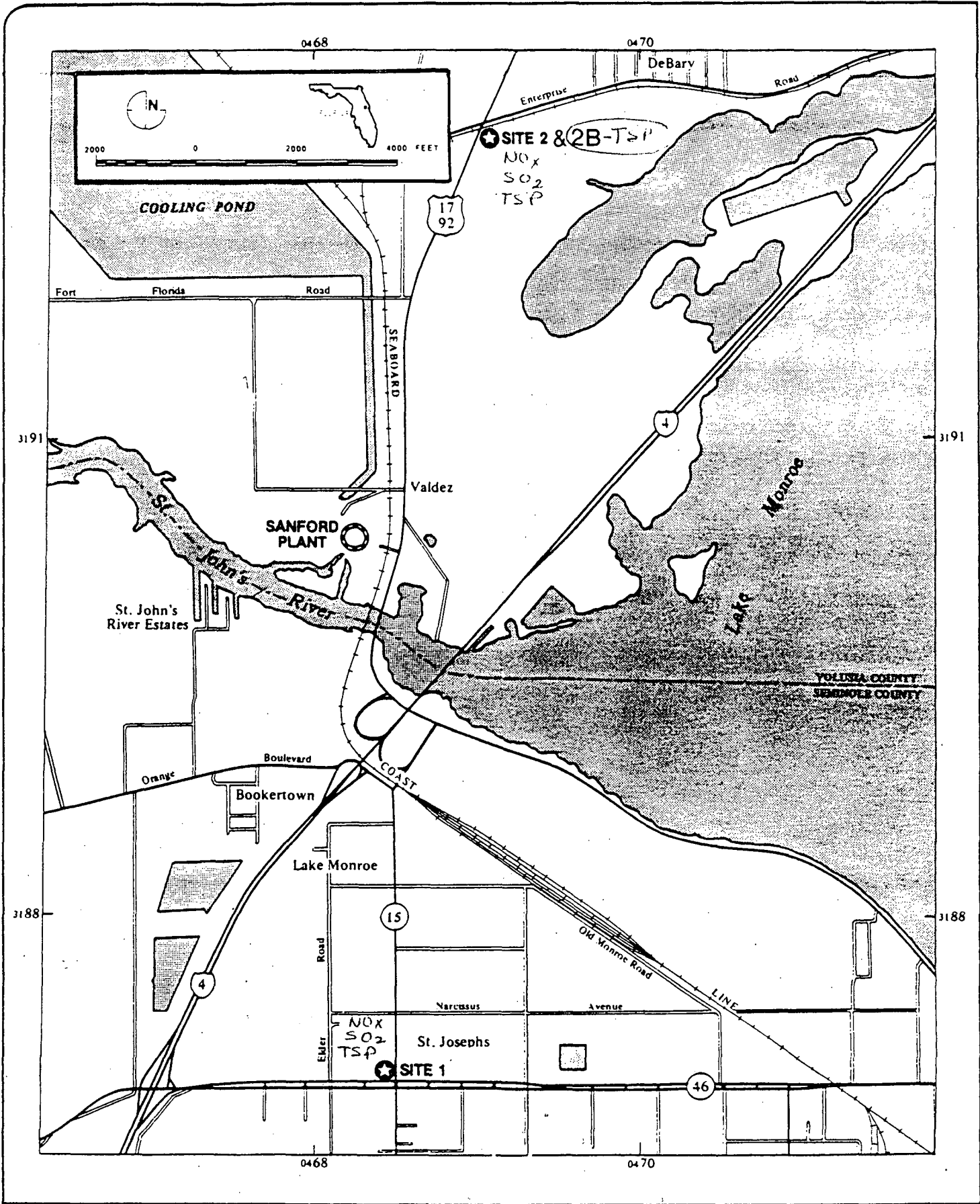
	PERMITTED	ACTUAL
#3 UNIT #6 OIL OR NAT. GAS		1255 HR/88
SO <sub>2</sub>	1519 #/hr 17,622 TPM	48.8 (88 TOY) AP-42
PM	13.38 #/hr 642 TPM	6.88 TPA (88 AP-42)
NOX		342 TPA (88 AP-42)
CO		249 TPA 88 (AP-42)
1650 MMBTU/HR	1170 MM FT <sup>3</sup> GAS	608,000 GAL #6

UNIT #4	#6 OIL	4050 MMBTU/HR	1219 HRS/88
SO <sub>2</sub>	3744 #/hr	43,362 TPA	1314 TPA (88) AP-42
PM	208.8 #/hr	3001 TPA	109 TPA (88) AP-42
NOX			564 TPA (88) AP-42
CO			42.1 TPA (88) AP-42

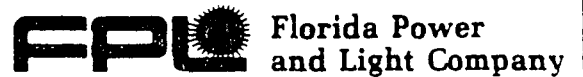
1988 20,000 GAL DISTILLATE  
16,820,000 GAL RESIDUAL OIL

UNIT #5	4050 MMBTU/HR	1722 HRS/88
SO <sub>2</sub>	3570 #/hr 43,362 TPA	2000 TPA (88) AP-42
PM	360 #/hr 1577 TPA	163 TPA (88) AP-42
NOX		839 TPA (88) AP-42
CO		62.6 TPA (88) AP-42

1988 10,000 GAL DISTILLATE  
25,057,000 GAL #6



SANFORD PLANT  
 AMBIENT AIR MONITORING SITES



SYSTEMWIDE  
 AMBIENT AIR MONITORING NETWORK