

8005140568

U.S. NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT

REGION III

Report No. 50-409/80-02
Docket No. 50-409 License No. DPR-45
Licensee: Dairyland Power Cooperative
2615 East Avenue, South
La Crosse, Wisconsin

Facility Name: La Cross Boiling Water Reactor

Inspection At: La Crosse Site, Genoa, WI

Inspection Conducted: February 11-15, 1980

Inspectors: *K.R. Ridgway*
K. R. Ridgway

March 14, 1980

K. R. Baker (February 14 & 15, 1980)

K.R. Baker
Approved By: K. R. Baker, Acting Chief,
Projects Section 3-2

3/17/80

Inspection Summary

Inspection on February 11-15, 1980 (Report no. 50-409/80-02)

Areas Inspected: Routine, unannounced inspection of the licensee's training and retraining programs; surveillance activities; calibration program; procedure changes with regard to Small Break Loss of Coolant Accidents; and followup actions relative to IE Bulletins, IE Circulars, Licensee Event Reports, and special reports. The inspection involved 45 hours onsite by two NRC inspectors.

Results: No items of noncompliance were identified in the ten areas inspected.

DETAILS

1. Persons Contacted

- *R. Shimshak, Plant Superintendent
- *J. Parkyn, Assistant Plant Superintendent
- *G. Boyd, Operations Supervisor
- *L. Kelley, Assistant to Operations Supervisor & Training Supervisor
- *L. Goodman, Operations Engineer, Nuclear Engineering Services
- L. Krajewski, Health and Safety Supervisor
- H. Towsley, Quality Assurance Supervisor
- S. Rafferty, Reactor Engineer
- W. Angle, Process Engineer
- J. Gallaher, Shift Supervisor
- W. Nowicki, Supervisor, Instrument & Electrical
- R. Ganser, Shift Supervisor in Training
- R. Christians, Operator
- D. Croonguist, Operator
- J. Crothers, Operator
- R. Thorson, Auxillary Operator

In addition, the inspector observed and held discussions with other engineers, plant equipment operators, reactor operators, assistants, and plant attendants.

*Denotes those present at the exit interviews.

2. General

- a. The facility experienced an unplanned three day outage on February 1, 1980 caused by undervoltage in the Turbine Building Motor Control Center. A through inspection of circuits failed to reveal the exact cause. Following the trip, the 1A 2400 V Reserve Feed Breaker (1ARFB) closed to supply outside service but failed to stay closed. The 1A Emergency Diesel Generator started normally and supplied the 1A 480V Bus. The 1ARFB malfunction was attributed to a worn mechanical linkage which was repaired. Three other similar breakers were inspected and determined to be satisfactory.
- b. On February 4, 1980, License Amendment No. 18 was issued permitting the increase of fuel storage from 134 to 440 fuel assemblies. The new fuel racks, designed by Nuclear Engineering Services and fabricated by Metal Products Co., are scheduled for delivery early in March with installation in May.
- c. On February 2, 1980, License Amendment No. 19 was issued permitting the maximum average fuel assembly exposure to be increased from 15,000 MWD/MTU to 15,300.

- d. Since the last inspection, the licensee has hired an electrical/instrument engineer, an operations engineer, two quality assurance technicians and an auxiliary operator.

3. Training

The inspector reviewed the training program for changes since the last inspection in this area. Only minor changes have been made and these were found to be in conformance with Technical Specification and training program commitments. Individual training records of a variety of employees were examined to determine that the training program was functioning. Several employees were interviewed to verify that the training was being carried out.

No items of noncompliance were identified.

4. Requalification Training

The inspector reviewed changes made in the requalification training program since the last inspection of this area. Only minor changes had been made in Issue 1 of Administrative Control Procedure (ACP-21.2), LACBWR Operators - Senior Operators Requalification Program, and these conformed to Technical Specification commitments. There had been no changes in the training manual. The requalification training consists of an annual review of all program areas including formal lectures and a quiz in each of the seven sections for Operators and eight sections for Senior Operators. At the end of the annual review, a comprehensive examination of all areas is conducted. The inspector noted that the last annual examination conducted in December, 1979 was orientated more toward emergency operations than former exams.

The inspector reviewed individual files to determine that the re-training program was functioning as described, that attendance at required lectures and control manipulations were documented. Interviews with employees verified that the records were valid.

No items of noncompliance were identified.

5. Surveillance

The inspector selected and reviewed surveillance tests performed during the past year upon equipment in seven safety related systems. The systems and surveillance tests were:

- a. Reactivity Control and Power Distribution
Data Sheet N-9, Monthly tests of Scram Controls.

b. Instrumentation

Data Sheet N-6, Wide Range Power Channel & Automatic Gain Control.

c. Reactor Coolant System

(1) Special Procedure 76-C1, Water Level Probe Test.

(2) Data Sheet S-1, Reactor Water Level Channel No. 1.

d. Emergency Core Cooling System

Data Sheet 17.5.1, Semi-annual Test of Alternate Core Spray Systems.

e. Containment Systems

Data Sheet 4.1, Containment Isolation Testing: Containment High radiation and High Pressure.

f. Plant and Electrical Power Systems

Data Sheet 23.4, Monthly Test of the 1B Emergency Diesel Generator.

g. Fire Protection/Prevention Systems

(1) Data Sheet 7.4.3, Monthly Diesel Fire Pump Test.

(2) Data Sheet 8.4.7, Semi Annual Test of Fire Alarms.

The above surveillance tests were reviewed to determine that:

a. The tests conformed to Technical Specification requirements.

b. Tests results were reviewed, approved and corrective actions taken.

c. Tests were performed on schedule by qualified personnel.

d. Test procedures covered prerequisites and preparations, acceptance criteria, and instructions to insure that equipment is returned to operational status.

February 7, 1980 the inspectors observed the performance of monthly tests of Scram Contacts on Safety Circuit No. 1. These tests included the testing of high and low annunciators and safety circuit trip by the Reactor Water Level, Pressure, Flow-Power and Low Recirculation Flow.

No items of noncompliance were identified.

6. Calibration

The inspector selected and reviewed various calibrations made on components and equipment associated with safety related systems. The systems and calibrations selected were:

- a. Reactivity Control and Power Distribution
 - (1) Data Sheet N-6, Wide Range Power Channel No. 6 Calibration.
 - (2) Data Sheet N10-A-2, Automatic Gain Control Pressure Transmitter - Channel 6 Calibration.
- b. Reactor Coolant System
Data Sheet 5-7, Reactor Water Level Calibration.
- c. Emergency Core Cooling System
Data Sheet 4.4, Containment Pressure Switch Calibration.
- d. Containment System
Data Sheet 6.4-8, Vacuum Switch Calibration.
- e. Plant and Electrical Power Systems
Data Sheet 13.6.2 Refueling test of 2400V 1A & 1B Bus Undervoltage Relays.

The inspector also selected calibrations of equipment associated with safety related systems but not required by Technical Specifications. These were:

- a. Reactor Pressure Heise Gauge at the remote operations station (also used for hydrostatic tests of the Pressure Vessel).
- b. Overhead Storage Tank Liquid Level and low level annunciation.
- c. Fuel Element Storage Well Temperature.
- d. Main Steam Flow.
- e. Boron Tank Level Indication & Annunciation.

The above calibration procedures were reviewed to determine that:

- a. Limiting Condition of Operation were observed during calibrations.
- b. The procedures included:
 - (1) Stepwise instructions.
 - (2) Acceptance criteria.
 - (3) Review and approval.
- c. Equipment is returned to normal operating condition following calibration.
- d. The procedure would result in an acceptable calibration.

The inspector reviewed the calibrations listed above to determine that:

- a. Required frequencies were met.
- b. Qualified personnel performed the work.
- c. Calibration results were reviewed and approved.
- d. Gauges and instruments used in the procedures:
 - (1) Had been calibrated and the calibration accuracy was traceable to the National Bureau of Standards.
 - (2) Were stored and handled properly.

No items of noncompliance were identified.

7. Followup on Licensee Event Reports (LER's)

The inspector reviewed the following LER's to determine if the reports were correct and if the evaluations performed and corrective actions taken were appropriate and complete as stated in the LER.

- a. (Closed) LER 50-409/79-18, A design review performed by the vendor determined that containment isolation valves might not close under the worst containment pressure conditions following a Loss of Coolant Accident (LOCA). To resolve this problem the licensee has approved a Facility Change to modify the valves, restricting the open position to about 45°, thereby, meeting the design basis.

- b. (Closed) LER 50-409/79-19, Failure of the Containment Building emergency airlock to pass a Type B leak rate test. The leak was traced to a mechanical seal at the exterior airlock wall, therefore, the inner airlock door maintained containment integrity. The worn seal was replaced and added to the preventive maintenance schedule of the emergency airlock. A subsequent Type B leak test was satisfactorily passed.

8. Followup of IE Bulletins

- a. (Open) IE Bulletin 79-23, Potential Failure of Emergency Diesel Generator Field Exciter Transformer. The licensee had determined that there were no interconnections between the low KVA rated transformers and high KVA rated Emergency Diesel Generators. The 1A Diesel Generator had been tested with a 225 KW load for 24 hours, however, records for the 1B Generator review had not been located.
- b. (Closed) IE Bulletin 79-26, Boron Loss from BWR Control Blades. LACBWR Control Blades are fabricated of different materials than General Electric BWR's. Boron Carbide is in the form of pellets and the tubing containing the pellets is Inconel vs stainless steel. There has been no evidence of cracking in the Inconel tubing and the greatest B¹⁰ depletion has been calculated to be 29.7 percent. The licensee has had in force a program of rotating blades, which have experienced significant exposure to core positions where they are withdrawn during operation and receive little further exposure. The licensee plans to examine a control blade during the 1981 refueling.

9. Followup on IE Circulars (IEC)

The inspector reviewed the Licnesees's evaluation of the following IEC's to determine that any necessary actions had been taken:

- a. IEC 79-23, Motor Starters and Contactors Failed to Operate.
- b. IEC 79-24, Proper Installation and Calibration of Core Spray Pipe Break Detection Equipment on BWR's.
- c. IEC 79-25, Shock Arrestor Strut Assembly Interference.
- d. IEC 80-01, Service Advice for GE Induction Disc Relays.

10. Review of Periodic and Special Reports

The inspector reviewed the following reports for timeliness of submittal and adequacy of information submitted:

- a. Monthly Operating Data Reports for September 1979 through January, 1980.
 - b. Special Report No. 79-03, August 28, 1979.
 - c. Special Report No. 79-04, January 15, 1980.
 - d. Special Report No. 80-01, February 15, 1980.
11. Followup on Previous Noncompliance and Open Inspection Items (OII)
- a. (Closed) Infraction (OII 79-11).^{1/} Failure to provide timely formal reviews and documentation of incident reports. By a review of records and interviews with personnel the inspector verified that the licensee has promptly reviewed, documented and publicized subsequent incident reports.
 - b. (Closed) (OII 79-10).^{2/} The licensee has developed and implemented a shutdown checklist as recommended in ANSI Standard 18.7 (1972).
 - c. (Closed) (OII 78-10).^{3/} The licensee has replaced barriers that were flammable with inflammable barriers in Allis Chalmers circuit breakers, LA 600-480V.
12. Review of TMI Lessons Learned Small Break Loss of Coolant Accident Considerations
- a. Procedure Review
 - (1) The following procedures were reviewed:
 - 3.3.3 Primary System Leak dated December, 1979
 - 3.3.3.2 Major Primary Leak Procedure dated December, 1979
 - (2) Procedures have been reviewed and approved as required by Technical Specification 3.8.
 - (3) The procedures conform to the guidelines contained in the Licensee's letters dated December 6, 1979, December 20, 1979 and January 31, 1980.
 - (4) The procedures appear to be concise and do not require numerous cross references which could lead to operator confusion.

^{1/} IE Inspection Report No. 50-409/79-18.

^{2/} Ibid.

^{3/} IE Inspection Report No. 50-409/78-03.

- (5) Proper precautions are provided in the procedure. Where appropriate they are repeated in the procedure.
- (6) The procedure does not prohibit the use of loop isolation valves to isolate the break. This is consistent with licensee's letter dated December 11, 1979.^{4/}
- (7) Table 1 lists the instrumentation/equipment/valves/systems the licensee uses in the procedures. The table also identifies the licensee's evaluation of environmental qualifications and redundancy.
- (8) The inspector discussed improvements that could be made in the procedures to simplify the procedure and to provide direct guidance on detecting the failure of 1½ inch HPCS line. The licensee at the exit interview stated the comments would be considered in revision to the procedure.
- (9) The licensee's letter of December 6, 1979 stated the procedures would address the instrumentation to be used to detect inadequate core cooling - the procedures only discuss detection of adequate core cooling. Possible methods to detect inadequate cooling was discussed with the licensee. The January 31, 1980 letter discusses the use of vessel water level as presently described in the procedures.

b. Operator Training and Operator Interviews

During December, 1979, the licensee had provided formal training with control room walk through to all operators on actions to be taken following a SBLOCA. In addition the annual requalification examination given in December had been slanted more toward emergency conditions than in the past and included questions on SBLOCA reactions.

c. Operator Interviews

The inspectors interviewed five licensed operators. The operators interviewed were one staff SRO, one shift supervisor, one SRO who stands shift work and two shift RO's.

The operators interviewed:

- (1) Knowledgeably discussed the symptoms and transient response characteristics of the plant with respect to a SBLOCA.
- (2) Demonstrated a knowledge of the procedures to be used for a SBLOCA, including the immediate actions required.

^{4/} LAC-6688, Frank Linder, General Manager to D. L. Ziemann, Chief OR Branch dtd 12/11/79.

- (5) Proper precautions are provided in the procedure. Where appropriate they are repeated in the procedure.
- (6) The procedure does not prohibit the use of loop isolation valves to isolate the break. This is consistent with licensee's letter dated December 11, 1979.^{4/}
- (7) Table 1 lists the instrumentation/equipment/valves/systems the licensee uses in the procedures. The table also identifies the licensee's evaluation of environmental qualifications and redundancy.
- (8) The inspector discussed improvements that could be made in the procedures to simplify the procedure and to provide direct guidance on detecting the failure of 1½ inch HPCS line. The licensee at the exit interview stated the comments would be considered in revision to the procedure.
- (9) The licensee's letter of December 6, 1979 stated the procedures would address the instrumentation to be used to detect inadequate core cooling - the procedures only discuss detection of adequate core cooling. Possible methods to detect inadequate cooling was discussed with the licensee. The January 31, 1980 letter discusses the use of vessel water level as presently described in the procedures.

b. Operator Training and Operator Interviews

During December, 1979, the licensee had provided formal training with control room walk through to all operators on actions to be taken following a SBLOCA. In addition the annual requalification examination given in December had been slanted more toward emergency conditions than in the past and included questions on SBLOCA reactions.

c. Operator Interviews

The inspectors interviewed five licensed operators. The operators interviewed were one staff SRO, one shift supervisor, one SRO who stands shift work and two shift RO's.

The operators interviewed:

1. Knowledgeably discussed the symptoms and transient response characteristics of the plant with respect to a SBLOCA.
2. Demonstrated a knowledge of the procedures to be used for a SBLOCA, including the immediate actions required.

^{4/} LAC-6688, Frank Linder, General Manager to D. L. Ziemann, Chief OR Branch dtd 12/11/79.

- (3) Were knowledgeable in the importance of heat sink, recognition of adequate subcooling and core voiding, indications of inadequate core cooling, and implementation of natural circulation.

d. Miscellaneous Considerations

- (1) Emergency diesels do not sequence loads at this plant. On undervoltage the diesels start and pick up all loads connected to the bus.
- (2) High pressure core spray can not be stopped by automatic resetting. It can only be stopped manually when the initiating signal is cleared or by locking out the equipment.
- (3) Facility design does not require a switchover from injection to recirculation.
- (4) Containment isolation and reset features require modifications which are scheduled to be installed at a later date. ^{5/} _{6/}
- (5) The licensee has no procedure for loss of coolant accident outside the containment. He does have an alarm response procedure D3-1, "Main Steam isolation valve not full open." This procedure covers the break that results in automatic closure of the valves. It does not cover required actions in great detail. Technical Specifications 3.8.1 requires the facility to have procedures recommended in USNRC Regulatory Guide 1.33 which in section F.6.a requires procedures for combating emergencies such as loss of coolant outside containment. The ability of alarm procedure D3-1 to fulfill this requirement will be reviewed during subsequent inspections. This is considered an unresolved item (80-01).

13. Exit Interview

The inspectors met with the licensee representatives (denoted in paragraph 1) at the conclusion of the inspection. The inspectors summarized the scope and findings of the inspection.

5/ Denton NRC to Linder DPC dtd 2/1/80.

6/ Linder, DPC to Denton NRC dtd 1/31/80.

TABLE 1

SBLOCA Equipment

Generic Name	ID NO.	LOC ^{1/}	REDUNDANT ^{2/}	Env. Qual. ^{3/}	NOTES
Decay Heat Blowdown Valves	56-25-001	C	N	Y	Not submersible
Reactor Vessel Water Level	50-42-302 50-42-303 50-42-306	C C C	C	Y	
Reactor Pressure		C	C	Y	
Containment Building Pressure	37-35-301 37-35-302	O O	C	Y	
S. D. Condenser Steam Inlet Valves	62-25-001 62-25-006 62-25-011 62-25-009	C C	C C	Y Y	
S. D. Condenser Condensate Return Valve	62-25-002 62-25-010	C	C	Y	Not submersible
HP Core Spray Pumps	53-06-001 53-06-002	C	C	Y	
LP Core Spray Valve	53-25-001 53-25-005	C	No	Y	
Alt. Core Spray Flow Alarm	53-37-701	C	No	Y	
Containment Bldg. Vent Inlet Dampers	73-25-001 73-25-002	C	C	Y	Air operated, fail closed

TABLE 1 SBLOCA Equipment

Generic Name	ID NO.	LOC ^{1/}	REDUNDANT ^{2/}	Env. Qual. ^{3/}	NOTES
4 Inch Vent	55-25-004	O	C	Y	Fail Closed
	55-25-014				
Header Valves	55-25-003	C	C	Y	
	55-25-013				
Containment bldg. outlet vent dampers	73-25-005	C	C	Y	Air operated, failed closed
	73-25-006				
Liquid waste ISO	54-25-006	C	No	Y	Not submersible
Reactor Vessel Wide Range Level	50-42-305	C	No	Y	
Containment Vessel Liquid Level	37-42-302	O	C	N	
	37-42-310	O	C	N	
Reactor Feedwater Flow Control Valve	65-22-001	O	P	Y	
Component Cooling Water		C	No	Y	All manual valves
Humidity Detectors	6 Detectors	C	E	N	220 ^o F 100 % Humidity 52 psi
Radiation Detectors	4 Detectors	C	E	N	160 ^o F
Forced Circ. Pump Suction & Dis- charge Valves	50-301-001	C	C	Y	Not submersible
	50-30-002				
	50-30-003				
	50-30-004				

TABLE 1 SBLOCA Equipment

Generic Name	ID NO.	LOC ^{1/}	REDUNDANT ^{2/}	Env. Qual. ^{3/}	NOTES
OHST Level lo lo Alarm		C	No	N	MI cable 150°F 50 psi
Building Spray System	69-24-003	C	No	Y	Manual
HPSW to Core Spray Pump Valve	53-25-004 53-25-006	C	P	Y	
Alternate Core Spray		C	C	Y	Series check valves
Demineralized Water System	Pump 1A				
	67-11-001	O	C	Y	
	Pump 1B				
	67-11-002	O	C	Y	
	Iso Valves	C	P		
	67-25-001 67-25-002				
H.P. Service Water		O	P	Y	
Shutdown Condenser	62-01-001	C	No	Y	
MSIV	64-30-001	C	P	Y	Automatic operation redundant with TBMSSV
	61-22-003				
Turbine Building Main Steam Shutoff Valves	64-25-003	O	P	Y	Manual operation redundent with MSIV
Overhead Storage Tank	69-19-001	C	P	Y	

TABLE 1 SBLOCA Equipment

Generic Name	ID NO.	LOC ^{1/}	REDUNDANT ^{2/}	Env. Qual. ^{3/}	NOTES
Reactor to Regeneration Cooler Isolation Valve	51-25-001 51-25-002	C	No	Y	
Reactor Emergency Flood Vent (MDS)	62-25-013 62-25-015 62-25-014 62-25-016	C	C	Y	
Demineralized Water-header Isolation Valve to SD Condenser	62-25-004	C	C	Y	
Alt. Core Cpray AC Valve	38-30-001	0	C	Y	
Alt. Core Spray DC Valve	38-30-002	0	C	Y	
Diesel H.P. Service Water Pump 1A and 1B	75-11-002	0	C	Y	

1/ LOC - location, inside containment (C); outside containment (0).

2/ REDUNDANCY - Alternate method provided in procedure (P), redundant equipment provided (E), redundant equipment provided which licensee states will meet loss of off site power and single failure criteria. (C)

3/ ENVIRONMENTAL QUALIFICATION - Not (N); licensee believes to be environmentally qualified (Y).