

Florida Department of Environmental Regulation

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Bob Martinez, Governor

Dale Twachtman, Secretary

John Shearer, Assistant Secretary

PERMITTEE:
Fla. Power & Light Co.
P. O. Box 078768
West Palm Beach, FL 33407-0768

Permit Number: AC 64-180842
PSD-FL-150
Expiration Date: June 30, 1992
County: Volusia
Latitude/Longitude: 28°50'31"N
81°19'32"W
Project: Orimulsion Fuel
Test Burn

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Chapters 17-2 and 17-4. The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawings, plans, and other documents attached hereto or on file with the Department and made a part hereof and specifically described as follows:

For the construction of test equipment and modification of existing equipment at Sanford Power Plant's Unit 4 in order to burn Orimulsion fuel up to 120 full-capacity equivalent burn days during an 18-month period for the purpose of research and testing. The research program will consist of boiler performance testing and testing of certain experimental pilot-scale pollution control equipment in slipstreams numbered 1 and 2.

The 1 MWe Slipstream 1 emissions control research equipment will consist of a precoating system, a high volume/low pressure (HVLP) pulse-jet fabric filter baghouse for particulate matter and a booster fan. The baghouse is rated for approximately 5,000 ACFM at an air-to-cloth ratio of 4 ft/sec.

The 2.5-5 MWe Slipstream 2 emissions control research equipment will consist of a reverse air/sonic fabric filter baghouse for particulate matter, a vertical-packed alkali scrubber for sulfur dioxide, and a booster fan. The baghouse is rated for 14,400 ACFM and the packed scrubber is rated for 10,800 ACFM.

The pilot-scale SOXAL regeneration system will consist of an alkali sorbent regenerator, a regenerated sorbent tank, a spent sorbent tank, and a steam stripper.

Emissions from the side streams will exhaust through the Unit 4 stack, which will be equipped with continuous opacity, nitrogen oxides (NOx), and SO₂ monitors. A continuous carbon monoxide (CO) monitor will be located at the economizer outlet.

Side stream 2 will be equipped with SO₂ monitors and side streams 1 and 2 will be sampled for particulate matter to gather research data.

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The UTM coordinates are 17-468.3 km East and 3190.3 km North. The unit is located at Lake Monroe off U.S. Highway 17-92.

The source shall be constructed in accordance with the permit application, plans, documents, amendments and drawings, except as otherwise noted in the General and Specific Conditions.

The documents listed below are available from the Department upon request:

1. FP&L's petition received April 2, 1990.
2. EPA's letter dated May 22, 1990.
3. FP&L's application received May 22, 1990.
4. William Green's letter dated June 13, 1990.
5. DER's letter dated June 20, 1990.
6. DER's letter dated June 21, 1990.
7. FP&L's additional information received June 25, 1990.
8. EPA's letter dated June 26, 1990.
9. DER's letter dated June 28, 1990.
10. EPA's letter dated July 2, 1990.
11. FP&L's additional information received July 11, 1990.
12. FP&L's additional information received July 16, 1990.
13. FP&L's additional information received July 20, 1990.
14. FP&L's additional information received August 1, 1990.
15. DER's Technical Evaluation, Preliminary Determination and draft permit dated August 2, 1990.
16. William Green's letter received August 24, 1990, concerning draft permit.
17. William Green's letter received August 24, 1990, concerning revised attachments.
18. EPA's letter dated August 30, 1990.
19. Second Draft Permit (8/31/90).
20. KBN's letter dated September 4, 1990.
21. William Green's letter dated September 5, 1990, concerning EPA's comments.
22. William Green's letter dated September 5, 1990, concerning second draft permit.
23. Third Draft Permit (9/5/90).
24. FP&L information provided at Public Hearing entitled "Answers to questions about FP&L's plan to burn a new fuel at the Sanford Plant."
25. FP&L presentation at Public Hearing.
26. William Green's letter dated September 7, 1990, concerning third draft permit.
27. DER's response to William Green dated September 13, 1990.
28. DER's letter to EPA dated September 13, 1990.
29. EPA's response to DER dated September 14, 1990.
30. William Green's letter dated September 21, 1990.
31. DER's response to William Green dated September 26, 1990.
32. William Green's letter dated September 28, 1990.

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GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations, and restrictions set forth in this permit are "Permit Conditions" and are binding and enforceable pursuant to Sections 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.

2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.

3. As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey any vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit is not a waiver of or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.

4. This permit conveys no title to land or water, does not constitute State recognition or acknowledgement of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title.

5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.

6. The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.

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7. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law and at a reasonable time, access to the premises, where the permitted activity is located or conducted to:

- a. Have access to and copy any records that must be kept under the conditions of the permit;
- b. Inspect the facility, equipment, practices, or operations regulated or required under this permit; and
- c. Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

Reasonable time may depend on the nature of the concern being investigated.

8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately provide the Department with the following information:

- a. a description of and cause of non-compliance; and
- b. the period of noncompliance, including dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance.

The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or for revocation of this permit.

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except where such use is proscribed by Sections 403.73 and 403.111, Florida Statutes. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.

10. The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance,

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provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.

11. This permit is transferable only upon Department approval in accordance with Florida Administrative Code Rules 17-4.120 and 17-30.300, F.A.C., as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.

12. This permit or a copy thereof shall be kept at the work site of the permitted activity.

13. The permittee shall comply with the following:

a. Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.

b. The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance

records and all original strip chart recordings for continuous monitoring instrumentation) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application for this permit. These materials shall be retained at least three years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.

c. Records of monitoring information shall include:

- the date, exact place, and time of sampling or measurements;
- the person responsible for performing the sampling or measurements;
- the dates analyses were performed;
- the person responsible for performing the analyses;
- the analytical techniques or methods used; and
- the results of such analyses.

14. When requested by the Department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were

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incorrect in the permit application or in any report to the Department, such facts or information shall be corrected promptly.

15. This permit also constitutes Determination of Prevention of Significant Deterioration (PSD).

SPECIFIC CONDITIONS:

1. Heat Input Rate:

The permitted heat input rate for this source is 4,050 MMBtu/hr.

2. Permitted Fuels:

Unit 4 shall be fired with Orimulsion Fuel, No. 6 Residual Oil, No. 2 Fuel Oil, or Natural Gas only. By separate permit amendments, the Department has temporarily restricted Units 3 and 5 to be fired only with Natural Gas and/or Fuel Oil with a sulfur content limit equivalent to 1.1 lb SO₂/MMBtu.

3. Source Emission Limiting Standards for Unit No. 4 While Firing Orimulsion Fuel:

a) Particulate Matter: Steady-state - 0.3 lb/MMBtu; Excess emissions, not to exceed 3 hours per 24-hour period, for soot-blowing, startup, shutdown and load changes - 0.6 lb/MMBtu; Excess emissions, not to exceed 2 hours per 24-hour period for malfunction - 0.6 lb/MMBtu.

b) Sulfur Dioxide: 4.3 lb/MMBtu heat input.

c) Visible Emissions: Steady-state - 60% opacity; Excess emissions, not to exceed 3 hours per 24-hour period, for soot-blowing, startup, shutdown and load changes - 100% opacity; Excess emissions, not to exceed 2 hours per 24-hour period, for malfunction - 100% opacity.

4. Source Emission Limiting Standards while Firing No. 6 Residual Oil, No. 2 Fuel Oil, and/or Natural Gas:

a) Particulate Matter: Steady-state - 0.1 lb/MMBtu; Excess emissions, not to exceed 3 hours per 24-hour period, for soot-blowing and load changes - 0.3 lb/MMBtu.

b) Sulfur Dioxide: 2.75 lb/MMBtu heat input.

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- c) Visible Emissions: Steady-state - 40% opacity; Excess emissions not to exceed 3 hours per 24-hour period, for soot-blowing and load changes - 60% opacity.
- d) Excess emissions resulting from malfunction shall be allowed providing (1) best operational practices to minimize emissions are adhered to and (2) the duration of excess emissions shall be minimized but in no case exceed two hours in any 24-hour period unless specifically authorized by the Department for a longer duration.
- e) Excess emissions resulting from startup or shutdown shall be permitted provided that best operational practices to minimize emissions are adhered to and the duration of excess emissions shall be minimized.

5. Source Emissions Monitoring:

- a) Continuous emission monitors (CEMs) for emissions of carbon monoxide (CO), nitrogen oxide (NO_x), sulfur dioxide (SO₂) and opacity shall be operating at the start-up of burning Orimulsion fuel and shall remain in operation throughout the duration of this permit regardless of what type of fuel is being burned.
- b) The CO, NO_x, and SO₂ CEM data shall be averaged hourly. Opacity CEM data shall be averaged every six minutes. This data shall be recorded and retained.
- c) The CEMs shall be maintained, calibrated, and evaluated by the respective Performance Specification Test of 40 CFR Part 60, Appendix B.

6. Compliance Stack Test Requirements:

- a) Particulate Matter: EPA Test Method 5 or 17 (40 CFR 60 Appendix A; July 1989 version) shall be used to conduct eight 3-run steady-state tests and two 3-run soot-blowing tests. The first steady-state test shall be conducted within ten days of start-up of burning Orimulsion Fuel. For each 3-run test, the average result of the three one-hour runs shall be used to determine compliance.
- b) Sulfur Dioxide: EPA Test Method 6C (40 CFR 60, Appendix A; July 1989 version) shall be used to conduct eight 3-run steady-state tests and two 3-run soot-blowing tests. For each 3-run test, the average result of the three one-hour runs shall be used to determine compliance.

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c) Visible Emissions: Opacity CEM with six minute averages.

7. Research Testing Requirements:

a) Sulfuric Acid Mist: EPA Test Method 8 (40 CFR 60, Appendix A) shall be used to conduct one 3-run steady-state test.

b) Nitrogen Oxides (NOx): EPA Test Method 7E (40 CFR 60, Appendix A) shall be used to conduct eight 3-run steady state tests and two 3-run soot-blowing tests.

c) Volatile Organic Compounds (VOC): EPA Test Method 25A (40 CFR 60, Appendix A) shall be used to conduct eight 3-run steady-state tests and two 3-run soot-blowing tests.

d) Trace elements and metals which shall include at least the following: mercury, vanadium, chromium, cadmium, arsenic, nickel, maganese, beryllium, copper, zinc, lead, selenium, phosphorous, thallium, silver, antimony, and barium. The EPA Draft Multimetals train shall be used to conduct one 3-run steady-state test for these elements and metals. A separate Method 5 train shall be used to test for vanadium pentoxide using the analysis method described in the NIOSH Manual of Analytical Methods.

e) Orimulsion fuel shall be sampled and analyzed for percent sulfur content (by weight) once per month and as received per tanker. The Department approved ASTM method of analysis shall be used.

8. Testing Related Requirements:

a) Written notification of compliance test dates shall be given to the Department's Central District and the Bureau Air Regulation at least 15 days prior to testing. The Department shall be verbally notified of test cancellations as soon as possible. Compliance tests that have been cancelled may be verbally rescheduled to a time agreed to by the Department.

b) Testing of trace elements, metals, and sulfuric acid mist shall be conducted with the source operating within 90-100% of its full capacity achievable when burning Orimulsion fuel.

c) At least one 3-run test for particulate matter, sulfur dioxide, nitrogen oxides, and volatile organic compounds shall be conducted with the source operating within 90-100% of its full capacity achievable when burning Orimulsion fuel.

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- d) The stack sampling facility must comply with Rule 17-2.700(4), F.A.C.
- e) Results obtained from the test burn shall be reported monthly to the Department. The monthly reports shall include but not be limited to:
 - i. Orimulsion and any other fuel usage (recorded in barrels, MMBtu, and schedule of days burned),
 - ii. Number of full power test day equivalents during the month,
 - iii. Characteristics of Orimulsion and any other fuel used during the month (percent sulfur, heating value, and percent ash). This includes fuel used for Units 3 and 5,
 - iv. A monthly summary of the hourly averages of NOx and CO CEM data,
 - v. A monthly summary of opacity readings, including a daily log of excess opacity emissions, and
 - vi. Frequency of excess emissions. Exceedances for opacity shall be any 6-minute average above the opacity limit and for SO₂, any hourly average above the SO₂ limit.

Monthly reports shall be submitted to the Bureau of Air Regulation and the Central District office within 21 days following the end of the month.

- f) A copy of the stack emission test results shall be submitted no later than 45 days after the last run when a 3-run test is completed.
- g) A detailed report of the pilot pollution control equipment test results shall be submitted within ninety days after permittee has notified the Department that the Orimulsion test burns have been completed. The report shall include an ultimate analysis of the Orimulsion fuel.

9. Other Requirements:

The permit holder may also need to comply with county, municipal, federal, or other state regulations prior to construction.

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10. Test Length:

The testing of Orimulsion fuel shall be allowed for 90 full-capacity equivalent burn days. With permission from the Department, an additional 30 full-capacity equivalent burn days may be allowed to complete testing if necessary.

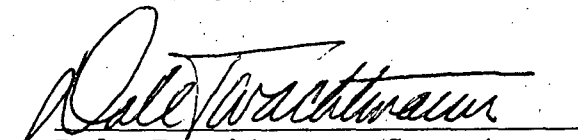
11. Permit Renewal:

While effective, this permit supercedes existing permit No. AO 64-132055. This permit shall expire on June 30, 1992, or at the end of the Orimulsion test burn project, whichever comes first. This permit shall not be renewed or extended. When it expires only permit AO 64-132055 shall be effective.

12. By accepting this permit, the permittee recognizes that it does not constitute a federal PSD permit until such time as the proposed revision of the State Implementation Plan (SIP) is approved by the U.S. EPA. Any construction undertaken by the permittee prior to the approval of the proposed SIP revision is understood to be at the exclusive financial risk of the permittee. No Orimulsion fuel shall be fired until the permittee receives written notice from the Division of Air Resources Management that the SIP has been revised to allow the firing of Orimulsion fuel.

Issued this 4th day
of October, 1990

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION


Dale Twachtman, Secretary