



September 24, 1991

Mr. Tom Rogers
Florida Department of Environmental
Regulation
2600 Blair Stone Road
Tallahassee, FL 32399

Dear Mr. Rogers:

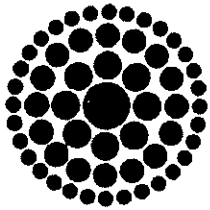
Re: DER File No. AC 64-191015
PSD-FL-167
Volusia County

This is in response to the Department of Environmental Regulation's intent to issue an air construction permit for the permanent installation of six simple cycle combustion turbines at Florida Power Corporation's DeBary Facility in Volusia County.

KBN Engineering and Applied Science, Inc. (KBN) has performed an air quality modeling analysis to determine the maximum sulfur dioxide (SO₂) Prevention of Significant Deterioration (PSD) increment consumption that would be consumed at the Chassahowitzka PSD Class I area. This analysis included modeling the SO₂ emissions from Florida Power Corporation's (FPC) proposed project at DeBary and other increment consuming sources. The original emission inventory for this analysis was provided to KBN by the Florida Department of Environmental Regulation (FDER). KBN added FPC's proposed combustion turbines (CTs) and the proposed Pasco County Cogeneration facility to the inventory.

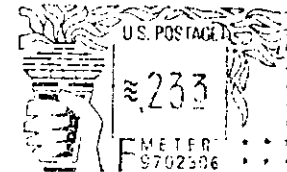
Three cases for the proposed CTs were analyzed. The first case, identified as ISCST source ID number 99001, represents six proposed turbines using worst-case emissions (at 20°F) and operating conditions of minimum flow (at 90°F). The second case, identified as ISCST source ID number 99002, represents six proposed turbines using emissions and flowrates at 20°F. The last case, identified as ISCST source ID number 99003, represents emissions and flowrates at 90°F. Each of these cases was modeled as a separate source group using a 5-year meteorological record from Orlando/Ruskin (1982-86). These three additional source

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**Florida
Power**
CORPORATION

*Mr. C. H. Jancy
Florida Department of Environmental
Regulation
Bureau of Air Regulation
2600 Blair Stone Road
Tallahassee, FL 32399-2400*



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groups were included to determine the total source impacts at the PSD Class I area for each DeBary plant case identified above. All impacts were calculated at thirteen discrete receptors surrounding the PSD Class I area. These receptors are the same receptors used by the FDER. Enclosed are the paper and disk copies of the ISCST computer runs.

The modeling results indicate that the proposed DeBary project including all other PSD sources will meet all allowable PSD Class I increments. The highest second-highest (HSH) 24-hour predicted impact for the combined worst-case emissions and flow rate is $4.98 \mu\text{g}/\text{m}^3$. With the DeBary turbines at 20°F emissions and flowrate, the HSH 24-hour impact is $4.89 \mu\text{g}/\text{m}^3$. The total impact with the DeBary turbines at 90°F is $4.76 \mu\text{g}/\text{m}^3$. Both the annual and 3-hour averaging time results also meet the allowable PSD Class I increments for those respective averaging times.

The results of the Class I impact analysis is extremely conservative for the following reasons:

1. Maximum sulfur content versus average sulfur content - - The modeling analysis assumes that the maximum sulfur content will occur continuously. While a maximum sulfur content of 0.5 percent has been approved, the average sulfur content for any 12 month rolling period must be less than 0.3 percent. As provided by permit condition, the sulfur content will be determined for fuel delivery which will be used in the annual calculation. While the sulfur content of one or more fuel deliveries may approach 0.5 percent, these shipments will be mixed with the oil in the storage tanks which will have to be of lower sulfur content to assure meeting the annual sulfur condition. Therefore, the actual SO_2 emissions that would have a potential of impacting the Class I area will likely be those calculated using a sulfur content of 0.3 percent rather than 0.5 percent.

2. Hours of operation/ SO_2 emissions - - The hours of operation of the CTs and SO_2 emissions are limited by permit. The maximum annual hours of operation anticipated by the project are 3,390 based on NO_x limitation. The maximum annual hours of operation at 0.3 percent sulfur are 2,890 (i.e., 33 percent capacity factor) based on the annual SO_2 emission limit. Together, these permit provisions significantly limit hours of operation which reduce the probability that the units would operate during "worst case" meteorological conditions.

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3. Nighttime operation - - The maximum impacts predicted are due to stable conditions which occur at night. In contrast, the CTs are peaking units which would be operated primarily during peak load periods which occur during the morning to evening hours, e.g., 7:00 a.m. to 10:00 p.m. Thus, the peaking units would not likely be run during the periods that maximum impacts are predicted to occur.

Sincerely,

W W Vierday

W. W. Vierday, Manager
Environmental Programs-Licensing

Enclosure

cc: C. H. Fancy, FDER, Tallahassee
B. A. Andrews, FDER, Tallahassee

P. Lewis
C. Halladay
A. Zahm

pag/WWV&Rogers.Let



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

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

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Division of Air
Resources Management

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: Florida Power Corporation/DeBary Plant (PSD-FL-167)

Dear Mr. Fancy:

This is to acknowledge receipt of your revised technical evaluation, preliminary determination, and draft permit for the above referenced facility's proposed construction, by your letter dated August 2, 1991. The facility will consist of six simple-cycle combustion peaking units, each rated 92.9 MW, fired with No. 2 distillate fuel oil. Your determination proposes to limit NO_x emissions through wet injection, to limit SO₂ and H₂SO₄ mist emissions through limiting the sulfur content of the fuel oil, to limit PM and PM₁₀ through combustion design and the use of clean fuel, to limit CO through combustion design, and to limit Hg, Be, and As emissions through the specifications on No. 2 distillate fuel oil. The revised permit establishes adjustments to the capacity factor based on the weighted rolling average sulfur content of the fuel, with the maximum capacity factor limited to 38.7%.

We have reviewed the package as submitted and have one comment. It concerns the emission limit regarding opacity, listed on page 5 of the draft permit. The limit should be specified as follows:

2. Visible emissions shall not exceed 20% opacity except at full load, in which case visible emissions shall not exceed 10% opacity. (deleting "at peak load")

Thank you for the opportunity to review and comment on the revised package. If you have any questions or comments, please contact Mr. Scott Davis of my staff at (404) 347-5014.

Sincerely yours,

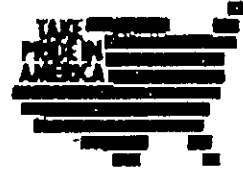
Jewell A. Harper, Chief
Air Enforcement Branch
Air, Pesticides, and Toxics
Management Division

cc: P. Lewis
B. Andrews
C. Holladay

A. Zahm, Chief
C. Shaver, NPS
K. Kosby, P.E., KBN



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Mail Stop 60130

SEP 09 1991

Mr. C.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

Dear Mr. Fancy:

We have completed our review of the Florida Power Corporation (FPC) permit application and your Technical Evaluation and Preliminary Determination Document. ~~These documents are in regard to FPC's proposal to install 92-9 MW oil-fired peaking turbines at their facility in DeBary, Florida.~~ The DeBary facility is located approximately 120 km east of the Chassahowitzka Wilderness Area (WA), a class I air quality area administered by the U.S. Fish and Wildlife Service.

As we indicated in past permit reviews, most recently in our letter regarding the IMC Fertilizer project, the Chassahowitzka National Wildlife Refuge was established in 1943 for the purpose of migratory bird conservation. The refuge provides habitat for a number of federally threatened and endangered species including the American alligator, bald eagle, eastern brown pelican, eastern indigo snake, Florida manatee, and three species of sea turtle. ~~Our comments on the best available control technology (BACT), air quality, and air quality related values analyses with respect to the proposed project's potential impacts on the Chassahowitzka WA are discussed below.~~

The proposed FPC project would be a significant emitter of the following pollutants: ~~sulfur dioxide (SO₂), sulfuric acid mist (H₂SO₄), nitrogen oxides (NO_x), particulate matter (PM), carbon monoxide (CO), volatile organic compounds (VOC), and beryllium (Be).~~ We agree with the Florida Department of Environmental Regulation (FDER) that wet injection represents BACT for NO_x emissions from FPC's proposed simple cycle, peaking turbines. We also agree that combustion controls and fuel oil specifications represent BACT for PM, CO, VOC, and Be. ~~However, for SO₂ and H₂SO₄ control, we do not agree that the proposed 0.50 percent maximum sulfur content oil is consistent with what has been established as BACT on a national basis for certain other gas turbines permitted by the FDER.~~ For example, the FDER determined that BACT for a combustion turbine proposed by the City of Lakeland is burning a fuel oil with a maximum sulfur content of 0.20 percent. Also, we have reviewed other combustion turbine projects that were permitted to burn No. 2 fuel oil with a maximum sulfur content of 0.20

~~percent. Therefore, considering these past BACT determinations and on class I increment concerns discussed below, we recommend that the FDER lower the maximum sulfur content of the oil-fired in the FPC turbines from 0.30 percent to 0.20 percent.~~

Florida Power Corporation could reduce SO₂ and H₂SO₄, as well as NO_x, emissions even further by using natural gas as the primary fuel, and fuel oil only as the backup fuel. We understand that the proposed turbines are designed for both natural gas and oil firing, and that the turbines could be modified to accommodate future gas firing. ~~Although we realize that natural gas is not currently available at the Wabary site, we recommend that the FDER include a condition in the final FPC permit that requires FPC to fire natural gas if, and when, it becomes available.~~

Regarding the air quality modeling analysis, you indicate that neither the FDER nor FPC calculated the impact of the proposed project on the class I SO₂ increments at Chassahowitzka because this area is located more than 100 km away from the project. However, the FDER concluded that the proposed project will not cause or contribute to a violation of any air quality standard or PSD increment in the wilderness area. ~~Since neither the FDER nor the applicant performed a class I impact analysis, we do not understand how the FDER can conclude that the proposed project would not cause or contribute to class I increment violations.~~ To the contrary, our dispersion modeling analysis shows that the proposed project would indeed cause and contribute to class I increment violations at the Chassahowitzka WA.

As you know, in our recent comments regarding IMC Fertilizer's proposed project near Chassahowitzka, we raised concerns regarding potential class I increment violations. In response to our comments, your office performed additional modeling showing the highest 24-hr SO₂ increment consumption at Chassahowitzka to be 5.24 ug/m³, and that the second highest concentration at the same receptor to be 5.08 ug/m³. Because only one exceedance of the 24-hr increment is permitted at a given receptor, your analysis shows that the IMC Fertilizer emissions would cause or contribute to a violation of the class I increment (5.0 ug/m³).

To assess FPC's impact at the Chassahowitzka WA, we used the ISCST model (the same dispersion model that FPC used in their PSD Class II increment analysis), the stack parameters included in the FPC permit application, and one year of the same National Weather Service meteorological data (Tampa, 1986) that FPC used in their analysis. We ran the ISCST model using nine discrete receptors placed at the Chassahowitzka WA. The results of our analysis showed the highest 24-hour SO₂ concentration attributed to FPC's emissions alone to be 5.36 ug/m³, and that the second highest concentration to be 5.20 ug/m³. Also, the 5.36 ug/m³ contribution occurred at the same receptor that the FDER modeled the 5.24 and 5.08 ug/m³ concentrations. Therefore, our analysis shows that the proposed FPC project would exacerbate the increment situation at the Chassahowitzka WA and contribute to a class I increment violation. The results of the class I modeling analyses are summarized in the following table:

Maximum Modeled SO₂ Impacts at the Chassahowitzka WA for 1986

Julian Day	UTM East	UTM North	FDER Modeled Impacts at Chassahowitzka (ug/m ³)	FPC Impact at Chassahowitzka (ug/m ³)
242	340700*	3171900*	NP**	5.36
215	340700*	3171900*	5.24	0.00
205	340700*	3171900*	5.08	0.00
242	340300	3169800	NP	5.20
32	340300	3167700	NP	4.11
32	340300	3169800	NP	3.93
242	342000	3174000	NP	3.91
242	340300	3167700	NP	3.86
67	343000	3176200	NP	3.77

*Denotes receptor with known high, 2nd high violation of class I increment.

**Not Provided

It is important to note that our analysis only included one year of meteorological data, and that the complete results of the FDER's modeling for the IMC Fertilizer project were not provided to us. If the FDER would model four more years, as the modeling guideline requires, and include the cumulative impacts from all other increment-consuming sources, it is possible that other class I increment violations would be found.

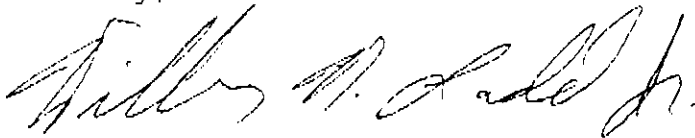
Also, as we have indicated in past permit reviews, for regulatory applications with potential impacts on class I areas, use of dispersion models is not necessarily limited to a 100 km distance. Guidance provided by the EPA recognizes the possible impacts of sources located more than 100 km from a class I area. Therefore, it follows that the analysis of increment consumption should not be limited to 100 km, but should include all increment-consuming sources that could impact the class I airshed, regardless of their distance from the area. In addition to the increment issue, we continue to be concerned about the cumulative impact that the emissions may have on sensitive resources in the wilderness area.

In summary, we recommend that the FDER lower the maximum sulfur content of the oil fired in the FPC turbines from 0.50 percent to 0.20 percent, and include a condition in the final FPC permit that requires FPC to fire natural gas if, and when, it becomes available at the DeBary site. In addition, we believe that the FPC air quality analysis is deficient with

respect to class I impacts and that the FDER made an erroneous conclusion that the proposed FPC project would not cause or contribute to a class I increment violation at the Chassahowitzka WA. Because the class I increment would be violated by the proposed FPC project, in accordance with Section 165 of the Clean Air Act, FPC will need to show that there will be no adverse impacts to class I area resources, and ask the Federal Land Manager to so certify, before the final permit can be issued. Consequently, the FDER should not grant the final FPC permit until the increment issue has been resolved. Finally, we recommend that the FDER initiate the required emission control programs necessary to correct the modeled increment violations at the Chassahowitzka WA.

We will await your response regarding this matter. In the meantime, if you have any questions, please contact John Bunyak of our Air Quality office in Denver at (303) 969-2071.

Sincerely,



Wilbur N. Ladd, Jr.
Assistant Regional Director
Refuges and Wildlife, Region 6

cc: Jellell Harper, Chief
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Air, Pesticides and Toxic Management Division
U.S. EPA, Region 4
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Atlanta, Georgia 30365