

May 30, 1989

Docket No. 50-302

Mr. W. S. Wilgus
Vice President, Nuclear Operations
Florida Power Corporation
ATTN: Manager, Nuclear Operations
Licensing
P. O. Box 219-NA-2I
Crystal River, Florida 32629

Dear Mr. Wilgus:

SUBJECT: CRYSTAL RIVER UNIT 3 - ISSUANCE OF AMENDMENT RE: CHLORINE AND SULFUR
DIOXIDE TOXIC GAS DETECTION SYSTEMS (TAC NO. 68127)

The Commission has issued the enclosed Amendment No.115 to Facility Operating License No. DPR-72 for the Crystal River Unit No. 3 Nuclear Generating Plant (CR-3). This amendment consists of changes to the Technical Specifications (TSs) in response to your application dated June 22, 1983, as superseded April 25, 1988 and clarified March 31, 1989.

This amendment adds operability, action and surveillance requirements for the chlorine and sulfur dioxide toxic gas detection systems.

A copy of the Safety Evaluation is also enclosed. The Notice of Issuance will be included in the Commission's biweekly Federal Register notice.

Sincerely,

Original signed by

Harley Silver, Project Manager
Project Directorate II-2
Division of Reactor Projects-I/II
Office of Nuclear Reactor Regulation

Enclosures:

1. Amendment No.115 to DPR-72
2. Safety Evaluation

cc w/enclosures:

See next page

[ISSUE OF AMEND/CR-3]

LA:PDN
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PE:PDII
GUnder
04/27/89

PM:PDII
HSilver/jd
05/2/89

D:PDII
HBenkov
04/17/89

ECER
04/1/89

OGC
04/22/89

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Mr. W. S. Wilgus
Florida Power Corporation

Crystal River Unit No. 3 Nuclear
Generating Plant

cc:

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DATED: May 30, 1989

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AMENDMENT NO. 115 TO FACILITY OPERATING LICENSE NO. DPR-72-CRYSTAL RIVER UNIT 3

Docket File

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

FLORIDA POWER CORPORATION
CITY OF ALACHUA
CITY OF BUSHNELL
CITY OF GAINESVILLE
CITY OF KISSIMMEE
CITY OF LEESBURG
CITY OF NEW SMYRNA BEACH AND UTILITIES COMMISSION, CITY OF NEW SMYRNA BEACH
CITY OF OCALA
ORLANDO UTILITIES COMMISSION AND CITY OF ORLANDO
SEBRING UTILITIES COMMISSION
SEMINOLE ELECTRIC COOPERATIVE, INC.
CITY OF TALLAHASSEE

DOCKET NO. 50-302

CRYSTAL RIVER UNIT 3 NUCLEAR GENERATING PLANT

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 115
License No. DPR-72

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Florida Power Corporation, et al. (the licensees) dated June 22, 1983, as superseded April 25, 1988, and clarified March 31, 1989 complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter 1;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

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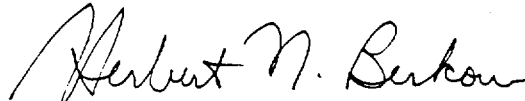
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. DPR-72 is hereby amended to read as follows:

Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 115, are hereby incorporated in the license. Florida Power Corporation shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance and shall be implemented within 30 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Herbert N. Berkow, Director
Project Directorate II-2
Division of Reactor Projects-I/II
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: May 30, 1989

ATTACHMENT TO LICENSE AMENDMENT NO. 115

FACILITY OPERATING LICENSE NO. DPR-72

DOCKET NO. 50-302

Replace the following pages of the Appendix "A" Technical Specifications with the attached pages. The revised pages are identified by amendment number and contain vertical lines indicating the area of change. The corresponding overleaf pages are also provided to maintain document completeness.

<u>Remove</u>	<u>Insert</u>
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--	3/4 3-56
B3/4 3-6	B3/4 3-6

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INSTRUMENTATION

TOXIC GAS SYSTEMS - CHLORINE DETECTION

LIMITING CONDITION FOR OPERATION

3.3.3.11.1 Two independent chlorine detection systems, with their alarm/trip setpoints adjusted to actuate at a chlorine concentration of less than or equal to 5 ppm, shall be OPERABLE.

APPLICABILITY: ALL MODES

ACTION:

- a. With one chlorine detection system inoperable, restore the inoperable detection system to OPERABLE status within 7 days or within the next 6 hours initiate and maintain operation of the Control Room ventilation system in the recirculation mode of operation using the normal duty fans.
- b. With both chlorine detection systems inoperable, within 1 hour initiate and maintain operation of the Control Room ventilation system in the recirculation mode of operation using the normal duty fans.
- c. The provisions of Specification 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.3.3.11.1 Each chlorine detection system shall be demonstrated OPERABLE by performance of a CHANNEL CHECK at least once per 12 hours, a CHANNEL FUNCTIONAL TEST at least once per 31 days and a CHANNEL CALIBRATION at least once per 18 months.

INSTRUMENTATION

TOXIC GAS SYSTEMS - SULFUR DIOXIDE DETECTION

LIMITING CONDITION FOR OPERATION

3.3.3.11.2 Two independent sulfur dioxide detection systems, with their alarm/trip setpoints adjusted to actuate at a sulfur dioxide concentration of less than or equal to 2.4 ppm, shall be OPERABLE.

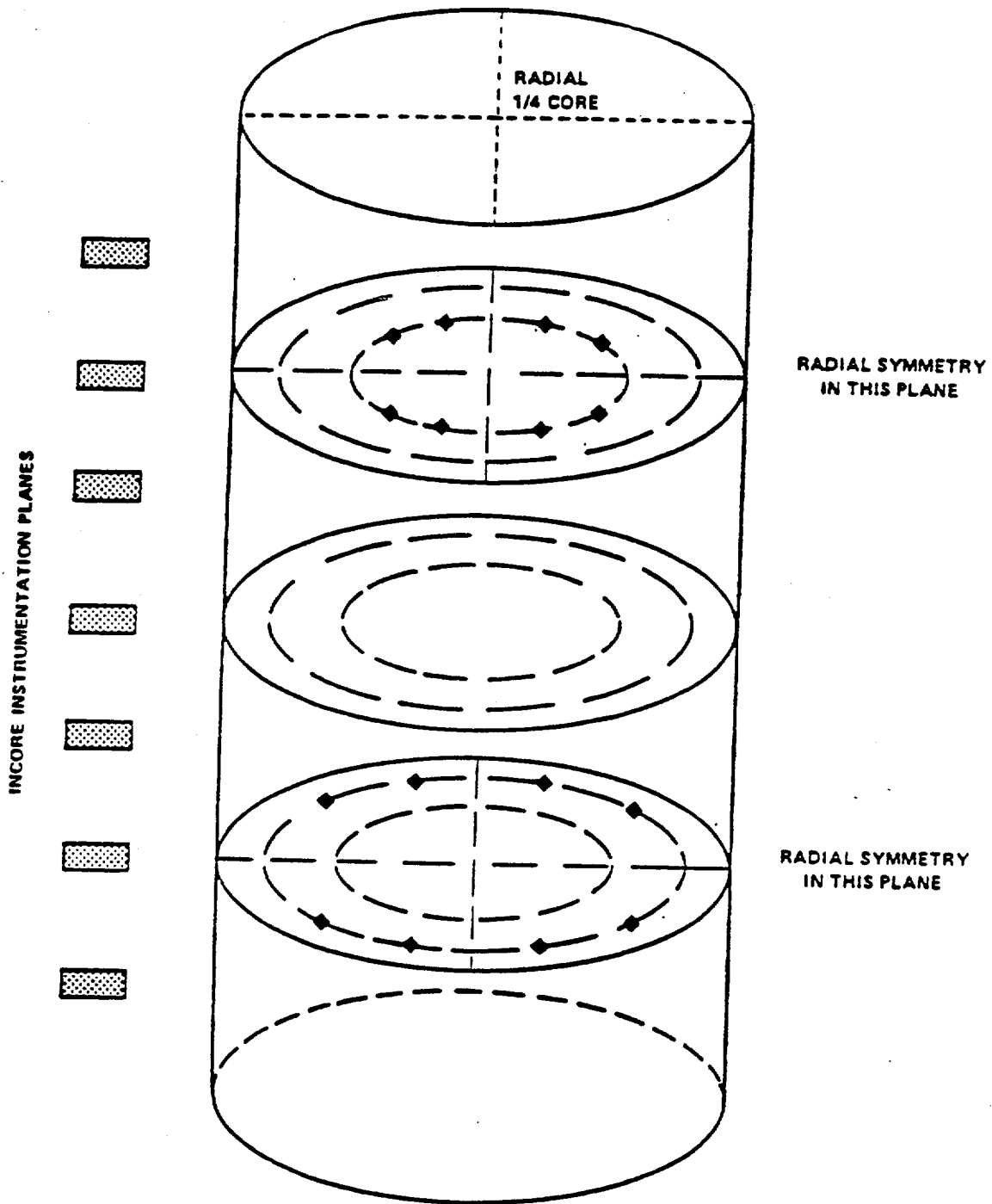
APPLICABILITY: ALL MODES

ACTION:

- a. With one sulfur dioxide detection system inoperable, restore the inoperable detection system to OPERABLE status within 7 days or within the next 6 hours initiate and maintain operation of the Control Room ventilation system in the recirculation mode of operation using the normal duty fans.
- b. With both sulfur dioxide detection systems inoperable, within 1 hour initiate and maintain operation of the Control Room ventilation system in the recirculation mode of operation using the normal duty fans.
- c. The provisions of Specification 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.3.3.11.2 Each sulfur dioxide detection system shall be demonstrated OPERABLE by performance of a CHANNEL CHECK at least once per 12 hours, a CHANNEL FUNCTIONAL TEST at least once per 31 days and a CHANNEL CALIBRATION at least once per 18 months.



Bases Figure 3-2 Incore Instrumentation Specification
 Acceptable Minimum QUADRANT POWER TILT Arrangement

3/4.3 INSTRUMENTATION

BASES

3/4.3.3.8 RADIOACTIVE LIQUID EFFLUENT INSTRUMENTATION

The radioactive liquid effluent instrumentation is provided to monitor and control, as applicable, the releases of radioactive materials in liquid effluents during actual or potential releases of liquid effluents. The alarm/trip setpoints for these instruments shall be calculated in accordance with the procedures in the OFFSITE DOSE CALCULATION MANUAL (ODCM) to ensure that the alarm/trip will occur prior to exceeding the limits of 10 CFR Part 20. The OPERABILITY and use of this instrumentation is consistent with the requirements of General Design Criteria 60, 63 and 64 of Appendix A to 10 CFR Part 50.

3/4.3.3.9 RADIOACTIVE GASEOUS EFFLUENT INSTRUMENTATION

The radioactive gaseous effluent instrumentation is provided to monitor and control, as applicable, the releases of radioactive materials in gaseous effluents during actual or potential releases of gaseous effluents. The alarm/trip setpoints for these instruments are calculated in accordance with the procedures in the OFFSITE DOSE CALCULATION MANUAL (ODCM) to ensure that the alarm/trip will occur prior to exceeding the limits of 10 CFR Part 20. The OPERABILITY and use of this instrumentation is consistent with the requirements of General Design Criteria 60, 63 and 64 of Appendix A to 10 CFR Part 50.

3/4.3.3.10 WASTE GAS DECAY TANK - EXPLOSIVE GAS MONITORING INSTRUMENTATION

The OPERABILITY of the Waste Gas Decay Tank explosive gas monitoring instrumentation or the sampling and analysis program required by this specification provides for the monitoring (and controlling) of potentially explosive gas mixtures in the Waste Gas Decay Tanks.

3/4.3.3.11 TOXIC GAS SYSTEMS

The OPERABILITY of the toxic gas systems ensures that sufficient capability is available to promptly detect and initiate protective action in the event of an accidental toxic gas release. This capability is required to protect control room personnel and is consistent with guidance provided in Regulatory Guide 1.78, "Assumptions for Evaluating the Habitability of a Nuclear Power Plant During a Postulated Chemical Release", June 1974 and Regulatory Guide 1.95, "Protection of Nuclear Power Plant Control Room Operators Against an Accidental Chlorine Release", Revision 1, January 1977.

The chlorine detection system is designed so that a chlorine concentration of 15 ppm by volume is not exceeded in the control room within 2 minutes after detection.

The sulfur dioxide detection system is designed so that a sulfur dioxide concentration of 40 ppm by volume is not exceeded in the control room within 2 minutes after detection.



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
SUPPORTING AMENDMENT NO. 115 TO FACILITY OPERATING LICENSE NO. DPR-72
FLORIDA POWER CORPORATION, ET AL.
CRYSTAL RIVER UNIT NO. 3 NUCLEAR GENERATING PLANT
DOCKET NO. 50-302

INTRODUCTION

By letter dated June 22, 1983, as superseded April 25, 1988 and clarified March 31, 1989, Florida Power Corporation (FPC or the licensee) requested an amendment to the Technical Specifications (TS) appended to Facility Operating License No. DPR-72 for the Crystal River Unit No. 3 Nuclear Generating Plant (CR-3). The proposed amendment would add new specifications 3.3.3.11.1 and 3.3.3.11.2 to the CR-3 TS. These new specifications would add operability, action, and surveillance requirements for the chlorine and sulfur dioxide toxic gas detection systems. This request is in response to NUREG-0737, Item III.D.3.4.

By letter dated March 31, 1989, the licensee provided clarifying information concerning the chlorine detector setpoint. This clarifying information did not alter the action noticed or change the staff's initial determination that the proposed amendment involves no significant hazards considerations.

EVALUATION

An evaluation of CR-3 control room habitability for the accidental release of hazardous chemicals was performed in response to NUREG-0737, Item III.D.3.4. Based on the storage of quantities of chlorine, sulfur dioxide, and ammonia at the CR-3 site, the evaluation indicated that chlorine and sulfur dioxide detectors should be installed in the control complex ventilation system intake duct. The inlet and exhaust dampers of the control complex ventilation system have been interlocked to close on receipt of a signal from the detectors. The detectors also provide a signal to open the recirculation damper to the control complex ventilation system (leaving the normal fans operating) when potentially toxic concentrations of the chemicals are detected.

Control Complex Chlorine Concentration Analysis

Chlorine is used at Crystal River Units 4 and 5 to control fouling of heat transfer surfaces. An analysis of a rupture of one of the chlorine tanks at the Unit 4 and 5 storage area was performed. With a chlorine detector setpoint of 5 ppm, the resultant control room concentration was less than 9.3 ppm. This is less than the chlorine toxicity limit of 15 ppm.

The proposed TS give a chlorine detector setpoint of 5 ppm, which is consistent with both Generic Letter 83-37 and the Standard Technical Specifications for Babcock & Wilcox reactor plants. They also provide action statements and

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surveillance requirements that are consistent with Generic Letter 83-37. Therefore, the staff finds the proposed TS for the chlorine detection system are acceptable.

Control Complex Sulfur Dioxide Concentration Analysis

Sulfur dioxide is used at Crystal River Units 1, 2, 4, and 5. Due to the amount stored and its location, the Unit 1 installation provides the limiting condition. The sulfur dioxide detection system has two independent sets of detectors at the control complex ventilation inlet. An analysis of the rupture of a Unit 1 tank was performed. This analysis showed that if the control complex were isolated on a signal from either of the detectors located at the ventilation inlet, the concentration in the control room after 2 minutes would be 38.2 ppm. This concentration is considered to be acceptable.

The staff has determined that the proposed TS provide assurance that the control room will remain habitable in the event of a rupture of any sulfur dioxide storage tank. Furthermore, the action statements and surveillance requirements are consistent with the guidance provided by Generic Letter 83-37. Therefore, the staff finds the proposed TS for the sulfur dioxide detection system acceptable.

Control Complex Ammonia Concentration Analysis

Ammonia is used at Crystal River Units 4 and 5 to control condensate and feedwater pH. The ammonia storage area is located 3600 feet from the control room ventilation inlet.

The licensee's original submittal provided TS for an ammonia detection system. Further analysis, however, has shown that such a system would be unnecessary. Computer models of the gas plume caused by the rupture one of the ammonia storage tanks show that with no action, the control complex ammonia concentration would reach a maximum of between 12.4 mg/cubic m and 5.1 mg/cubic m. These values are considerably less than the protective action limit of 70 mg/cubic m.

The staff has verified the licensee's calculations and agrees that no ammonia detector is necessary for the CR-3 control room ventilation system.

SUMMARY

The staff has reviewed the licensee's proposed changes to the toxic gas detection system TS and has determined that they provide assurance that sufficient capability is available to detect and initiate protective action in the event of a toxic gas release. They also provide assurance that CR-3 control room operators are adequately protected against the effects of an

accidental toxic gas release. Furthermore, the proposed changes are in accordance with the Standard Technical Specifications for Babcock & Wilcox Pressurized Water Reactors and the model TS provided in Generic Letter 83-37. Based on our review, the changes proposed in this request are adequate and acceptable.

ENVIRONMENTAL CONSIDERATION

This amendment involves a change in the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes to surveillance requirements. We have determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that this amendment involves no significant hazards consideration and there has been no public comment on such finding. Accordingly, this amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of this amendment.

CONCLUSION

We have concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (2) such activities will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Dated: May 30, 1989

Principal Contributors:

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