

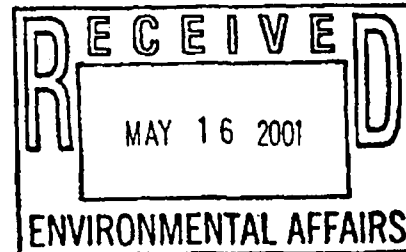


UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

MAY 9 2001

OFFICE OF
AIR AND RADIATION

Gregory M. Nelson
Designated Representative
Tampa Electric Company
P.O. Box 111
Tampa, FL 33601-0111



Re: Petition for Exemption From the Opacity Monitoring Requirements
of Part 75 for Polk Unit **1

Dear Mr. Nelson:

EPA has reviewed your February 19, 2001 petition under §75.66(a) of the Acid Rain regulations, in which Tampa Electric Company (TECO) requested an exemption from the opacity monitoring requirements of Part 75 for Unit **1 at the Polk Power Station (Polk). EPA hereby grants your petition, for the reasons stated below.

Background

Polk Unit **1 includes a coal gasifier and a combined-cycle combustion turbine, fired primarily on coal-derived gaseous fuel, with diesel fuel oil as a backup fuel. According to the February 19, 2001 petition, the unit is coal-fired. Section 75.14(a) requires the owner or operator of an affected coal-fired unit to install and operate a continuous opacity monitoring system. TECO has installed and operated an opacity monitoring system on Polk Unit **1 to satisfy this requirement.

In the February 19, 2001 petition, TECO requested an exemption from Part 75 opacity monitoring requirements for several reasons. First, the opacity levels from Unit **1 are typically in the range seen for units burning natural gas and diesel fuel, seldom exceeding 5% opacity. A full year of opacity data for the year 2000 and the results from six Method 9 visual emission reports from 1997-2000 were submitted for Unit **1 with the petition to document this. Second, twisting of the mounting brackets for the opacity monitor at the stack due to temperature effects has required frequent realignment of the monitor. Such realignment, which was performed six times in 2000, can only be done with the unit off-line. Third, an opacity

monitoring exemption for Unit **1 would appear to be consistent with the intent of §§75.14 (c) and (d), which provide opacity monitoring exemptions for gas-fired or diesel-fired units.

EPA's Determination

EPA agrees that Polk Unit **1 should be exempt from the continuous opacity monitoring requirements of Part 75. As discussed below, the unit should be treated like a "diesel-fired" unit for purposes of opacity monitoring and granted an exemption from Part 75 opacity monitoring requirements.

Before discussing why the unit should be exempt from opacity monitoring, it is helpful to summarize the regulatory history of the opacity monitoring exemptions in Part 75. Sections 75.14(c) and (d), promulgated in 1993, provide that gas-fired units and diesel-fired units respectively are exempt from Part 75 opacity monitoring requirements. At the time that these exemptions were promulgated, "gas-fired unit" was defined as a unit combusting only "natural gas", "gaseous fuels containing no more sulfur than natural gas," or "fuel oil." 58 FR 3590, 3655 (January 11, 1993). Natural gas or coal-derived gaseous fuel had to account for at least 90% of the average annual heat input during the previous three years and at least 85% during each of these individual years. EPA explained that the exemptions from the opacity monitoring requirements were for "units that do not have significant opacity levels and for units that may not be able to provide meaningful opacity information." 58 FR 3645. In particular, gas-fired units were exempt because they have "very low opacity levels, and extremely few of them...are required to monitor opacity under other federal, State, or local regulations." Id. Similarly, the basis for exempting diesel-fired units was that States do not require opacity monitoring of diesel-fired units "because of low opacity levels (e.g., below 10 percent opacity, even during startup)." Id.

After 1993, EPA revised Part 75 several times in ways relevant to opacity monitoring exemptions. In 1995 EPA defined "natural gas" as including no more than 20 grains of sulfur per 100 scf and "diesel-fired unit" as a unit burning only diesel fuel and a supplementary fuel (if any) "limited to natural gas or gaseous fuels containing no more sulfur than natural gas." 60 FR 26510, 26514 (May 17, 1995). In 1999 EPA revised the definition of "natural gas" as including less than 2 grains per 100 scf and added a definition for "very low sulfur fuel." 64 FR 28564, 28587-88 (May 26, 1999). "Very low sulfur fuel" includes natural gas or "[a]ny gaseous fuel with a total sulfur content no greater than 20 grains of sulfur per 100 standard cubic feet." 40 CFR 72.2 (definition of "very low sulfur fuel"). EPA stated that it was replacing the phrase in Part 75 "fuel containing no more sulfur than natural gas" with the new term "very low sulfur fuel." Response to Comments Document, Part 75 Rule Revisions (Docket A-97-35) at 84-85 (April 1, 1999). Despite this stated intention, EPA did not actually make this change in the "diesel-fired unit" definition, which continues to require that the gas burned at the unit contain no more sulfur than natural gas," which is now limited to less than 2 grains per 100 scf. 40 CFR 72.2 (definition of "diesel-fired unit").

Applying the above-described definitions of "gas-fired unit" and "diesel-fired unit" in §72.2, Polk Unit **1 does not consistently qualify as a "gas-fired unit" since, among other

things, TECO states that it may burn in the boiler in some years more diesel fuel and less coal-derived gas and may not meet the requirement that gas comprise 90% of annual heat input. Moreover, the unit also does not meet the definition of "diesel-fired unit" since, among other things, the coal-derived gas burned in the boiler has more than 2 grains of sulfur per 100 scf. However, as discussed below, the coal-derived fuel qualifies as "very low sulfur fuel", and EPA concludes that the unit should be treated like a "diesel-fired unit" and should be granted an exemption from opacity monitoring.

EPA determined that the coal-derived gaseous fuel combusted in the unit qualifies as "very low sulfur fuel," based on the unit's hourly sulfur dioxide (SO₂) mass emission and heat input data reported under Part 75 for 2000 and information supplied by TECO on the gross calorific value (GCV) of the fuel. For each hour in 2000 in which the coal-derived fuel was combusted, the sulfur content of the fuel (in grains per 100 standard cubic foot) was calculated from the SO₂ mass emission rate (in lb/hr, as reported in EDR record type 310), the heat input rate (in mmBtu, as reported in record type 300), and the GCV of the fuel (i.e., 250 Btu per standard cubic foot) using the following equation:

$$\text{Fuel Sulfur Content (in gr S/100scf)} = \frac{\text{SO}_2 \text{ Mass Rate (in lb SO}_2\text{/hr)}}{(2 \text{ lb SO}_2\text{/lb S}) \div \text{Heat Input (in mmBtu/hr)} \div (10^6 \text{ Btu/mmBtu}) \times \text{GCV (in Btu/scf)} \times (7000 \text{ gr S/lb S}) \times 100.}$$

The results of EPA's data analysis were that, for the 7,440 hours of data reported in 2000, the average sulfur content of the coal-derived gaseous fuel was 12.5 grains per 100 standard cubic feet (gr/100 scf), with the standard deviation of 5.9 gr/100 scf. As noted above, "very low sulfur fuel" includes, among other things, any gaseous fuel with a total sulfur content no greater than 20 grains of sulfur per 100 standard cubic feet. The data analysis shows that the average sulfur content of the coal-derived gaseous fuel combusted in Unit **1 is below the 20-grain level and that, considering that the average plus one standard deviation is also below the 20-grain level, that about 90% of that fuel at the unit meets the 20-grain criterion. EPA therefore finds that the fuel qualifies as "very low sulfur fuel" and that, considering only the fuels combusted in Unit **1's boiler, the unit would qualify as a "diesel-fired unit," but for EPA's unintended failure to reference "very low sulfur fuel" in the definition of "diesel-fired unit."

Moreover, as a result of Unit **1's gasification of coal and the combustion of the resulting gaseous fuel in the boiler along with some diesel fuel, the unit appears to have opacity levels that are similar to those for units burning only natural gas and diesel fuel. In particular, Method 9 compliance tests for opacity consistently show opacity of 0% for Unit **1. Further, the unit's continuous opacity monitor data show consistent average daily opacity levels of 10% or less, except for a few opacity data spikes that appear to be the result of misalignment of the

opacity monitor due to twisting of the monitor mounting brackets. See TECO's May 6, 2001 supplemental information.

For these reasons, EPA concludes that Unit **1 should be treated as a "diesel-fired unit" for purposes of applying opacity monitoring requirements under 75.14(d) and approves an exemption from Part 75 opacity monitoring requirements. EPA notes that the Florida Department of Environment Protection has been informed of EPA's approach in this case and concurs with the approval of the exemption.

EPA's determination in this letter relies on the accuracy and completeness of the information submitted by TECO, including the information in the February 19 and May 6, 2001 submissions, and is appealable under Part 78. If you have any questions about the findings and conclusions presented above, please contact Kim Nguyen of my staff, at (202) 564-9102. Thank you for your continued cooperation.

Sincerely,


Brian J. McLean, Director
Clean Air Markets Division

cc: David McNeal, EPA Region 4
Lynn Haynes, EPA Region 4
Joseph Kahn, Florida Department of Environment Protection
Kim Nguyen, EPA Clean Air Markets Division