CALPINE

ISLAND CENTER
2701 N. ROCKY POINT DRIVE
SUITE 1200
TAMPA, FLORIDA 33607
813.637.7300
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January 11, 2004

Ms. Trina Vielhauer, Chief
Bureau of Air Regulation
Florida Department of Environmental Protection
111 South Magnolia Drive, Suite 4
Tallahassee, Florida 32301
(850) 488-0114

Re: Permit Revision Request
Calpine Construction Finance Company, L.P.
Osprey Energy Center – Facility ID No. 1050334
Permit No. PSD-FL-287
Federal Express Number: 7900 5477 1926

Dear Ms. Vilheur:

Calpine Construction Finance Company, L.P. (Calpine) is currently completing construction of its Osprey Energy Center located in Auburndale, Polk County, Florida. The Osprey Energy Center is comprised of two natural gas-fired combustion turbine generators (CTGs), two supplemental-fired heat recovery steam generators (HRSGs), and one common steam turbine generator (STG). The HRSGs are equipped with selective catalytic reduction (SCR) control technology to reduce nitrogen oxides (NO_x) emissions. Construction and initial operation of the Osprey Energy Center is authorized by Florida Department of Environmental Protection (FDEP) Air Permit No. PSD-FL-287.

Calpine requests revisions to the ammonia slip monitoring requirements of Air Permit No. PSD-FL-287 consistent with Department permits for similar power generation facilities. A discussion of the requested permit revision is provided in the following section.

Ammonia Slip Monitoring

Request for Permit Revision:

In accordance with Air Permit No. PSD-FL-287 Condition No. 20, unreacted SCR ammonia emissions (i.e., ammonia slip) are limited to a SCR outlet concentration of 9.0 parts per million by volume dry, corrected to 15 percent oxygen (ppmvd @ 15% O_2). Initial and annual stack testing of ammonia emissions using EPA Methods 26A and 206 is required by Condition No. 29 of the air construction permit. In addition, continuous

calculation of ammonia slip concentrations based on SCR inlet/outlet NO_x concentrations and ammonia injection rates is required by Condition No. 46.

Consistent with recent Department permits for natural gas-fired CTG/HRSG units equipped with SCR control technology (e.g., Florida Power Hines Energy Complex Air Permit Nos. PSD-FL-296A and 330), Calpine requests a revision to Condition No. 46 to remove the requirement for continuous calculation of ammonia slip concentrations. Specifically, Calpine requests that the fifth and sixth bullets of Condition No. 46 be revised as follows:

From:

- Ammonia emissions shall be calculated continuously using inlet and outlet NO_X concentrations from the SCR system and ammonia flow supplied to the SCR system. The calculation procedure shall be provided with the CEM monitoring plan required by 40CFR Part 75. The following calculation represents one means by which the permittee may demonstrate compliance with this condition:

  Ammonia slip @ $15\%O_2$ = (A-(BxC/1,000,000)) x (1,000,000/B) x D, where:
  A= ammonia injection rate (lb/hr)/ 17 (lb/lb.mol)
  B = dry gas exhaust flow rate (lb/hr) / 29 (lb/lb.mol)
  C = change in measured NO_X (ppmv@$15\%O_2$) across catalyst
  D = correction factor, derived annually during compliance testing by comparing actual to tested ammonia slip

  The calculation along with each newly determined correction factor shall be submitted with each annual compliance test. Calibration data ("as found" and "as left") shall be provided for each measurement device utilized to make the ammonia emission measurement and submitted with each annual compliance test.

- The permittee shall notify the Department within 2 business days if the calculated ammonia emissions exceed 9.0 ppmvd corrected to 15% O_2 over a 3-hour block average. The notification shall include a corrective action plan to reduce ammonia emissions below 9 ppmvd corrected to 15% O_2 over a 3-hour block average.

To:

- Additional Ammonia Slip Testing: If the tested ammonia slip rate for a gas turbine exceeds 9 ppmvd corrected to 15% oxygen when firing natural gas during the annual test, the permittee shall:

  a. Begin testing and reporting the ammonia slip for each subsequent calendar quarter;

  b. Before the ammonia slip exceeds 13 ppmvd corrected to 15% oxygen, take corrective actions that result in lowering the ammonia slip to less than 9 ppmvd corrected to 15% oxygen; and

  c. Test and demonstrate that the ammonia slip is less than 9 ppmvd corrected to 15% oxygen within 15 days after completing the corrective actions.

Corrective actions may include, but are not limited to, adding catalyst, replacing catalyst, or other SCR system maintenance or repair. After demonstrating that the ammonia slip level is less than 9 ppmvd corrected to 15% oxygen, testing and reporting shall resume on an annual basis. [Rules 62-4.070(3) and 62-297.310(7)(b), F.A.C.]

Rationale for Permit Revision:

The current requirement to continuously calculate ammonia slip exhaust concentrations involves extensive data processing and recordkeeping. The Osprey Energy Center CTG/HRSG units are equipped with continuous emissions monitoring systems (CEMS) to continuously monitor NO_x emissions. Ammonia is neither a Clean Air Act (CAA) criteria pollutant nor a CAA hazardous air pollutant (HAP) and therefore should not be subject to the same level of monitoring that is required for criteria pollutants such as NO_x. The requested permit revision will simplify the monitoring of ammonia slip and is consistent with recent Department permits for similar emission units.

Your expeditious processing of this request for permit revision to Osprey Energy Center Air Permit No. PSD-FL-287 will be appreciated. If you have any questions or comments pertaining to this request, please contact me at (813) 637-7305 or Heidi M. Whidden @ (813) 637-7316.

Sincerely,

Benjamin M. H. Borsch 2/n/04

Benjamin M. H. Borsch, P.E.
Manager, Safety, Health and Environment

CALPINE

OSPREY ENERGY CENTER
1651 WEST DERBY AVENUE
AUBURNDALE, FLORIDA 33823

863.551.4660 (MAIN)
863.551.4666 (FAX)

February 6, 2004

Florida Department of Environmental Protection
Division of Air Resources Management
2600 Blair Stone Road MS 5500
Tallahassee, Florida 32399-2400

Re: Osprey Energy Center
Auburndale, FL
Conditions of Certification-PA00-41
Certified Mail Number: 7000 1530 0004 7778 5976

As required by Section XIII.D.3 of the Conditions of Certification (PA00-41), Osprey Energy Center submits the following certification from the manufacturer and installer of the cooling tower.

Sincerely,

Robert Callery
General Manager

CC: Heidi Whidden, *Calpine Tampa*

Marley Cooling Technologies
7401 West 129th Street
Overland Park, KS 66213
913 664 7554
Fax 913 664 7869

February 3, 2004

Mr. Bill Sena
Plant Engineer
Calpine - Osprey Energy Center
1651 West Derby Avenue
Auburndale, FL 33823

Dear Mr. Sena,

This letter is to certify that drift eliminators were properly installed in the Marley Cooling Technologies Model No. F41010A-4.0-08 cooling tower and that this installation is capable of limiting drift to .002% of the circulating water flow rate.

Drift rate is extremely sensitive to the cooling tower circulating water quality irrespective of the eliminator design. Certain water treatment chemicals containing glycol and surfactants, frequently used as biodispersants and antifoam agents, are known to cause elevated drift rates. Please refer to section 2.3.8, General Water Quality, of CTI Test Code ATC 140.

If you have any questions or would like additional information, please contact me.

Best Regards,

Frank J. Jaksa, Jr.
Project Manager

CALPINE

OSPREY ENERGY CENTER
1651 WEST DERBY AVENUE
AUBURNDALE, FLORIDA 33823

863.551.4660 (MAIN)
863.551.4666 (FAX)

February 6, 2004

Florida Department of Environmental Protection
Division of Air Resources Management
2600 Blair Stone Road MS 5500
Tallahassee, Florida 32399-2400

Re: Osprey Energy Center
Auburndale, FL
Conditions of Certification-PA00-41
Certified Mail Number: 7000 1530 0004 7778 5983

As required by Section XII.A of the Conditions of Certification (PA00-41), Osprey Energy Center submits that there have been no changes to the facility design and operation plans that would affect a change in discharge as referenced in Condition II.

Sincerely,

Robert Callery
General Manager

CC: Heidi Whidden, *Calpine Tampa*

CALPINE

ISLAND CENTER
2701 N. ROCKY POINT DRIVE
SUITE 1200
TAMPA, FLORIDA 33607
813.637.7300
813.637.7399 (FAX)

February 16, 2004

Ms. Trina Vielhauer, Chief
Bureau of Air Regulation
Florida Department of Environmental Protection
111 South Magnolia Drive, Suite 4
Tallahassee, Florida 32301
(850) 488-0114

Re: Initial Emission Test Strategy Clarification Requests
Calpine Construction Finance Company, L.P.
Osprey Energy Center – Facility ID No. 1050334
Permit No. PSD-FL-287
Federal Express Number: 832654564855

Dear Ms. Vilheur:

Calpine Construction Finance Company, L.P. (Calpine) is currently completing construction of its Osprey Energy Center located in Auburndale, Polk County, Florida. The Osprey Energy Center is comprised of two natural gas-fired combustion turbine generators (CTGs), two supplemental-fired heat recovery steam generators (HRSGs), and one common steam turbine generator (STG). The HRSGs are equipped with selective catalytic reduction (SCR) control technology to reduce nitrogen oxides (NO_x) emissions. Construction and initial operation of the Osprey Energy Center is authorized by Florida Department of Environmental Protection (FDEP) Air Permit No. PSD-FL-287.

Calpine is currently developing an emission test protocol to confirm compliance with the above referenced permit. Calpine requests acceptance of the following test strategy, clarification requests, and assumptions:

NOx determination USEPA Method 20 versus Method 7e

Request: The permit states initial Subpart GG and Subpart Da NOx testing be completed via EPA Method 20. Calpine requests the use of EPA Method 7e during testing at base load without power augmentation and supplemental firing (normal operating load).

Rationale: In addition to confirming compliance with Subpart GG and Subpart Da, the facility is required to complete NOx RATA testing via EPA Method 7e. NOx RATA testing will be completed at base load without power augmentation and supplemental firing (normal operating load). Per EPA Determination Detail 0000063 (Attachment A), EPA regions have allowed the data collected during the CEMS RATA to be used for determination of compliance per EPA Subpart GG without a case-by-case review. Additionally, the requested test strategy is consistent with recent Department permits for similar emission units (e.g., Florida Power Hines Energy Complex Air Permit Nos. PSD-FL-296A and 330).

Combination of RATA test runs and Compliance Test Runs

Request: Calpine requests the Department allow the NOx and CO RATA testing to be combined with the CEMS testing. Resulting testing would result in three 21 minute CEMS RATA test runs being combined to make one 63-minute compliance test run with calibrations between each RATA run using short measurement line per PS-2 as required by the CO sampling.

Rationale: Per EPA Determination Detail 0000063 (Attachment A), EPA regions have allowed the data collected during the CEMS RATA to be used for determination of compliance per EPA Subpart GG without a case-by-case review. Since the amount of sampling during a CEMS RATA consists of nine 21-minute test runs using EPA methods; this provides enough representative emissions data to determine CT compliance. Additionally, this test alternative is consistent with recent Department determination for similar emission units (e.g., TECO Bayside).

12-Point Part 75 Sampling Traverse in lieu of 48-Point O2 Traverse

Request: Calpine requests the Department allow a 12-Point Sampling Traverse per Part 75 in lieu of the 48-Point O2 Traverse.

Rationale: The requested alternative is consistent with EPA Determination Detail 0000063 and with recent Department determination for similar emission units (e.g., TECO Bayside). In addition, limited stratification is expected due to the type of unit, height of stack and sampling ports.

Sampling Traverse versus Load Changes

Request: Calpine, to show permit compliance at multiple loads, intends to test at base load without power augmentation and supplemental firing, at base load with power augmentation and without supplemental firing (unless granted a waiver of Subpart Da testing as described below), and at base load with power augmentation and supplemental firing. Calpine requests the Department allow the traverse points determined at base load without power augmentation and auxiliary firing (normal operating mode) be used during tests at all loads.

Rationale: Limited stratification is expected due to the type of unit, height of stack and sampling ports. Also, if any direct comparisons for NOx are required at different conditions, i.e. determination of NOx duct burner contributions, it is imperative that we maintain sampling strategy consistency.

Low Load Test

Request: The permit does not specifically state the CEMS is allowed to determine NOx emissions at reduced load conditions per Subpart GG. Calpine requests confirmation that no low load or mid load tests are required to meet Subpart GG.

Rationale: Per EPA Determination Detail 0000063 (Attachment A), EPA regions have allowed maximum load conditions for determination of compliance per EPA Subpart GG. Additionally, the requested test alternative is consistent with recent Department permits for similar emission units (e.g., Florida Power Hines Energy Complex Air Permit Nos. PSD-FL-296A and 330).

Duct Burner (Supplemental Firing) Subpart Da Emission Requirements Part A

Request: The permit provides emissions limits for supplemental firing. However, it does not specifically list test requirements. To provide the agency with duct burner (supplemental firing) only emissions, the facility would have to test at base load with

power augmentation and without supplemental firing and at base load with power augmentation and supplemental firing. The test completed at base load with power augmentation without supplemental firing will not be used to show compliance of any permit limit. It will only be used to assist in determining duct burner emissions. Calpine requests the Department allow the facility to only test at base load without power augmentation and supplemental firing and at base load with power augmentation and supplemental firing.

Rationale: This request would determine the combined power augmentation and duct burner emission contribution. It is believed the combined emission levels will be below any Subpart Da emission limits. If this were not the case, Calpine would test at base load with power augmentation and without supplemental firing to determine duct burner only emissions.

Duct Burner (Supplemental Firing) Subpart Da Emission Requirements Part B

Request: The permit provides NOx emissions limits for auxiliary firing. However, it does not specifically list test requirements. As described in the introduction, each CT/HRSG train is equipped with SCR control technology to reduce NO_x emissions. Calpine requests the Subpart Da NOx emission test requirement be waived.

Rationale: The permitted NOx emissions rate for duct burner emissions per Subpart Da is 0.1 lb/MMBtu. The FDEP permit requires that the concentration of NOx in the stack exhaust gas not exceed 3.5 ppmvd @15% O_2, including operation with the duct burners on. This corresponds to a total NOx emissions contribution of both the duct burners and the combustion turbine of roughly 0.013 lb/MMBtu. Therefore, compliance with the Subpart Da NOx emissions limit will be demonstrated by compliance with the total emissions reported by the NOx CEMS.

Your expeditious processing of this request for permit revision to Osprey Energy Center Air Permit No. PSD-FL-287 will be appreciated. If you have any questions or comments pertaining to this request, please contact me at (813) 637-7316.

Sincerely,

Heidi M. Whidden
Environmental Specialist

CC: Mike Halprin; FDEP—Via email
Bill Sena; Osprey Energy Center—Operations