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Department of Environmental Protection

Lawton Chiles
Governor

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Virginia B. Wetherell
Secretary

September 11, 1995

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Ms. Farzie Shelton, Ch.E.
Environmental Coordinator
City of Lakeland
Department of Water and Electric Utilities
501 East Lemon Street
Lakeland, Florida 33801-5050

Dear Ms. Shelton:

Re: Modification of PSD-FL-008, Petcoke Project
City of Lakeland, C.D. McIntosh Unit No. 3

We have reviewed the information which you provided at the August 11 meeting between City and Department representatives. The City indicated its intent to pursue the petroleum coke (petcoke) project upon amendment of the Final Determination (permit) applicable to C. D. McIntosh Unit 3. The City provided a summary of previous understandings from past meetings with Department personnel and requested a prompt decision on applicability of Prevention of Significant Deterioration (PSD) and Best Available Control Technology (BACT) to the proposed project.

A Department summary of the early meetings might vary on a few points. In any case, the project will be reviewed in light of the amended PSD permit and the applicable rules in Chapter 62, Florida Administrative Code (FAC).

Actual emissions prior to the petcoke project should be calculated based on the lower of the historical actual emissions or allowable emissions. Since the Unit was apparently operating in excess of allowable sulfur dioxide (SO₂) limits contained in both the previous and amended PSD permits, allowable emissions should be used. We propose to rely on the new SO₂ limits rather than the previous ones which required 85 percent scrubbing efficiency for all grades of coal. This will benefit the City. Annual estimates of emissions prior to the project should be based on actual hours of operation, actual fuel combusted, capacity factors, etc. In the case of pollutants other than SO₂, actual emissions reflecting past operation, should be based on past (or new) compliance tests, CEMS data, applicable inferences from the petcoke test program, engineering estimates, etc.

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Actual emissions (representative actual annual emissions) following the proposed change should be projected in accordance with the definitions given in FAC 62-212.200(2)(d) and 40 CFR 52.21(b)(33). This method is also favorable to the City since it does not require future annual emissions to be estimated as the Potential-to-Emit. Actual emissions after the change should be estimated from information and inferences derived from the previous petcoke tests, engineering estimates, etc.

We estimate SO₂ emissions before the change (based on present allowable emission rates and recent coal sulfur specifications) to be between 0.6 pounds per million Btu heat input (lb/10⁶ Btu) and 0.75 lb/10⁶ Btu. It appears that the SO₂ emission rate when firing the proposed petcoke blend will be less than or equal to 0.75 lb/10⁶ Btu. Therefore it is possible that there will be a relatively small increase in annual SO₂ emissions.

Sulfuric acid mist emissions may increase because of catalytic transformation of SO₂ to SO₃ in the presence of vanadium, all other factors being equal. We recommend that the City review past records to see if there are any test data upon which to base historical sulfuric acid mist emissions. The data would need to come from tests during which the SO₂ emissions were roughly equal to the present allowable limit. There does not appear to be a way to infer past or future acid mist emissions from the petcoke test program. Since the trigger level is only 7 tons per year, we recommend that methods of control be considered. It is possible that the scrubber will remove the additional mist. In any case, tests are easy to conduct and inexpensive.

Although carbon monoxide (CO) emissions appear to increase when burning petcoke, the City theorizes that the increase is due to the grindability characteristics of low sulfur coal. Testing while burning low sulfur coal (without petcoke) could prove this hypothesis. If true, no increase would be expected in CO following the proposed switch to the petcoke/low sulfur coal blend. Again, CO data are easy and inexpensive to obtain.

With respect to nitrogen oxides (NO_x), we note that there are past compliance test data indicating emission rates of 0.324, 0.473, and 0.434 lb/10⁶ Btu during 1992, 1993, and 1994 respectively. Since these tests were presumably conducted when firing low sulfur coal, it would not be necessary to conduct more tests. Interestingly, it appears that there is no significant difference between the NO_x data obtained when burning low sulfur coal (0.410 lb/10⁶ Btu) and that obtained when burning a petcoke/low sulfur coal blend (0.413 lb/10⁶ Btu). Additionally, the SO₂ emissions were within present allowable levels thus further validating these tests. Similar arguments appear to hold for particulate matter.

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Ultimately it is up to the City to submit the most appropriate comparisons of actual annual emissions prior to the proposed petcoke switch with representative actual annual emissions following the switch. It may turn out that no increases in emissions are predicted thus exempting the project from PSD and BACT. However the definitions cited above require reporting to determine at future dates if there were increases such that PSD/BACT was triggered. We recommend that the City prepare some basic cost data to control any pollutants which increase as a result of the petcoke project. Please refer to our letter of May 5, 1995 for a description on how such information should be presented.

We look forward to receiving your application and are prepared to discuss these matters with you at your convenience. If you have any questions, please call A. A. Linero, P.E., Administrator, New Source Review Section, at (904)488-1344.

Sincerely,



C. H. Fancy, P.E.
Chief
Bureau of Air Regulation

CHF/aal/1

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