



Department of Environmental Protection

Lawton Chiles
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Virginia B. Wetherell
Secretary

December 24, 1996

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Brian Beals, Chief
Preconstruction/HAP Section
Air and Radiation Technology Branch
U.S. Environmental Protection Agency, Region IV
Atlanta Federal Center
100 Alabama Street, Southwest
Atlanta, Georgia 30303-3104

Re: Request for Assistance in PSD Applicability Determination
FPC Petroleum Coke Use at Crystal River Units 1 and 2

The Florida Department of Environmental Protection requests your assistance in determining the applicability of an exemption to Prevention of Significant Deterioration of Air Quality (PSD), including Best Availability Control Technology (BACT), to a project involving the use of a petroleum coke and coal blend in Units 1 and 2 at the Florida Power Corporation (FPC) Crystal River Plant.

Petroleum coke (petcoke) is the solid by-product which (along with additional liquid products) results from further processing of the heavy residual material left over from basic crude oil distillation. The resulting coke is a black solid material which may be used as a source of carbon or fuel.

Because metals, inert matter, and most of the sulfur in crude oil are not removed during initial refining, they concentrate in petcoke. By and large, petcoke has greater heating value, lower ash content, and more sulfur than most coal. It also has much greater concentrations of nickel and vanadium than coal. Nickel is classified as a hazardous air pollutant (HAP). Although EPA has not listed vanadium as a HAP it has published a Referenced Ambient Concentration for it. Vanadium and nickel also have a known catalytic effect on the transformation of sulfur dioxide to acid mist.

So far the Department has permitted coal/petcoke blend use at five coal-fired units in Florida including TECO Big Bend Units 3 and 4, Lakeland MacIntosh Unit 3, and JEA/SJRPP Units 1 and 2, all of which use scrubbers in addition to electrostatic precipitators for air pollution control. Big Bend Unit 3 is a pre-1975 coal-fired Unit. TECO agreed to a federally enforceable condition requiring use of the Unit 4 scrubber for service on Unit 3 whenever petcoke is fired in Unit 3. In each case, the proposals have been treated as changes in method of operation to which PSD is applicable unless they are able to 'net out' by demonstrating that there will be no significant increases in PSD pollutants.

The Department received an application from FPC on December 26, 1995 to modify operating permits to allow burning a blend of coal and petcoke at Crystal River Units 1 and 2 (approximately 400 and 500

MW units respectively). In recent years, these units burned coal which produces 1.6 pounds of sulfur dioxide per million Btu heat input ($\text{lb SO}_2/10^6 \text{ Btu}$). FPC plans to burn a blend of 5 ± 2 percent petcoke and the historical coal such that resulting emissions will be approximately $1.85 \text{ lb SO}_2/10^6 \text{ Btu}$ compared with the present limits for Units 1 and 2 of $2.1 \text{ lb}/10^6 \text{ Btu}$. If FPC obtains lower sulfur coal than '1.6' they plan to increase the percentage of petcoke in the blend to values greater than 7 percent.

For reference, the $2.1 \text{ lb}/10^6 \text{ Btu}$ limit was originally set by EPA Region IV in the late 1970's to avoid possible violation of ambient SO_2 standards resulting from the permitting of Crystal River Units 4 and 5. There are no scrubbers present or planned to abate the increase and FPC estimates that SO_2 emissions will increase by approximately 9400 tons per year (TPY). For reference, the Department estimates that at maximum availability and blending to a '2.1' specification, emissions increases can be as high as 18,700 TPY.

Because the annual SO_2 emission increase will be greater than 40 TPY, PSD would normally apply to this change in method of operation. However, FPC claimed that Units 1 and 2 meet a Department criterion which, pursuant to Rule 62-212.400(2)(c)4, Florida Administrative Code (FAC), exempts from PSD the *'Use of an alternative fuel or raw material which the facility was capable of accommodating before January 6, 1975, unless such a change would be prohibited under any federally enforceable permit condition which was established after January 1975.'* No specific details were provided to support the claimed exemption (Attachment 1, FPC response dated March 25, 1996 to Department completeness review letter).

Prior to issuance of an Intent, personnel reviewing the application became aware that Units 1 and 2 underwent conversion fuel oil to coal (Attachment 2, FPC letter dated January 30, 1976 to Paul Traina, Director, EPA Region IV Enforcement Division). Specifically, the letter refers to installation or upgrade of particulate control equipment, ash handling systems, and **'major boiler modifications.'** Planned completion dates were given as June 30, 1978 and March 31, 1979 for Units 1 and 2 respectively. Staff inferred that major boiler modifications meant that the units could not accommodate coal or petcoke prior to January 6, 1975. Accordingly, the Department sent an Intent to Deny Permit to FPC on June 25, 1996.

FPC filed a Petition for Formal Administration Hearing on October 4 (Attachment 3) and published Notice of Administrative Proceeding on Permit Application on October 18 (Attachment 4). According to the 'Facts that Warrant Reversal' in the Petition, FPC states that "Units 1 and 2 were constructed to combust solid fuel, and in fact did combust solid fuel for several years prior to and since 1975." They further state that "Although Units 1 and 2 were combusting oil on January 6, 1975, these units and plant were (and still are) 'capable of accommodating' coal and petcoke, as that term has been applied in Federal and State interpretive determinations." Despite the characterization of the boiler modifications as 'major' in their letter to EPA, they characterized them as **'minor'** and **'not very substantial'** in the petition.

On October 28, we received a number of documents (Attachments 5 - 12) which were provided by FPC to the Department's Office of General Counsel. Department and FPC representatives, including respective counsel, met on December 9 to discuss these documents, certain photographic exhibits, and plans for the Administrative Hearing. At the meeting, FPC characterized the program discussed in its January 30, 1976 letter to EPA as primarily one to bring the units into compliance while burning coal rather than to convert to coal. They assert that they never lost the capability to accommodate coal. They claim that the ash handling system modifications were to allow handling ESP ash and that the boiler modifications were to **'re-do burner tips.'**

With FPC's concurrence, two of our technical staff visited the facility on December 16. Based on boiler diagrams and discussions with personnel at the plant, it appears that some modifications to the boiler other than re-doing burner tips were necessary for the conversions to coal in the late 70's.

Attachment 12 of the documents provided by FPC is a copy of a memo dated July 28, 1983, from EPA/HQ to Region I regarding applicability of an exemption pursuant to 40 CFR 52.21(b)(2)(iii)(e)(1) to a coal conversion project for Bridgeport Harbor Unit 3. The unit was exempted from 40 CFR 60 Subparts D and Da. Basically, FPC considers the Bridgeport case to be similar to the situation regarding its own past coal conversion projects.


In 1995 the Department received an exemption inquiry from Florida Power and Light (FPL) in order to burn orimulsion. FPL characterized the units as requiring only 'minimal boiler alterations' to burn orimulsion. The Department determined that changes to the boilers were significant enough to conclude that the units could not have accommodated orimulsion and that PSD/BACT applied. Your staff concurred with the decision.

Please advise us of your opinion or if additional information is needed to render a proper opinion on the applicability of the exemption to the FPC petcoke project. Note that the Federal provision is from the Federal Implementation Plan (FIP) and uses some different terms and caveats than the Florida SIP language. An Administrative Hearing is planned for early February, 1997.

For your information, enclosed is a letter dated November 20, 1996 (Attachment 13) from the Fish and Wildlife Service indicating their concerns about the possible effects of the project on air quality in the nearby Chassahowitzka National Wildlife Area.

We look forward to our meeting with you on January 8. If you have any questions regarding this matter, please call Al Linero at (904)488-1344.

Sincerely,


for C. H. Fancy, Chief
Bureau of Air Regulation

CHF/aal/t

Attachments

cc: John Bunyak, NPS
Bill Thomas, SWD
Mike Kennedy, FPC
Jim Alves, HGSS
Doug Beason, DEP
Pat Comer, DEP

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Brian Beals, Chief
Air & Radiation Tech. Br.
U.S. EPA - Region IV
100 Alabama St., SW
Atlanta, Ga 30303-3104

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P 265 659 118

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PS Form 3811, December 1994

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