

**Florida
Power**
CORPORATION

March 25, 1996

RECEIVED
MAR 29 1996
BUREAU OF
AIR REGULATION

Mr. Al Linero, P.E.
Administrator, New Source Review Section
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Dear Mr. Linero:

Re: DEP File Number 0170004-003-AC
Request to Burn Petroleum Coke at Crystal River Units 1 and 2

Florida Power Corporation (FPC) has received your letter requesting additional information for the submittal referenced above. In addition, FPC has received the comments that you forwarded from the U.S. Fish and Wildlife Service. FPC is addressing the comments from both agencies in this letter, as discussed below.

DEP Letter

1. *Provide the basis for the assumption that Units 1 and 2 are "capable of accomodating" petroleum coke as a fuel.*

The petroleum coke that is being proposed to be burned in Units 1 and 2 is so-called "sponge" coke. This coke is of a consistency that is very similar to coal. Therefore, the same equipment (conveyors, mills, burners, etc.) that is used to handle and burn coal would also be used to burn petroleum coke. No changes will be made to the equipment in order to handle and burn coke.

2. & 3. *Describe the petroleum coke handling system which will be utilized at Units 1 and 2.*

Describe the coal/petroleum coke blending process and provide reasonable assurance that the final blended product will be a homogeneous blend of 95% coal and 5% petroleum coke.

The current coal conveying system at Crystal River Units 1 and 2 consists of two conveyors, which are a plant bunkering conveyor and a blending conveyor. Petroleum coke will be fed using the blending conveyor. The speed of the blending conveyor is adjustable to 0% to 10% of the 600 tons/hour feed rate of the plant bunkering conveyor. The percentage of coke feed rate will be

adjusted by using certified scales to fill test boxes with coke. The test boxes, which are 1 cubic yard in size, are then used to determine the proper feed rate of the conveyor prior to operation.

Therefore, the blending conveyor places the material to be blended (coke) on top of the bunkering conveyor loaded with coal in a controlled manner. The coal/coke mixture then passes through a crusher where it is homogeneously blended and is then sent to the plant silos.

Please note that FPC has requested that the permit modification be structured to allow for changes in the sulfur content of the coal supply. If the coal contains a lower sulfur content than the reference amount of 1.6 lb/mmBtu, then petroleum coke would be permitted to be blended at a correspondingly higher rate.

4. *The copy of the permit for Unit 2 provided in the application allows for the firing of pulverized coal only. Provide the basis which exempts this source from New Source Review requirements.*

FPC understands that the current permits for Units 1 and 2 do not specifically refer to petroleum coke as a permitted fuel, so there is a need for a construction permit and corresponding modification to the operating permits. As discussed in the permit modification application, the exemption from New Source Review is contained in DEP Regulation 62-212.400(2)(c)4. This language exempts from New Source Review the "Use of an alternative fuel or raw material which the facility was capable of accomodating before January 6, 1975, unless such change would be prohibited under any enforceable permit condition which was established after January 6, 1975." Units 1 and 2 were capable of accomodating petroleum coke prior to the specified date. In addition, although the current operating permits do not specify petroleum coke as a permitted fuel, they do not prohibit this proposed change.

5. *The data from the petcoke trial burn tests show a decrease in SO₂, NO_x, CO and sulfuric acid mist (SAM) and an increase in particulate matter from the baseline test. Provide the basis for assuming only SO₂ would increase when firing the coal/petroleum coke mixture. It has been our experience that CO and SAM increase when firing petcoke. Please explain the ten-fold decrease in CO as well as the decrease in SAM.*

Particulate emissions actually decreased from 0.008 lb/MMBtu during the baseline test to 0.007 lb/MMBtu during the coal/coke blend test. Since petroleum coke has a lower ash content than coal, this is a logical result. The decrease in SAM, as well as the decrease in SO₂, from the baseline to the blend test occurred because the sulfur content of the coal decreased somewhat, from 1.10% to 0.95% (the coal/coke blend sulfur content was 1.02%). You are correct in pointing out that potential emissions of SAM should increase somewhat as a result of burning petroleum coke, due to the higher sulfur content of the fuel. This point was incorrectly omitted from the summary discussion in the application. FPC cannot explain the magnitude of the decrease in CO emissions from the baseline test to the blend test. FPC does not anticipate that CO emissions will increase from burning coke because the higher carbon content of the fuel is offset by a proportionately higher heat content.

6. *Provide a response to all forthcoming comments made by either the EPA or the National Park Service.*

Department of the Interior Letter

The U.S. Department of the Interior Fish and Wildlife Service (FWS) has indicated its concerns regarding the increased SO₂ emissions on the Chassahowitzka National Wildlife Refuge (NWR). The FWS correctly points out in its comments that the actual SO₂ emission rate will remain lower than the permitted emission rate for Units 1 and 2. In addition, the permitted emission rate for these units has already been modeled as part of the PSD permit application documentation for Crystal River Units 4 and 5. The 2.1 lb/MMBtu SO₂ limit for Units 1 and 2 was modeled as part of the total emissions from the Crystal River plant in the PSD analysis. Ambient concentrations were predicted for the area surrounding the plant, including the Chassahowitzka NWR. Since FPC is not proposing to increase its SO₂ limit, total emissions have already been evaluated and approved.

The FWS estimated the short-term (24-hour) maximum SO₂ impact from the plant at approximately 37 ug/m³, but then incorrectly compared this result to an annual mean sensitivity level of 50 ug/m³. The annual total potential impact from the Crystal River plant would be much lower (approximately one-fifth) of the 24-hour impact level. This is well below the sensitivity levels referenced by the FWS.

In addition, FPC maintains two ambient monitoring stations near the Crystal River plant. Attachment 1 contains a map of the site locations and summary pages of the results from 1993, 1994, and 1995. Station 2 is located in the FPC right-of-way approximately 3.5 miles to the east of the plant, and Station 4 is located approximately 6 miles to the southeast of the plant. Peak and mean concentrations for SO₂ are well below the ambient air standards. Concentrations at Station 4 average only 1.5% of the Florida SO₂ annual ambient standard. Concentrations from the Crystal River plant at the NWR, which is located at three times the distance from the plant as Station 4, would be even lower.

Please feel free to contact me at (813) 866-4344 if you have any questions.

Sincerely,



J. Michael Kennedy
Manager, Air Programs

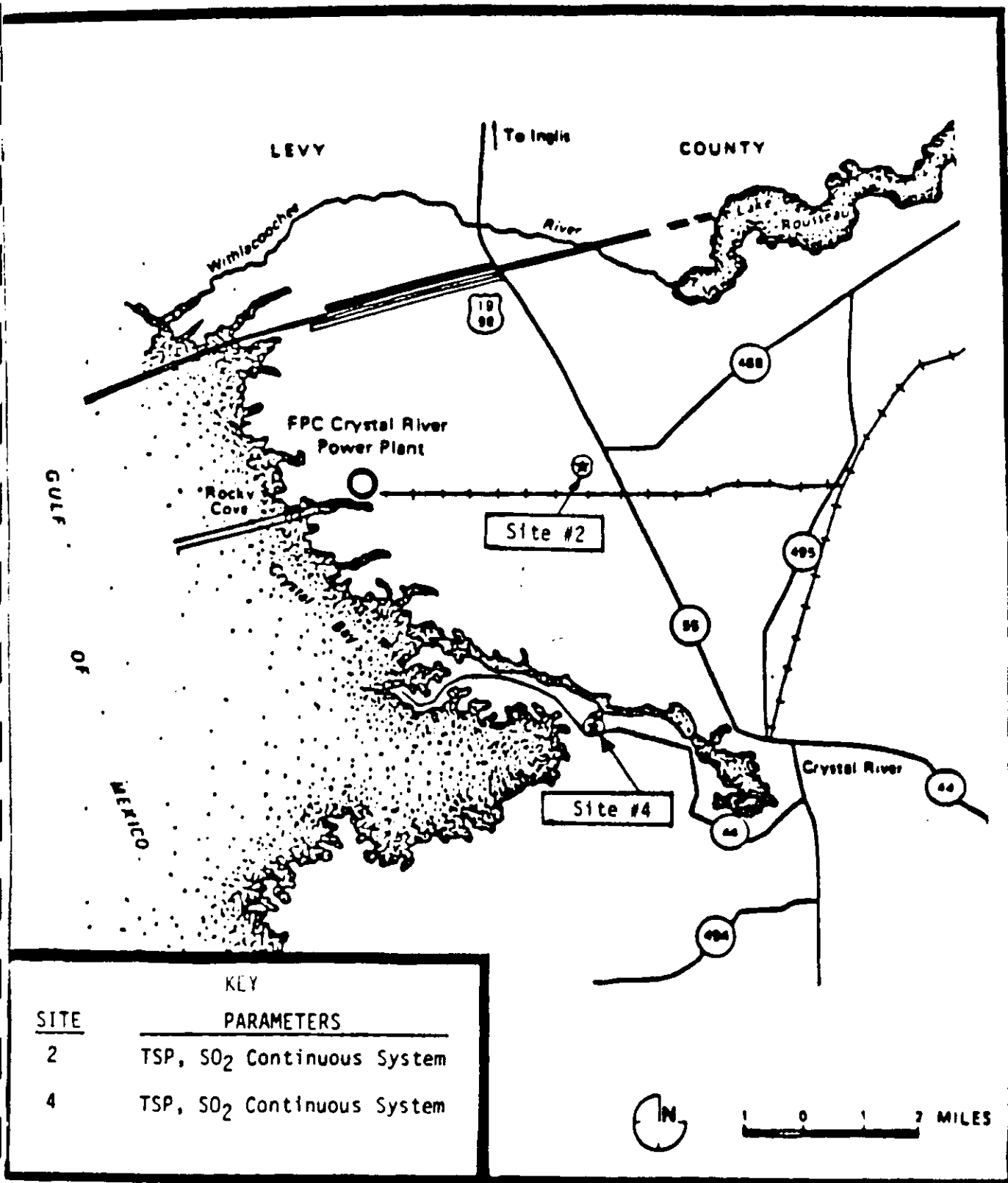
Enclosure

cc: Mr. Jerry Kissel, DEP-Tampa

CC: E. Svec, BAR
EPA
NPS

Attachment 1

Ambient Monitoring Data Summary



FLORIDA POWER CORPORATION, AMBIENT AIR
MONITORING LOCATIONS, CRYSTAL RIVER, FLORIDA

**FLORIDA POWER
CORPORATION**

FIGURE 1

AWM/04-18-84

TABLE 3

FLORIDA POWER CORPORATION

Crystal River Ambient Air Monitoring Network

DATA SUMMARY

(January 1, 1993 - December 31, 1993)

| TOTAL SUSPENDED PARTICULATE MATTER (micrograms per cubic meter) | | |
|--|--|---|
| | Station 2 (FPC R/W) | Station 4 (Marina) |
| Maximum 24 hour | 78 ug/m ³ | 149 ug/m ³ |
| Geometric Mean | 23.37 ug/m ³ | 36.28 ug/m ³ |
| 24 Hour Exceedances | 0 | 0 |
| SULFUR DIOXIDE (Parts per billion) | | |
| | Station 2 (FPC R/W) | Station 4 (Marina) |
| Arithmetic Mean | 4.69 ug/m ³ (1.79 ppb) | 1.18 ug/m ³ (0.45 ppb) |
| 24-Hour Maximum | 54.26 ug/m ³ (20.71 ppb) | 21.51 ug/m ³ (8.21 ppb) |
| 24-Hour Exceedances | 0 | 0 |
| 3-Hour Maximum | 288.2 ug/m ³ (110.0 ppb) | 131.86 ug/m ³ (50.33 ppb) |
| 3-Hour Exceedances | 0 | 0 |
| PARTICULATE MATTER (10 micrometers or less) | | |
| | Station 2 (FPC R/W) | Station 4 (Marina) |
| Arithmetic Mean | 16.43 ug/m ³ | 18.25 ug/m ³ |
| 24-Hour Maximum | 57 ug/m ³ | 82 ug/m ³ |
| 24-Hour Exceedances | 0 | 0 |

TABLE 3

FLORIDA POWER CORPORATION

Crystal River Ambient Air Monitoring Network

DATA SUMMARY

(January 1, 1994 - December 31, 1994)

| TOTAL SUSPENDED PARTICULATE MATTER (micrograms per cubic meter) | | |
|--|---|--|
| | Station 2 (FPC R/W) | Station 4 (Marina) |
| Maximum 24 hour | 87 ug/m ³ | 101 ug/m ³ |
| Geometric Mean | 22.85 ug/m ³ | 33.15 ug/m ³ * |
| 24 Hour Exceedances | 0 | 0 |
| SULFUR DIOXIDE (Parts per billion) | | |
| | Station 2 (FPC R/W) | Station 4 (Marina) |
| Arithmetic Mean | 4.15 ug/m ³ (1.58 ppb) | 0.851 ug/m ³ (0.325 ppb) |
| 24-Hour Maximum | 45.58 ug/m ³ (17.4 ppb) | 30.13 ug/m ³ (11.5 ppb) |
| 24-Hour Exceedances | 0 | 0 |
| 3-Hour Maximum | 296.06 ug/m ³ (113.0 ppb) | 151.17 ug/m ³ (57.7 ppb) |
| 3-Hour Exceedances | 0 | 0 |
| PARTICULATE MATTER (10 micrometers or less) | | |
| | Station 2 (FPC R/W) | Station 4 (Marina) |
| Arithmetic Mean | 15.90 ug/m ³ | 18.39 ug/m ³ |
| 24-Hour Maximum | 66 ug/m ³ | 76 ug/m ³ |
| 24-Hour Exceedances | 0 | 0 |

*Average of primary and co-located samplers

TABLE 3

FLORIDA POWER CORPORATION

Crystal River Ambient Air Monitoring Network

DATA SUMMARY
(January 1, 1995 - December 31, 1995)

| TOTAL SUSPENDED PARTICULATE MATTER (micrograms per cubic meter) | | |
|--|---------------------------------------|--|
| | Station 2 (FPC R/W) | Station 4 (Marina)* |
| Maximum 24 hour | 59 ug/m ³ | 158 ¹ ug/m ³ |
| Geometric Mean | 24.1 ug/m ³ | 33.2 ug/m ³ |
| 24 Hour Exceedances | 0 | 0 |
| SULFUR DIOXIDE (Parts per billion) | | |
| | Station 2 (FPC R/W) | Station 4 (Marina) |
| Arithmetic Mean | 3.45 ug/m ³ (1.31 ppb) | 0.83 ug/m ³ (0.316 ppb) |
| 24-Hour Maximum | 33.54 ug/m ³ (12.8 ppb) | 36.94 ug/m ³ (14.1 ppb) |
| 24-Hour Exceedances | 0 | 0 |
| 3-Hour Maximum | 218.2 ug/m ³ (83.3 ppb) | 265.4 ug/m ³ (101.3 ppb) |
| 3-Hour Exceedances | 0 | 0 |
| PARTICULATE MATTER (10 micrometers or less) | | |
| | Station 2 (FPC R/W) | Station 4 (Marina) |
| Arithmetic Mean | 14.8 ug/m ³ | 20.4 ug/m ³ |
| 24-Hour Maximum | 40 ug/m ³ | 109 ug/m ³ |
| 24-Hour Exceedances | 0 | 0 |

* Average of primary sampler only.

¹ Note: Not an exceedance, PM-10 data is only reported to FDEP.