



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

IOWA ELECTRIC LIGHT AND POWER COMPANY  
CENTRAL IOWA POWER COOPERATIVE  
CORN BELT POWER COOPERATIVE

DOCKET NO. 50-331

DUANE ARNOLD ENERGY CENTER

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 150  
License No. DPR-49


1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Iowa Electric Light and Power Company, et al., dated December 11, 1987 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 I;
  - 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.
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-49 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix , as revised through Amendment No. 150 , are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

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

FOR THE NUCLEAR REGULATORY COMMISSION



For Kenneth E. Perkins, Director  
Project Directorate III-3  
Division of Reactor Projects - III,  
IV, V and Special Projects

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: June 23, 1988

ATTACHMENT TO LICENSE AMENDMENT NO. 150

FACILITY OPERATING LICENSE NO. DPR-49

DOCKET NO. 50-331

Replace the following pages of the Appendix A Technical Specifications with the enclosed pages. The revised areas are indicated by marginal lines.

REMOVE

1.0-6  
3.2-24  
3.2-25  
3.2-27  
3.2-29  
3.2-33

INSERT

1.0-6  
3.2-24  
3.2-25  
3.2-27  
3.2-29  
3.2-33

## 22. INSTRUMENTATION

- a. Instrument Calibration or Channel Calibration - An Instrument Calibration means the verification or adjustment of an instrument signal output so that it corresponds, within acceptable range and accuracy, to a known value(s) of the parameter which the instrument monitors. The acceptable range and accuracy of an instrument and its setpoint are given in the system design control document and its setpoint is used in the Technical Specifications. Instrument calibration may be performed by any series of sequential, overlapping, or total channel steps such that the entire instrument is calibrated. Instrument calibration includes the Instrument or Channel Functional Test, as appropriate.
- b. Channel - A channel is an arrangement of a sensor and associated components used to evaluate plant variables and produce discrete outputs used in logic. A channel terminates and loses its identity where individual channel outputs are combined in logic.
- c. Instrument or Channel Functional Test - An Instrument or Channel Functional Test for
  - (1) Analog channels means the injection of a simulated signal into the channel as close to the sensor as practicable to verify the proper response, alarm, and/or initiating action.
  - (2) Bistable channels means the injection of a simulated signal into the sensor to verify the proper response, alarm and/or initiating action.
- d. Instrument or Channel Check - An instrument or channel check is a qualitative determination of acceptable operability by observation of instrument behavior during operation. This determination shall include, where possible, comparison of the instrument or channel with another independent instrument measuring the same variable.
- e. Logic System Functional Test - A Logic System Functional Test shall be a test of all logic components, i.e., relays and contacts, of a logic circuit that perform a safety function, from sensor through and including the actuated device, to verify OPERABILITY. The Logic System Functional Test may be performed by any series of sequential, overlapping or total system steps such that the entire logic system is tested.
- f. Trip System - A trip system means an arrangement of instrument channel trip signals and auxiliary equipment required to initiate action to accomplish a protective trip function. A trip system may require one or more instrument channel trip signals related to one or more plant parameters in order to initiate trip system action. Initiation of protective action may require the tripping of a single trip system or the coincident tripping of two trip systems.
- g. Protection Action - An action initiated by the protection system when a limit is reached. A protective action can be at a channel or system level.

TABLE 4.2-A  
MINIMUM TEST AND CALIBRATION FREQUENCY FOR PCIS

<u>Instrument Channel (5)</u>	<u>Instrument Functional Test (9)</u>	<u>Calibration Frequency (9)</u>	<u>Instrument Check</u>
1) Reactor Low Pressure (Shutdown Cooling Permissive)	(1)	Once/3 months	None
2) Reactor Low-Low Water Level	(1)	Once/3 months	Once/shift
3) Main Steam High Temp.	(1)	Annual	Once/day
4) Reactor Low Water Level	(1)	Annual	Once/shift
5) Main Steam High Flow	(1)	Once/3 months	Once/shift
6) Main Steam Low Pressure	(1)	Once/3 months	None
7) Reactor Water Cleanup High Flow (7)	(1)	Once/3 months	Once/day
8) High Drywell Pressure	(1)	Once/3 months	None
9) Reactor Cleanup Area High Temp. (8)	(1)	Annual	None
10) High Radiation Main Steam Line Tunnel	(1)	Once/operating cycle	Once/shift
11) Loss of Main Condenser Vacuum	(1)	Annual	None
<u>Logic System Functional Test (6)</u>	<u>Logic Test Frequency</u>		
1) Main Steam Line Isolation Valves Main Steam Line Drain Valves Reactor Water Sample Valves	Once/operating cycle		
2) RHR - Isolation Valve Control Shutdown Cooling Valves	Once/operating cycle		
3) Reactor Water Cleanup Isolation	Once/operating cycle		

3.2-24

Amendment No. 84, 122, 142, 150

TABLE 4.2-A (Continued)

MINIMUM TEST AND CALIBRATION FREQUENCY FOR PCIS

<u>Logic System Functional Test (6)</u>	<u>Logic Test Frequency</u>
4) Drywell Isolation Valves TIP Withdrawal Atmospheric Control Valves Sump Drain Valves	Once/operating cycle
5) Standby Gas Treatment System Reactor Building Isolation	Once/operating cycle

TABLE 4.2-B (Continued)

## MINIMUM TEST AND CALIBRATION FREQUENCY FOR CSCS

<u>Logic System Functional Test (6)</u>	<u>Logic Test Frequency</u>
1) Core Spray Subsystem	Once/operating cycle
2) Low Pressure Coolant Injection Subsystem	Once/operating cycle
3) Containment Spray Subsystem	Once/operating cycle
4) HPCI Subsystem	Once/operating cycle
5) HPCI Subsystem Auto Isolation	Once/operating cycle
6) ADS Subsystem (11)	Once/operating cycle
7) RCIC Subsystem Auto Isolation	Once/operating cycle
8) Area Cooling for Safeguard System	Once/operating cycle
9) Low-Low Set Function	Once/operating cycle

TABLE 4.2-D  
 MINIMUM TEST AND CALIBRATION FREQUENCY FOR RADIATION MONITORING SYSTEMS

<u>Instrument Channels</u>	<u>Instrument Functional Test (9)</u>	<u>Calibration (9)</u>	<u>Source Check</u>	<u>Instrument Check</u>
1) Refuel Area Exhaust Monitors	Once/3 months	Once/operating cycle	Once/month	Once/day
2) Reactor Building Area Exhaust Monitors	Once/3 months	Once/operating cycle	Once/month	Once/day
3) Offgas Post-treatment Radiation Monitors	Once/3 months (10)	Once/operating cycle	Once/month	Once/day
4) Offgas Pre-treatment Radiation Monitors	Once/3 months (10)	Once/operating cycle	Once/month	Once/day
<u>Logic System Functional Test (6)</u>	<u>Simulated Automatic Isolation and Logic Test Frequency (9)</u>			
1) Reactor Building Isolation	Once/operating cycle			
2) Standby Gas Treatment System Actuation	Once/operating cycle			
3) Steam Jet Air Ejector Offgas Line Isolation	Once/operating cycle			
4) Steam Jet Air Ejector Charcoal Bed Bypass	Once/operating cycle			



These instrument channels will be calibrated using simulated electrical signals.

4. Deleted
5. Reactor low water level, high drywell pressure and high radiation main steam line tunnel are also included on Table 4.1-2.
6. The logic system functional tests shall include a calibration of time delay relays and timers necessary for proper functioning of the trip systems.
7. These signals are not PCIS trip signals but isolate the Reactor Water Cleanup system only.
8. This instrumentation is excepted from the functional test definition. The functional test will consist of comparing the analog signal of the active thermocouple element feeding the isolation logic to a redundant thermocouple element.
9. Functional tests and calibrations are not required on the part of the system that is not required to be operable or is tripped. Functional tests shall be performed prior to returning the system to an operable status with a frequency not less than once per month. Calibrations shall be performed prior to returning the system to an operable status with a frequency not less than those defined in the applicable table. However, if maintenance has been performed on those components, functional tests and calibration shall be performed prior to returning to service.
10. The Instrument Functional Test shall also demonstrate that control room alarm annunciation occurs if any of the following conditions exist:
  1. Instrument indicates measured levels above the alarm/trip setpoint.
  2. Instrument indicates a downscale failure.
  3. Instrument controls not set in operate mode.
11. A functional test shall be performed for the ADS manual inhibit switches as part of the ADS subsystem tests.