



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

UNION ELECTRIC COMPANY

DOCKET NO. STN 50-483

CALLAWAY PLANT UNIT NO. 1

FACILITY OPERATING LICENSE

License No. NPF-25

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for license filed by Union Electric Company (licensee), complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's regulations set forth in 10 CFR Chapter I, and all required notifications to other agencies or bodies have been duly made;
 - B. Construction of the Callaway Plant, Unit No. 1 (the facility) has been substantially completed in conformity with Construction Permit No. CPPR-139 and the application, as amended, the provisions of the Act, and the regulations of the Commission;
 - C. The facility will operate in conformity with the application, as amended, the provisions of the Act, and the regulations of the Commission;
 - D. There is reasonable assurance: (i) that the activities authorized by this operating license 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 set forth in 10 CFR Chapter I;
 - E. Union Electric Company is technically qualified to engage in the activities authorized by this license in accordance with the Commission's regulations set forth in 10 CFR Chapter I;
 - F. The licensee has satisfied the applicable provisions of 10 CFR Part 140 "Financial Protection Requirements and Indemnity Agreements," of the Commission's regulations;
 - G. The issuance of this license will not be inimical to the common defense and security or to the health and safety of the public;

- H. After weighing the environmental, economic, technical and other benefits of the facility against environmental and other costs and considering available alternatives, the issuance of this Facility Operating License No. NPF-25, subject to the conditions for protection of the environment set forth in the Environmental Protection Plan attached as Appendix B, is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied; and
 - I. The receipt, possession, and use of source, byproduct and special nuclear material as authorized by this license will be in accordance with the Commission's regulations in 10 CFR Parts 30, 40 and 70.
2. Based on the foregoing findings regarding this facility, Facility Operating License No. NPF-25 is hereby issued to Union Electric Company (the licensee) to read as follows:
- A. The license applies to the Callaway Plant, Unit No. 1, a pressurized water nuclear reactor and associated equipment (the facility), owned by Union Electric Company. The facility is located in central Missouri within Callaway County, Missouri, and is described in the licensee's "Final Safety Analysis Report", as supplemented and amended, and in the licensee's Environmental Report, as supplemented and amended.
 - B. Subject to the conditions and requirements incorporated herein, the Commission hereby licenses Union Electric Company (UE):
 - (1) Pursuant to Section 103 of the Act and 10 CFR Part 50 "Domestic Licensing of Production and Utilization Facilities," UE to possess, use and operate the facility at the designated location in Callaway County, Missouri, in accordance with the procedures and limitations set forth in this license;
 - (2) UE, pursuant to the Act and 10 CFR Part 70, to receive, possess and use at any time special nuclear material as reactor fuel, in accordance with the limitations for storage and amounts required for reactor operation, as described in the Final Safety Analysis Report, as supplemented and amended;
 - (3) UE, pursuant to the Act and 10 CFR Parts 30, 40 and 70, to receive, possess, and use at any time any byproduct, source and special nuclear material as sealed neutron sources for reactor startup, sealed sources for reactor instrumentation and radiation monitoring equipment calibration, and as fission detectors in amounts as required;

- (4) UE, pursuant to the Act and 10 CFR Parts 30, 40 and 70, to receive, possess, and use in amounts as required any byproduct, source of special nuclear material without restriction to chemical or physical form, for sample analysis or instrument calibration or associated with radioactive apparatus or components; and
- (5) UE, pursuant to the Act and 10 CFR Parts 30, 40 and 70, to possess, but not separate, such byproduct and special nuclear materials as may be produced by the operation of the facility.

C. This license shall be deemed to contain and is subject to the conditions specified in the Commission's regulations set forth in 10 CFR Chapter I and is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified or incorporated below:

(1) Maximum Power Level

UE is authorized to operate the facility at reactor core power levels not in excess of 3411 megawatts thermal (100% power) in accordance with the conditions specified herein and in Attachment 1 to this license. The preoperational tests, startup tests and other items identified in Attachment 1 to this license shall be completed as specified. Attachment 1 is hereby incorporated into this license. Pending Commission approval, this license is restricted to power levels not to exceed 5 percent of full power (170 megawatts thermal);

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A and the Environmental Protection Plan contained in Appendix B, both of which are attached hereto, are hereby incorporated into this license. UE shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan;

(3) Environmental Qualification (Section 3.11, SSER #3)*

- (a) Prior to exceeding five percent of rated power, UE shall have qualified the seal water injection filter (Specification M723).

*The parenthetical notation following the title of many license conditions denotes the section of the Safety Evaluation Report and/or its supplements wherein the license condition is discussed.

- (b) Prior to March 31, 1985, UE shall environmentally qualify all electrical equipment accordingly to the provisions of 10 CFR 50.49.
- (c) Prior to restart following the first refueling outage, UE shall have qualified the reactor vessel level instrumentation system high volume sensor.

(4) Seismic and Dynamic Qualification (Section 3.10.1, SSER #3)

Prior to exceeding five percent of rated power, UE shall, for that equipment which is not completely qualified, complete such qualification or submit justification for safe operation at power levels greater than five percent.

(5) Pump and Valve Operability (Section 3.10.2, SSER #3)

Prior to exceeding five percent of rated power, UE shall submit for NRC review and approval, a complete status of the level of pump and valve operability qualification and, for any equipment which is not qualified, justifications for interim operation.

(6) Surveillance of Hafnium Control Rods (Section 4.2.3.1(10), SER and SSER #2)

UE shall perform a visual inspection of a sample of hafnium control rods during one of the first five refueling outages. A summary of the results of these inspections shall be submitted to the NRC.

(7) Fire Protection (Section 9.5.1.7, SER and Section 9.5.1.8, SSER #3)

- (a) Prior to exceeding five percent of rated power, UE shall have operable the Halon systems in the south electrical penetration room (fire area A-17), the thermal detectors inside containment, and the passive fire protection items described in its May 7, 1984 letter complete.
- (b) Within 60 days of acquisition of the 100% power data for thermal and dynamic testing, UE shall have operable the Halon systems in the north electrical penetration room (fire area A-18).
- (c) UE shall maintain in effect all provisions of the approved fire protection program.

- (8) Qualification of Personnel (Section 13.1.2, SSER #3, Section 18, SSER #1)
- (a) UE shall have on each shift operators who meet the requirements described in Attachment 2.
 - (b) UE shall have a senior individual with previous operating experience on a commercial PWR assigned to assist the Plant Manager as an advisor during the startup test program and for one year following full power operation.

(9) NUREG-0737 Conditions (Section 22, SER)

UE shall complete the following conditions to the satisfaction of the NRC. These conditions reference the appropriate items in Section 22.2, "TMI Action Plan Requirements for Applicants for Operating Licenses," in the Safety Evaluation Report and Supplements 1, 2 and 3, NUREG-0830.

(a) Detailed Control Room Design Review (I.D.1, SSER #3)

Prior to exceeding five percent of rated power, UE shall submit the results of the environmental survey of the control room for NRC review and approval. The submittal shall include, for those Human Engineering Discrepancies (HEDs) identified that required correction, the proposed correction and an implementation schedule; and for those HEDs for which no planned correction is proposed, a basis for that determination.

Prior to exceeding five percent of rated power, UE shall submit for review and approval by the NRC staff, a supplemental summary report of the Detailed Control Room Design Review results and a schedule for implementing corrective actions including upgrading of the Emergency Operating Procedures.

(b) Post Accident Sampling (II.B.3, SER, SSER #1, SSER #3)

(1) Prior to exceeding five percent of rated power, UE shall have operable the Post-Accident Sampling System.

(2) Prior to exceeding five percent of rated power, UE shall (1) submit for NRC approval a core damage assessment procedure which incorporates, as a minimum, hydrogen levels, reactor coolant system pressure, core exit thermocouple temperatures and containment radiation levels in addition to radionuclide data; (2) demonstrate applicability of procedures and instrumentation in the post-accident water chemistry and radiation environment, and commit to retraining operators on semi-annual basis.

(c) Inadequate Core Cooling Instrumentation (II.F.2, SSER #3)

Prior to exceeding five percent of rated power, UE shall provide for NRC review and approval the results of the qualification tests for the Class 1E/non-Class 1E isolation devices used in the plasma display system.

(d) Emergency Response Capabilities (Generic Letter 82-33, Supplement 1 to NUREG-0737)

Prior to restart following the first refueling outage, UE shall have a fully functional Technical Support Center and Emergency Operations Facility and a fully operable Emergency Response Facilities Information System (ERFIS).

(e) Regulatory Guide 1.97 (Section 7.5.2.3, SSER #3)

Prior to restart following the first refueling outage, UE shall have installed and operable the following instrumentation:

- 1) Source range instrumentation qualified to post-accident conditions
- 2) Reactor vessel water level instrumentation
- 3) Subcooling monitors
- 4) Radiation monitors for releases from steam generator safety/relief valves or atmospheric dump valves, and
- 5) Auxiliary feedwater pump turbine exhaust monitor

(10) Post-Fuel-Loading Initial Test Program (Section 14, SER)

UE shall conduct the post-fuel-loading initial test program described in Chapter 14 of the FSAR, as amended, without making any major modifications unless such modifications have prior NRC approval. Major modifications are defined as:

- (a) elimination of any safety-related test*
- (b) modification of objectives, test method, or acceptance criteria for any safety-related test
- (c) performance of any safety-related test at a power level different from that stated in the FSAR by more than 5 percent of rated power

*Safety-related tests are those tests which verify the design, construction, and operation of safety-related systems, structures, and equipment.

- (d) failure to satisfactorily complete the entire initial start-up test program by the time core burnup equals 120 effective full power days
- (e) deviation from initial test program administrative procedures or quality assurance controls described in the FSAR
- (f) delays in test program in excess of 30 days (14 days if power level exceeds 50 percent), concurrent with power operation. If continued power operation is desired during a delay, the licensee shall provide justification that adequate testing has been performed and evaluated to demonstrate that the facility can be operated at the planned power level with reasonable assurance that the health and safety of the public will not be endangered.

(11) Inservice Inspection Program (Sections 5.2.4 and 6.6, SER)

Within nine months of the date of this license, UE shall submit for staff review and approval, the inservice inspection program which conforms to the ASME Code in effect 12 months prior to the date of issuance of this license.

(12) Emergency Planning

In the event that the NRC finds that the lack of progress in completion of the procedures in the Federal Emergency Management Agency's final rule, 44 CFR Part 350, is an indication that a major substantive problem exists in achieving or maintaining an adequate state of emergency preparedness, the provisions of 10 CFR Section 50.54(s)(2) will apply.

(13) Steam Generator Tube Rupture (Section 15.4.4, SSER #3)

Prior to restart following the first refueling outage, UE shall submit for NRC review and approval an analysis which demonstrates that the steam generator single-tube rupture (SGTR) analysis presented in the FSAR is the most severe case with respect to the release of fission products and calculated doses. Consistent with the analytical assumptions, the licensee shall propose all necessary changes to Appendix A to this license.

(14) Low Temperature Overpressure Protection (Section 15, SSER #3)

By January 1, 1985, UE shall submit for NRC review and approval a description of equipment modifications to the residual heat removal system (RHRS) suction isolation valves and to closure circuitry which conform to the applicable staff requirements (SRP 5.2.2). Within one year of receiving NRC approval of the modifications, UE shall have the approved modifications installed. Alternately, by January 1, 1985, UE shall provide acceptable justification for reliance on administrative means alone to meet the staff's RHRS isolation requirements, or otherwise, propose changes to Appendix A to this license which remove reliance on the RHRS as a means of low temperature overpressure protection.

(15) LOCA Reanalysis (Section 15, SSER #3)

Prior to restart following the first refueling outage, UE shall submit for NRC review and approval a reanalysis for the worst large break LOCA using an approved ECCS evaluation model. At this time that model is the 1981 Westinghouse model. A modified version of the 1981 model which includes the BART computer code may be used.

(16) Generic Letter 83-28

UE shall submit responses to and implement the requirements of Generic Letter 83-28 on a schedule which is consistent with that given in its May 21, 1984 letter.

- D. An Exemption from certain requirements of Appendix G to 10 CFR Part 50, are described in the Safety Evaluation Report. This exemption is authorized by law and will not endanger life or property or the common defense and security and are otherwise in the public interest. Therefore, this exemption is hereby granted pursuant to 10 CFR 50.12. With the granting of this exemption the facility will operate, to the extent authorized herein, in conformity with the application, as amended, the provisions of the Act, and the rules and regulations of the Commission.
- E. UE shall maintain in effect and fully implement all provisions of the Commission approved Physical Security Plan, Guard Training and Qualification Plan, and Contingency Plan, including amendments made pursuant to the authority of 10 CFR 50.54(p). The approved plans which contain Safeguards Information and are required to be protected against unauthorized disclosure in accordance with 10 CFR 73.21 are collectively entitled: Union Electric Company, Callaway Plant Physical Security Plan, Revision 0, transmitted by letter dated October 19, 1979, Revision 1, transmitted by letter dated September 8, 1981, Revision 2, transmitted by letter dated September 21, 1981, Revision 3, transmitted by letter dated February 1, 1984, as amended by letter dated May 30, 1984; Safeguards Contingency Plan Revision 0,

transmitted by letter dated October 19, 1979, Revision 1 transmitted by letter dated June 17, 1981, corrections transmitted by letter dated September 8, 1981, no Revision 2 transmitted, Revision 3 transmitted by letter dated February 1, 1984; Guard Training and Qualification Plan Revision 0, transmitted by letter dated May 15, 1981, Revision 1, transmitted by letter dated September 8, 1981, corrections transmitted by letter dated September 21, 1981, no Revision 2 transmitted, Revision 3, transmitted by letter dated February 1, 1984.

- F. With the exception of 2.C(2) UE shall report any violations of the requirements contained in Section 2.C, and E of this license within 24 hours. Initial notification shall be made in accordance with the provisions of 10 CFR 50.72 with written followup in accordance with the procedures described in 10 CFR 50.73(b), (c), (d), and (e).
- G. UE shall have and maintain financial protection of such type and in such amounts as the Commission shall require in accordance with Section 170 of the Atomic Energy Act of 1954, as amended, to cover public liability claims.
- H. This license is effective as of the date of issuance and shall expire at Midnight on June 11, 2024.

FOR THE NUCLEAR REGULATORY COMMISSION

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Harold R. Denton, Director
Office of Nuclear Reactor Regulation

Attachments/Appendices:

- 1. Attachment 1
- 2. Attachment 2
- 3. Appendix A - Technical Specifications (NUREG-1058)
- 4. Appendix B - Environmental Protection Plan

Date of Issuance: June 11, 1984

*SEE PREVIOUS PAGE FOR CONCURRENCES
(RETYPE 6/4/84 kab)

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| 05/22/84 | 05/22/84 | 05/23/84 | 05/30/84 | 06/01/84 | 06/ /84 | 06/ /84 |

ATTACHMENT 1

This attachment identifies one preoperational test, and other items which must be completed to the Commission's satisfaction in accordance with the operational modes as identified below.

- A. The following preoperational test must be completed prior to proceeding to Operational Mode 2 (initial criticality):

CRDM Cooling Test (CS-03GN02)

- B. The following items must be completed prior to proceeding to Operational Mode 2 (initial criticality):

The licensee shall: (1) perform testing of the engineering safety features actuation system and reactor protection system instrumentation channels to demonstrate four channel power assignment independence or (2) demonstrate that the instrumentation systems are acceptable by other means, such as testing, already performed in the component test program.

- C. The following items must be completed prior to proceeding to Operational Mode 1 (Power Operation):

1. The licensee shall evaluate/validate natural circulation cooldown procedures based on results of the Natural Circulation Test (ETT-ZZ-09240).
2. The licensee shall document the adequacy of the margin to trip for 4160V, Class IE breakers under maximum load conditions. The documentation shall be provided to the NRC Region III Office.
3. The licensee shall perform an evaluation to determine the representativeness of iodine and particulate samples collected by the Unit Vent Sampling System.
4. The licensee shall modify door 33044 (turbine building to auxiliary building) to permit access route for the collection of post-accident samples.
5. The licensee shall evaluate the adequacy of the mounting of the diesel generator control panels.

- D. The licensee shall satisfactorily resolve those deficiencies in accordance with the schedule shown on the Master Tracking System dated May 25, 1984. The licensee shall notify a representative of the NRC Resident Inspectors Office prior to extending the resolution of individual items listed.

- E. The licensee shall implement Radiation/Chemical Technician refresher training within six months following fuel load.

- F. The licensee shall install a permanent area monitor on the manipulator crane prior to the entering Mode 6 (refueling mode).
- G. The licensee shall complete the following fire protection items prior to exceeding 5% power:
 - 1. Installation and testing of emergency lighting in the areas needed for operation of safe shutdown equipment and in access and egress routes thereto.
 - 2. Implementation of adequate communications to support shutdown from outside the control room.
 - 3. Prepare and implement procedures which specify local closing of pressurizer Power Operated Relief Valve (PORV) block valves in the event of spurious PORV actuation during a control room fire.
 - 4. Prepare and implement procedures specifying necessary on-shift staffing levels to support concurrent remote shutdown and fire brigade activities.
 - 5. Prepare and implement procedures prescribing manual loading of diesel generators if required during a control room fire.
 - 6. Prepare and implement procedures specifying periodic verification of diesel generator fuel oil availability and diesel generator fuel oil transfer pump restoration in the event that pump control is disabled during a control room fire.
 - 7. Successful testing of the control room Halon systems. In the interim, Technical Specification required compensatory measures will be implemented.

ATTACHMENT 2

Operating Staff Experience Requirements

UE shall have a licensed senior operator on each shift who has had at least six months of hot operating experience on a same type plant, including at least six weeks at power levels greater than 20% of full power, and who has had start-up and shutdown experience. For those shifts where such an individual is not available on the plant staff, an advisor shall be provided who has had at least four years of power plant experience, including two years of nuclear plant experience, and who has had at least one year of experience on shift as a licensed senior operator at a similar type facility. Use of advisors who were licensed only at the RO level will be evaluated on a case-by-case basis. Advisors shall be trained on plant procedures, technical specifications and plant systems, and shall be examined on these topics at a level sufficient to assure familiarity with the plant. For each shift, the remainder of the shift crew shall be trained in the role of the advisors. The training of the advisors and remainder of the shift crew shall be completed prior to exceeding 5% power. Prior to exceeding 5% power, UE shall certify to the NRC the names of the advisors who have been examined and have been determined to be competent to provide advice to the operating shifts. These advisors shall be retained until the experience levels identified in the first sentence above have been achieved. The NRC shall be notified at least 30 days prior to the date UE proposes to release the advisors from further service.