FINAL DETERMINATION

Air Construction Permit
Florida Power and Light Cape Canaveral Energy Center

DEP File No. 0090006-005-AC

PERMITTEE

Florida Power and Light Company (FPL)
700 Universe Boulevard
Juno Beach, Florida 33408

PERMITTING AUTHORITY

Florida Department of Environmental Protection (Department)
Division of Air Resource Management
Bureau of Air Regulation, Special Projects Section
2600 Blair Stone Road, MS #5505
Tallahassee, Florida 32399-2400

PROJECT

DEP File No. 0090006-005-AC
FPL Cape Canaveral Energy Center (CCEC)
Plant Conversion Project
Brevard County

The project is a plant conversion that includes the construction of a nominal 1,250 megawatts (MW) natural gas-fueled combined cycle unit (Unit 3) and requires the permanent shutdown and dismantlement of residual oil and natural gas-fueled Units 1 and 2 at the FPL Cape Canaveral Plant. The project did not require a review under the rules for the prevention of significant deterioration of air quality (PSD) or a determination of best available control technology (BACT). The converted plant will be called the Cape Canaveral Energy Center (CCEC). The address is 6000 North U.S. Highway 1 between Cocoa and Titusville in Brevard County.

Unit 3 will consist of:

- Three G-class or H-class combustion turbine-electrical generators (CTG) with evaporative inlet cooling systems;
- Three heat recovery steam generators (HRSG) with duct burners (DB) for supplementary gas firing and with selective catalytic reduction (SCR) reactors;
- Three 149-feet exhaust stacks; and
- One 500 MW steam-electrical generator (STG).

Unit 3 will use ultralow sulfur distillate (ULSD) fuel oil as backup fuel. Unit 3 will rely on some of the existing infrastructure including the water intake structures for once-through cooling and one of the fuel oil storage tanks.

Additional ancillary equipment to be installed includes: a permanent auxiliary boiler; a temporary boiler used during the construction phase; two emergency generators; two process (fuel) heaters; a diesel fire pump; and a gas compression station.

Air pollution control will be accomplished by SCR for the control of nitrogen oxides (NO_X) and efficient combustion of inherently low polluting fuels to control emissions of particulate matter (PM/PM_{10}), sulfur oxides (SO_2 and sulfuric acid mist), carbon monoxide (CO) and volatile organic compounds (VOC).

NOTICE AND PUBLICATION

The Department distributed a draft minor air construction permit package on March 13, 2009. The applicant published the Public Notice in Florida Today on March 20, 2009. The Department received the proof of publication on April 7, 2009. The Department granted extensions of time to file a petition for an administrative hearing on April 14 and June 10, 2009. The second extension expired on June 30, 2009 after which the Department is taking this final action.

COMMENTS

No written comments on the draft permit were received from the public or any agencies. Written comments were received from the applicant.

Applicant

On April 6, 2009, the Department received the main body of comments from the applicant. The Department received additional comments on May 11, May 29, June 5 and June 18, 2009. The following summarizes the comments and the Department's response.

1. FPL comment: Section I, page 2, Facility Description, 3rd bullet: Revise as follows - "Three nominal ~~428~~ 460 million Btu per hour …"

   Department response: The Department agrees and notes that Section III.A., Specific Conditions 3 and 6 give a value of 460 million Btu per hour (mmBtu/hr). The Department will also clarify that the value is based on "maximum" rather than "nominal" heat input consistent with FPL comment No. 8 below.

2. FPL comment: Section I, page 2, Facility Description, 3rd paragraph: Revise as follows - "Unit 3 will use ultra low-sulfur ~~diesel~~ distillate (ULSD) fuel oil as backup fuel. Unit 3 will rely on some of the existing infrastructure including ~~the cooling water system and~~ one of the fuel oil storage tanks."

   Department response: The Department will change ultralow sulfur "diesel" to the slightly more general term of ultralow sulfur "distillate". The ULSD specification of 0.0015 percent sulfur will be maintained. The Department will remove the second reference to the cooling water system because it is mentioned earlier in the same section.

3. FPL comment: Section I, page 2, New Emission Units, ID No. 010: Revise as follows - "Two nominal 10-mmBtu/hr natural gas-fired process heaters (one is a spare)."

   Department response: The Department will make this change.

4. FPL comment: Section II, page 5, Condition No. 8: Revise as follows - "… and dismantled before ~~December 31, 2010~~ December 31, 2011."

   Department response: The Department will make this change. It is clear that the shut down and dismantlement of the two existing units must occur before installation of the replacement unit can begin on the same plot of land. Operation of the new unit cannot feasibly occur for at least one year after the shut down and dismantlement of the existing units.

5. FPL comment: Section III.A, page 8, Condition 2: Please delete the permitting note, as it is included in the Technical Evaluation document and has no bearing on this permit condition.

   Department response: The Department will delete the permitting note that sought to explain the difference between a "G" Class unit and an "H" Class unit.

6. FPL comment: Section III.A, page 8, Condition 3: Revised as follows - "…having a ~~nominal~~ maximum heat input rate of 460 mmBtu/hr (LHV)."

Department response: See Comment 1 above.

7. FPL comment: Section III.A, page 9, Condition 5: Revise the heat input rating while firing natural gas to reflect the agreed-upon 7.5 percent increase, as follows - "The maximum heat input rate to each CTG is ~~2,490~~ 2,586 mmBtu/hr when firing natural gas and…"

   Department response: The Department originally added 7.5 percent (%) to the nominal heat input rate assuming installation of a Siemens "H" Class unit firing natural gas. The basis should have been a Mitsubishi "G" Class unit firing natural gas. The correction will be made as requested.

8. FPL comment: Section III.A, page 9, Condition 6: Revise the permitted capacity as follows—"The total ~~nominal~~ maximum heat input rate to the DB for each HRSG…"

   Department response: See Comment 1 above.

9. FPL comment: Section III.A, page 10, Condition 10, footnote d: Please clarify what is meant by "basic DB mode".

   Department response: The Department will remove the term "basic" as there is only one DB mode.

10. FPL comment: Section III.A, page 12, Condition 17: Revise as follows - "… the permittee shall provide the Compliance Authority with an advance notice of at least ~~7~~ 3 days…" If this revision is not acceptable to the Department, then FPL requests clarification on the phrase "maintenance to a combustor" as used in the condition.

    Department response: A 7-day notice is a proper time frame to advise the Department regarding "major tuning sessions". The requirement for the West County Energy Center (WCEC) is even greater (14 days). The same terms used in Condition 17 were included in the FPL Turkey Point Unit 5 permit and in the WCEC permit.

    During subsequent discussions with FPL, the company advised that they don't necessarily wish to exclude data for some of the work described in the condition. The condition will allow rather than require data exclusion and will be further clarified as follows:

    17. DLN Tuning: CEMS data collected during initial or other major DLN tuning sessions ~~shall~~ may be excluded by the permittee from the CEMS compliance demonstration provided the tuning session is performed in accordance with the manufacturer's specifications. A "major tuning session" ~~would~~ may occur after completion of initial construction, ~~a combustor change-out,~~ a major repair ~~or maintenance to a combustor~~, or other similar circumstances. Prior to performing any major tuning session, where the intent is to exclude data from the CEMS compliance demonstration, the permittee shall provide the Compliance Authority with an advance notice of at least 7 days that details the activity and proposed tuning schedule. The notice may be by telephone, facsimile transmittal, or electronic mail. [Design; Rule 62-4.070(3), F.A.C.]

11. FPL issue: Section III.A, Condition 20: In its original application, FPL requested initial compliance testing schedule relief from 40 CFR 60, Subparts A and KKKK for the first (and only for the first) installed CTG in the event that the Siemens H technology is selected for the project. The comment relates to the same issue but is now moot and is withdrawn because the request for relief from the Subpart A and Subpart KKKK has been withdrawn.

    Department response: The Department will clarify the condition consistent with the mentioned withdrawal but will retain the conditions in the draft permit that provided relief from the initial compliance testing schedule from the more stringent state implementation plan (SIP) permit emission limits. Section III.A, Condition 20 is revised as follows:

20. Initial Compliance Determinations if "H" Technology CTG are Utilized: In the event CTG incorporating "H" level technology ~~(described in Specific Condition 2 above)~~ are selected for use at the CCEC, the initial compliance tests for the first, and only for the first, installed CTG to demonstrate achievement of the emission limits listed in Specific Condition 10 above shall be conducted within 180 days after achieving the maximum production rate at which the unit will be operated, but not later than 300 days after the initial startup of the unit. ~~[Subject to final approval by EPA]~~

    {The additional 120 day test period ~~will~~ may be required to allow comprehensive commissioning, testing, and tuning of the "H" technology CTG. This condition does not exempt the CTG from the applicable requirements in 40 CFR 60, Subpart A or in 40 CFR 60, Subpart KKKK.}

Furthermore, the Department will modify Section III.A, Condition 24.a. regarding installation of CO CEMS to comport with the additional time provided for compliance with the permit limits for the first CTG installed at the facility. The condition is modified as follows:

a. *CO Monitors:* For each CTG, ~~T~~the CO monitor~~s~~ shall be certified pursuant to 40 CFR 60, Appendix B, Performance Specification 4 or 4A within 60 calendar days of achieving permitted capacity as defined in Rule 62-297.310(2), F.A.C., but no later than 180 calendar days after initial startup. If "H" technology CTG are utilized, the described certification shall be performed on the CEMS associated with the first, and only with the first, installed CTG within 180 calendar days of achieving permitted capacity, but no later than 300 calendar days after initial startup. Quality assurance procedures shall conform to the requirements of 40 CFR 60, Appendix F, and the Data Assessment Report in Section 7 shall be made each calendar quarter, and reported semiannually to the Compliance Authority. The RATA tests required for the CO monitor shall be performed using EPA Method 10 in Appendix A of 40 CFR 60 and shall be based on a continuous sampling train. The CO monitor span values shall be set appropriately considering the allowable methods of operation and corresponding emission standards.

12. FPL comment: Section III.D, page 21, Condition 6: As the applicable NSPS Subpart JJJJ does not regulate opacity, a standard of 20% was proposed by FPL. It is requested that the limit of 10% in the current draft permit be revised to the 20% value originally requested.

    Department response: In fact a value of 10% was originally requested by the applicant per Section 5, page 28 of the application form. In Section 5, page 31 of the application form both a 20% emission limit (basis Section 62-296.320(4)(b)1, Florida Administrative Code) and a 10% requested limit (to limit particulate matter) were included. According to the application, the air emission controls are representative of best available control technology (BACT) emission limits that have been determined under PSD regulations for other similar combined cycle units [e.g., PSD-FL-396, July 30, 2008, for West County Energy Center (WCEC) Unit 3]. A 20% limit would be inconsistent with the particulate matter (PM) limits established for the subject natural gas-fueled compressors. The Department will leave the 10% limit.

13. FPL comment: Section III.D, page 21, Condition 8: NSPS Subpart JJJJ (40 CFR 60.4243) allows for compliance with applicable emission limits to be demonstrated by manufacturer certification. FPL requests that this permit condition allow for the use of a manufacturer certification in lieu of compliance testing for the natural gas-fired compressor units. Alternatively, if the Department requires testing, FPL requests that one of the seven units be selected for testing as representative of all of the units.

    Department response: The governing Subpart JJJJ provides for compliance by manufacturer certification. If the owner demonstrates compliance by tests, then all seven compressors must be

tested as described in the draft permit. Each compressor is a source for purposes of 40 CFR 60, Subpart A and Subpart JJJJ. The condition will be changed as follows:

8. Compressor Testing Requirements: Each unit shall be stack tested to demonstrate initial compliance with the emission standards for CO, VOC, NO_X and visible emissions. The tests shall be conducted within 60 days after achieving the maximum production rate at which the unit will be operated, but not later than 180 days after the initial startup. With the exception of visible emissions testing, manufacturer certification can be provided to the Department in lieu of actual testing. [Rule 62-297.310(7)(a)1, F.A.C.; 40 CFR 60.8 and 40 CFR 60.4244]

14. FPL comment: Section III.E, page 23, Condition 5: FPL requests that this condition be revised to clarify that a manufacturer's certification may be used in lieu of stack testing to demonstrate compliance with the applicable permits, per NSPS Subpart IIII, 40 CFR 60.4211, which are as stringent as BACT values.

    Department response: The Department agrees with FPL that a manufacturer's certification of the two liquid fueled emergency generators may be used in lieu of stack testing to demonstrate compliance with the applicable permits. Specific Condition 5 will be revised accordingly.

15. FPL comment: Section III.E, page 23, Condition 6: Revise as follows - "Each ~~natural gas compressor~~ liquid-fueled emergency generator…"

    Department response: The Department will correct the condition as the section pertains to emergency generators.

16. FPL comment: Section III.E, page 23, Condition 7: Revise as follows—"The permittee shall maintain records of the amount of natural gas used in the ~~process heaters~~ emergency generators…"

    Department response: The Department will correct the condition as the section pertains to emergency generators and also correct the reference to natural gas that should indicate fuel oil.

17. FPL comment: Section IV, Appendix SC, page SC-3, Condition 20: Revise as follows—"… by ~~March 1st~~ April 1st…"

    Department response: The condition will be corrected as requested.

18. FPL comments regarding the technical evaluation: FPL submitted a number of comments on and recommended changes to the Department technical evaluation and preliminary determination document distributed with the draft permit.

    Department response: Most comments and changes relate to matters discussed in comments and changes to the draft permit discussed above. The document is actually a final document that reflects the technical evaluation conducted to make the preliminary decision to issue the permit. The comments by FPL are noted. The present final determination document reflects the evaluation to support the decision to issue a final permit.

19. Additional FPL comment (May 11, 2009): Section III.B, Condition 2: FPL requests the following- "The hours of operation of the auxiliary boiler shall not exceed ~~500~~ 1,000 hours per year." This request for an increase in hours of operation does not change any of the standards that CCEC would be required to meet.

    Department response: See responses to comments 21 and 22 below.

20. Additional FPL comment (May 29, 2009): Section III.B, Condition 9. FPL requests the following: "The hours of operation of the temporary boiler shall not exceed ~~500~~ 1,000 hours per year and the temporary boiler shall not operate beyond the expiration date of this permit." This request for an

increase in hours of operation does not change any of the standards that CCEC would be required to meet.

Department response: See response to comment 23 below.

21. Additional FPL comment (June 5, 2009): Section III.B, Condition 1. FPL requests the following:

    1. Equipment: The permittee is authorized to install, operate, and maintain one auxiliary boiler with a maximum design heat input of 99.8 mmBtu/hr (85,000 lb/hr) to produce steam during start up of the CTG. The permittee is authorized to operate the auxiliary boiler during the construction period of Unit 3, as well as during permanent operation after the completion of construction. [Applicant Request; Rule 62-210.200(PTE), F.A.C.]

    Department response: The Department agrees that the auxiliary boiler may be used during the construction phase as well as during the permanent operation of Unit 3 within the allocation of 1000 hours per year described in comment 19 above. The permit will be modified as requested by FPL.

22. Additional FPL comment (June 5, 2009): Section III.B, Condition 2. FPL requests the following:

    2. Hours of Operation: The hours of operation of the auxiliary boiler shall not exceed ~~500~~ 1000 hours per year. Prior to expiration of this permit and commencement of commercial operation of the combined cycle system which it supports, the auxiliary boiler shall not exceed 4000 hours per year. [Applicant Request; Rule 62-210.200(PTE), F.A.C.]

    Department response: The Department agrees that the auxiliary boiler may be used for 1,000 hours per year as requested in comment 19 above but not 4,000 hours per year as subsequently requested.

23. Additional FPL comment (June 5, 2009): Section III.B, Condition 9. FPL requests the following:

    9. Hours of Operation: The hours of operation of the temporary boiler shall not exceed ~~500~~ 4,000 hours per year and the temporary boiler shall not operate beyond the expiration date of this permit. [Applicant Request; Rule 62-210.200(PTE), F.A.C.]

    Department response: The Department agrees that the temporary boiler may be used for 1,000 hours per year as requested in comment 20 above but not 4,000 hours per year as subsequently requested.

24. Additional FPL comment (June 18, 2009): Section III.A, Condition 25.e. FPL requests insertion of the same language in the CCEC permit that was acceptable for Condition 24.e of the Riviera Beach Energy Center (RBEC) permit, allowing for the exclusion of CO data in the event an oxidation catalyst is required. The CCEC permit could be revised with a similar Condition 25.e for consistency between the 2 facilities.

    Department response: The Department will identify a new case for data exclusion within Section III.A, Condition 25, CEMS Data Requirements as follows:

    e. *Data Exclusion during Installation of Oxidation Catalyst:* The permittee may exclude CO CEMS data in excess of the 8.0 ppmvd @15% O_2 from the 30 operating day rolling average calculation during the installation of the oxidation catalyst (which shall not exceed 12 months) provided all reasonable efforts are used to minimize such emissions. However, all CEMS data must be included when determining whether there is a net emission increase (as defined in Section 62-210.200 (definitions), F.A.C.) of CO greater than or equal to the significant emissions rate of 100 tons per year.

CONCLUSION

The final action of the Department is to issue the permit with the changes, corrections and clarifications as described above.