

One Energy Place
Pensacola, Florida 32520

Tel 950.444.6111

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December 9, 2010

Mr. Rick Bradburn
Florida Department of Environmental Protection
Northwest District
160 Governmental Center
Pensacola, FL 32501-5794

Dear Mr. Bradburn:

RE: CRIST ELECTRIC GENERATING PLANT
ACID MIST DRAFT TEST PROTOCOL SUBMISSION
PERMIT No: 0330045-029-AC

Attached, please find the Plant Crist SAM Performance Draft Test Protocol as outlined in Specific Condition #9 of the above referenced air construction permit.

If you have any questions or need further information regarding the draft test protocol, please call me at (850) 444.6527.

Sincerely,

A handwritten signature in black ink, appearing to read "Greg Terry".

Greg Terry, PE
Air Quality Programs Supervisor

cc: w/att: Jim Vick, Gulf Power Company
Greg Terry, Gulf Power Company
Keith Cuevas, Gulf Power Company
Terry Wright, Gulf Power Company
Rusty Meharg, Gulf Power Company
John Dominey, Gulf Power Company
Gary Perko, Hopping, Green & Sams
Jeff Koerner, FDEP-Tallahassee

Gulf Power Company Plant Crist

Sulfuric Acid Mist Performance Testing Protocols

As required by Gulf Power Company's Plant Crist High Sulfur Coal Project Air Construction permit dated 5/3/2010 (Permit Number 0330045-029-AC) Gulf Power Environmental Affairs submits the following Sulfuric Acid Mist (SAM) Performance Test Protocol.

Specific Condition 6 of Gulf's permit outlines the operational requirements for the SAM stack performance tests. Testing must be performed for the following load ranges at the stack: 40%-50%, 50%-60%, 60%-70%, 70%-80%, 80%-90%, and greater than 90% of the total plant load. At least two test runs must be completed at each load range, one with the hydrated lime injection (HLI) system on and the other off. Multiple tests may be run at each range with varied HLI flowrates, and this testing must be performed with 90 days of the first firing of higher sulfur coal.

The requirements for Plant Crist's component performance testing are addressed in Condition 7. If it is technically feasible, at least two tests runs must be performed to determine the increase in SAM emissions from the SCRs on Unit 6 and 7, the control efficiency of the HLI system, and the control efficiency of the Flue Gas Desulfurization (FGD), each at greater than 80% of the combined heat input of the unit(s) with Units 6 and 7 online. This condition also allows the use of previous test data conducted on Unit 7 to be used to satisfy this requirement.

Condition 8 states the data collection requirements during each test run. The requirements are: fuel firing rate; heat input; HLI rate; controlled CEMS SO₂ rate; COMS opacity; uncontrolled SO₂ rate in lbm/mmbtu (based off of FGD inlet CEMS or fuel); SCR ammonia injection rates; and SNCR ammonia injection rates.

According to Specific Condition 9 of Gulf's permit, the test protocol must address "the preliminary schedule for conducting the tests; the proposed test methods and a description of the sampling and analysis; the points to be tested; the proposed operating rates for testing; the proposed HLI rates; the ammonia injection rates for NO_x controls (SCR and SNCR); the proposed sulfur content of the coal fuel blend; identification of critical operating parameters; identifications of potential interferences; and identification of potential physical problems with sampling." The following sections fulfill these requirements.

Testing Schedule

Testing must be performed within 90 days of the initial firing of higher sulfur coal, according to Conditions 6 and 7. To fulfill this requirement, performance testing is proposed to be conducted February 7, 2011 through February 11, 2011. However, because of planned outage schedules for Unit 6 and Unit 7 during Spring 2011, the

required test load conditions may not be available and testing may not be feasible to complete within 90 days. If necessary, loads not available will be tested within 30 days of reaching full load conditions after the planned outages on Units 6 and 7.

Test Methods and Description of Sampling and Analysis

All testing will be performed in accordance with Specific Condition 5 of the Crist permit. Gulf Power will employ EPA Method 8, conditional test method CTM-013, CTM-013A, or CTM-013B, or other test methods approved by the Department. Sampling and Analysis will be carried out as required by the approved test method.

Test Locations

To fulfill the stack performance test requirements, testing will be performed at the 390' elevation in Plant Crist's combined FGD stack, in the same location as the CEMS RATA tests.

To fulfill the component performance test requirements, additional locations may be utilized. If technically feasible, the additional testing locations may include: the outlet of individual units, the inlet of the FGD, the inlet of the unit 7's SCR, and the outlet of unit 7's SCR.

Test Operating Rates

As required by Condition 6, the test load ranges for the stack performance test will be: 40%-50%, 50%-60%, 60%-70%, 70%-80%, 80%-90%, and greater than 90% of the total plant load. As required by Condition 7, the component performance test rates will be greater than 80% of the combined maximum heat input rates, and Unit 6 and Unit 7 will be online.

Test Schedule

All feasible testing will be conducted within 90 days of burning higher sulfur coal, but because some required units may be offline, some testing may have to be performed at a later time. Loads not available within 90 days will be tested within 30 days of reaching full load conditions after the planned outages on Units 6 and 7.

HLI Feed Rates

The HLI system will be tuned with various feedrates to optimize the sulfuric acid mist control. The performance tests will be conducted at this optimum HLI feedrate.

Ammonia Injection Rate

Normal ammonia and urea injection rates will be utilized during all test runs. All ammonia injection rates (anhydrous ammonia and urea) will be recorded for each test run.

Fuel Sulfur Content

Gulf Power intends to conduct performance testing with a high sulfur coal blend between 3.0 lbm SO₂/mmbtu and 3.3 lbm SO₂/mmbtu is desired. However, due to coal availability, the actual lbm SO₂/mmbtu may vary.

Critical Operating Parameters

The following operating parameters will be recorded during each test run: fuel firing rate on each unit, heat input rate on each unit, hydrated lime injection rate, controlled SO₂ emission rate based on CEMS, opacity based on COMS, uncontrolled SO₂ emission rate in lb/MMBtu based on the process CEMS at the inlet to the FGD system (or a fuel based calculation if the CEMS is down), ammonia injection rates for SCR on Units 6 and 7, and ammonia injection rates for SNCR on Units 4 and 5.

Potential Interferences

The Crist fuel supply is a blend of several fuel, thus, the sulfur content may vary due to the blending process. This variability in fuel has potential for test results interference.

Potential Problems

The foremost potential problem is the scheduling of the performance tests. Due to Unit 6 and 7's scheduled outages, there is only a 5 day window to complete the required tests. Any change in the units' outage schedules will most certainly affect the SAM testing schedule. Gulf Power will complete testing of the HLI system at the loads available within the 90 day schedule. If necessary, loads not available will be tested within 30 days of reaching full load conditions after the planned outages on Units 6 and 7.