

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-461/88013(DRS)

Docket No. 50-461

License No. NPF-62

Licensee: Illinois Power Company
500 South 27th Street
Decatur, IL 62525

Facility Name: Clinton Nuclear Power Station, Unit 1

Inspection At: Clinton Site, Clinton, Illinois

Inspection conducted: April 27-29 and May 11-13, 1988

Inspector:

J. Hansen/Kov
Roif A. Westberg

5/31/88
Date

Approved By:

J. Hansen/Kov
Ronald N. Gardner Chief
Plant Systems Section

5/31/88
Date

Inspection Summary

Inspection on April 27-29 and May 11-13, 1988 (Report No. 461/88013(DRS))
Areas Inspected: Routine announced inspection to determine compliance with ATWS Rule, 10 CFR 50.62, per Temporary Instruction 2500/20 (Module 25020).
Results: No violations or deviations were identified. Temporary Instruction (TI) 2500/20 was closed.

DETAILS

1. Personnel Contacted

Illinois Power Company (IP)

- D. W. Wilson, Supervisor - Licensing
- *J. D. Weaver, Director - Licensing
- R. E. Lebkuecher, Staff Specialist - Licensing
- L. E. Anderson, Reactor Operator
- J. E. Spencer, Project Engineer - C&I Design
- W. L. Shurlow, Supervising Engineer - C&I Design
- R. T. Johnson, Quality Assurance Engineer
- T. W. Parrent, Quality Assurance Engineer
- *R. E. Wyatt, Manager - Nuclear Training
- *R. D. Freeman, Manager - Nuclear Station Engineering Department
- *D. L. Holesinger, Assistant Plant Manager
- *E. J. Corrigan, Director Quality Engineering and Verification
- *J. A. Miller, Manager - Scheduling and Outage Management
- *J. S. Perry, Manager - Nuclear Program Coordination
- *R. A. Schultz, Director - Planning and Programming
- *A. M. MacDonald, Director - Nuclear Program Assessment
- *J. A. Brownell, Project specialist - Licensing

USNRC

- *P. L. Hiland, Senior Resident Inspector

*Indicates those attending the exit meeting on May 12, 1988.

2. Temporary Instruction (TI) 2500/20 (Closed)

The purpose of this inspection was to determine whether Anticipated Transient Without Scram (ATWS) mitigating systems that are not safety related comply with the 10 CFR 50.62 rule, to determine that the QA controls applied to major activities (design, procurement, installation, and testing) for ATWS equipment that is not safety related complied with Generic Letter (GL) 85-06, and to assess the operational readiness of ATWS equipment that is not safety related.

The ATWS mitigating systems required by 10 CFR 50.62; Reactor Pump Trip (RPT), Alternate Rod Insertion (ARI) and Standby Liquid Control System (SLCS); were installed during the construction phase of the Clinton Power Station (CPS). The RPT and ARI are non-safety related systems but they were installed under Appendix B QA programs by Reactor Controls, Inc (RCI) and Baldwin Associates (BA). The SLCS is a safety related system and, as such, it is beyond the scope of this inspection.

Since the RPT and ARI were installed under Appendix B QA programs that were previously inspected by the NRC and the SLCS is safety related, this inspection concentrated on the confirmation of completed work, Quality Assurance, and personnel qualifications and training for the RPT and ARI only.

a. Documents Reviewed

(1) Letters

- (a) U-600279, F. A. Spangenberg to W. R. Butler, "Reply to 10 CFR 50.62 (ATWS Rule)," dated October 16, 1985.
- (b) U-600867, F. A. Spangenberg to W. R. Butler, "Additional Information Related to ATWS Rule," dated March 5, 1987.

(2) Safety Evaluation Reports

- (a) Nureg 0853 Supplement 6, "Clinton Power Station Safety Evaluation Report Supplement 6 (SSER6)," dated August 1986.
- (b) Nureg 0853 Supplement 7, "Clinton Power Station Safety Evaluation Report Supplement 7 (SSER7)," dated September 1986.
- (c) Safety Evaluation on compliance with Alternate Rod Injection system Requirement of ATWS Rule (10 CFR 50.62) dated May 18, 1987.

(3) Procedures

- (a) No. 4404.01, "Reactivity Control - Emergency," Revision 4.
- (b) No. 4401.01, "Level Control - Emergency," Revision 10.
- (c) No. 3314.01, "Standby Liquid Control - SC," Revision 4.
- (d) No. 9434.01, "ATWS Reactor Vessel Water Level B21-N400A (B, E, F) Channel Calibration," Revision 23
- (e) No. 9434.02, "ATWS Reactor Pressure High B21-N401A(B, E, F) Channel Calibration," Revision 22
- (f) No. 9434.03, "Anticipated Transient Without Scram (ATWS) Logic system Functional Test," Revision 22.
- (g) No. 9534.01, "ATWS Reactor Vessel Water Level B21-N400A (B, E, F) Channel Functional," Revision 33.
- (h) No. 9534.02, "ATWS Reactor Pressure High B21-N701A(B, E, F) Channel Functional," Revision 21.

- (4) CPS Final Safety Analysis Report (FSAR) Section 7.7.2.25, "Anticipated Transient Without Scram (ATWS)," Amendment 32, dated December 1984.
- (5) Training Department Lesson Plans
 - (a) No. 95515, "EOP Scenarios For Requal," Revision 0.
 - (b) No. LP85211-0, "Standby Liquid Control/System Basics," dated 11/4/87.
 - (c) No. LP87211-0, "Standby Liquid Control/Reactor Operator," dated 11/4/87.
- (6) Quality Assurance Audits
 - (a) No. Q31-86-01 - Baldwin Associates
 - (b) No. Q31-85-12 - Baldwin Associates
 - (c) No. Q36-85-07 - Reactor Controls
 - (d) No. Q36-85-50 - Reactor Controls
- (7) System Description for Reactor Protection dated December 18, 1987.

b. Inspection Results

The inspector verified the following aspects of the Clinton Power Station (CPS) ARI and RPT.

- (1) The licensee's plan as endorsed through the NRR safety evaluations (SERs) and supplements (SSERs) was implemented acceptably. The required systems were designed, installed, and tested in accordance with established procedures. Performance to date has been satisfactory.
- (2) Operating procedures have been generated or suitably revised to include ATWS mitigation systems. A review of the training records for all reactor Operators (ROs) and Senior reactor Operators (SROs) currently on shift indicated that they had been trained on the procedures and operation of the systems.
- (3) Surveillance procedures for ARI/RPT calibrations and functional tests were implemented. The inspector reviewed a sample of completed surveillances for one train of the level and pressure actuation devices and the logic system functional test.

- (4) The system's control logic and valve solenoid coil continuity have been tested at power following installation. A test switch activated relay logic which inhibited actual actuation of the systems. Only one train was tested at a time thereby maintaining ATWS mitigation capability during the test.
- (5) Permanent test switches were observed on each ARI/RPT cabinet. These switches allow maintenance and testing of the solenoid valve coils and system logic without opening the valves. Bypass status of the solenoid valves is indicated by a "system in test" indicator light on the P680 control panel in the control room.
- (6) Review of the ATWS schematic control diagrams verified that once the ARI was initiated there was a two minute time delay built in to assure that the system would complete its action (all rods inserted). Once the system times out, return to normal operation is accomplished with reset switches for the SCRAM discharge volume vent and drain valves.
- (7) Manual initiation of the ARI/RPT system was verified by observation of the manual initiation switches on the P680 panel benchboard of the control room.
- (8) Quality Assurance and Qualifications
 - (a) The inspection verified that the ATWS mitigation systems were designed and being operated under the IP Appendix B QA program. The inspector also verified that the ARI/RPT systems were installed by RCI and BA under their Appendix B QA programs during the construction phase of the CPS. IP QA did not have a direct in-line function in assuring the quality of these systems; however, they did audit these contractors continuously during this time period. The inspector reviewed a sample of the audits and found them acceptable. The inspector also verified that quality requirements were included in the purchase orders for selected ATWS equipment and that the contractors employed Quality Control inspection during construction.
 - (b) The ATWS systems were tested prior to operation as part of the preoperational test for the Reactor Protection System under the IP QA program.
 - (c) One RO on shift was interviewed relative to location of ATWS controls, indicators, and system operation. He appeared knowledgeable and capable of operating the systems.

3. Exit Interview

The inspector met with licensee representatives denoted in Paragraph 1 during and at the conclusion of the inspection on May 12, 1988. The inspector summarized the scope and results of the inspection and discussed the likely content of this inspection report. The licensee acknowledged the information and did not indicate that any of the information disclosed during the inspection could be considered proprietary in nature.