

U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-440/88013(DRS)

Docket No. 50-440

License No. NPF-58

Licensee: Cleveland Electric Illuminating
Company
10 Center Road
Perry, OH 44081

Facility Name: Perry Nuclear Power Plant, Unit 1

Inspection At: Perry Site, Perry, Ohio

Inspection Conducted: August 30 to September 1 and
September 13-15, 1988

Inspector: *Rolf G. Westberg*
R. A. Westberg

9/26/88
Date

Approved By: *Ronald N. Gardner*
Ronald N. Gardner, Chief
Plant Systems Section

9/26/88
Date

Inspection Summary

Inspection on August 30 to September 1, and September 13-15, 1988 (Report No. 50-440/88013(DRS))

Areas Inspected: Licensee action on previously identified inspection findings (92701, 92702) and licensee compliance with 10 CFR 50.62, the ATWS Rule, per TI 2500/20 (25020) SIMS No. A-A-20.

Results: Three previously identified inspection findings were closed. The inspection required by TI 2500/20 was completed; however, the review of the design remains open pending issuance of the site specific SER. Based on the inspection, the inspector reached the following conclusions:

- ° The system for retrieval of training records is excellent.
- ° Licensed personnel in the control room appear to be well trained and knowledgeable in ATWS systems.

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DETAILS

1. Persons Contacted

Cleveland Electric Illuminating Company (CEI)

R. V. Tanney, Engineer, IC&E
G. G. Rhoads, Licensing Engineer
G. A. Dunn, Supervisor, Compliance
A. G. Migas, Senior Project Engineer, I&C
D. R. Green, Manager, Electrical Design
R. J. Tadych, Manager, Mechanical Design
T. A. Boss, Supervisor, Quality Audit
M. P. Lazar, Supervisor, Operator Training
C. E. Persson, License Training Instructor
*D. C. Jones, Ops Engineer
*R. A. Newkirk, Manager, Licensing and Compliance
*D. P. Igyarto, Manager, Training
*R. A. Stratman, Ops Manager
*C. M. Shuster, Director, NED
*L. E. Hartline, Manager, PAQS
*B. D. Walrath, Manager, EPSS

U. S. Nuclear Regulatory Commission (USNRC)

G. F. O'Dwyer, Resident Inspector

*Indicates those attending the exit meeting on September 15, 1988.
Other personnel were contacted as a matter of routine during the inspection.

2. Licensee Action on Previous Inspection Findings

- a. (Closed) 440/87019-01A (Violation): The licensee failed to conduct an engineering review of three outstanding repetitive tasks (preventive maintenance). The inspector verified that repetitive task Nos. R85003699, R86004208, and R8500145 were completed or rescheduled as required. The inspector reviewed the revision to Procedure No. OM1A:PAP-0903, "Repetitive Task Programs," Revision 3, which provided for a periodic engineering review and disposition of outstanding repetitive tasks and Procedures No. OM1A: PAP-0906, "Control of Maintenance Section Preventive Maintenance," Revision 1, and No. OM1H:IAP-0501, "Calibration/Loop Calibration Check," Revision 1, which added a Preventive Maintenance Evaluation/Justification Sheet to the procedures. The inspector also reviewed Attachment 3 to Desk Guide-ICS-006, "Technical Reviews," Revision 0, which outlined repetitive task deferral review considerations and guideline No. PPTD:PEG-002, "Plant Engineering Guidelines," Revision 0, which discussed repetitive task deferrals/rescheduling. This item is considered closed.

- b. (Closed) 440/87019-01B (Violation): The licensee failed to conduct all lifted lead and jumper log reviews as required by the procedure. The inspector reviewed the repetitive task No. R86010411 summary and LL&J/MFI tagout audit sheet which indicated that the required reviews were performed in April, June, and November of 1986 and May 1987. This item is considered closed.
- c. (Closed) 440/87019-02 (Unresolved Item): Potential problems identified in work order (WO) write-ups lack corrective action documentation and resolutions. The inspector verified that the problems identified in Work Order Nos. 870007285, 870007145, and 870007230 were corrected. The inspector reviewed the revision to Procedure No. OM1A:PAP-0905, "Work Order Process," Revision 7, which added a "Work In Progress Description Log," to record problems encountered and to document followup actions. The inspector also reviewed QA Checklist No. D-0031, "Final Review of Completed Work Order Packages," Revision 9, which required review of and reconciliation of all comments documented by the work group indicating open or unresolved items. This item is considered closed.
- d. (Closed) 440/87019-03 (Deviation): Separation deviations and other deficiencies were noted in RPS panels. The inspector toured the control room and verified that the separation deviations and deficiencies in RPS panels Nos. H13-P691, P692, P693, and P694 had been corrected. This item is considered closed.

3. Temporary Instruction (TI) 2500/20 (SIMS Number MPA-A-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 whether 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.

10 CFR 50.62, "The ATWS Rule," requires three systems to mitigate the consequences of an ATWS event. They are Reactor Pump Trip (RPT), Alternate Rod Insertion (ARI), and Standby Liquid Control System (SLCS) with a minimum flow capacity and boron content equivalent in control capacity to 86 gallons per minute of 13 weight percent sodium pentaborate solution.

Perry Nuclear Power Plant (PNPP) installed the redundant reactivity control system (RRCS) during the initial construction phase of the plant under an Appendix B Quality Assurance Program. At PNPP the RRCS consists of the ARI, RPT, and the required SLCS plus an additional feedwater runback provision. The ARI and RPT are Class 1E electrical systems and the SLCS is a Category 1 seismic system. Since these systems are safety-related and were installed under Appendix B controls, they exceeded the guidance given in Generic Letter 85-06. Therefore, this inspection concentrated on the confirmation of completed work and personnel qualifications and training for ATWS systems only.

a. Documentation Reviewed

(1) Letters

- (a) PY-CEI/NRR-0190L, M. R. Edelman to B. J. Youngblood, "Compliance with ATWS Rule," dated March 19, 1985.
- (b) PY-CEI/NRR-0375L, A. Kaplan to NRC, "Response to NRC Request for Additional Information on Compliance With 10 CFR 50.62," dated July 12, 1988.
- (c) PY-NRR/CEI-0410L, T. A. Colburn to A. Kaplan, "Standby Liquid Control System (SLCS) Testing to Ensure Compliance With 10 CFR 50.62 for the Perry Nuclear Power Plant (PNPP) Unit 1," dated August 15, 1988.

(2) Procedures

- (a) No. OM3A:SOI-C22, "Redundant Reactivity Control System (Unit 1)," Revision 2.
- (b) No. OM4B:ONI-C71-1, "Reactor Scram (Unit 1)," Revision 0.
- (c) No. OM4C:PEI-B13, "Reactor Pressure Vessel Control," Revision 1.
- (d) No. OM7A:SVI-B21-T0246-A, B, "ATWS-RPT Logic System Functional Test for Division 1/2," Revision 1.
- (e) No. OM7A:SUI-B21-T0210A, B, E, F, "ATWS-RPT Reactor Vessel Water Level 2 Channel Functional for 1B21-N402A, B, E, F," Revision 2.
- (f) No. OM7A:SVI-B21-T0211A, B, E, F, "ATWS-RPT Reactor Water Level 2 Channel Calibration for 1B21-N402A, B, E, F," Revision 2.
- (g) No. OM7A:SVI-B21-T0212A, B, E, F, "ATWS-RPT Reactor Vessel Pressure High Channel Functional for 1B21-N403A, B, E, F," Revision 2.
- (h) No. OM7A:SVI-B21-T0213A, B, E, F, "ATWS-RPT Reactor Vessel Pressure High Channel Calibration for 1B21-N403A, B, E, F," Revision 2.
- (i) No. OM7A:SVI-C41-T02001, "Standby Liquid Control Pump and Valve Operability Test," Revision 4.
- (j) No. OM7A:SVI-C41-T2002, "Standby Liquid Control System Operability," Revision 1.

- (k) No. OM7A:GEI-0116, "Maintenance of 12.8KV A.E. Power-Vac Vacuum Breakers," Revision 0.
- (3) PNPP Updated Safety Analysis Report (USAR)
 - (a) Section 4.6.1.1.2.5.4, "Alternate Rod Insertion (ARI)".
 - (b) Section 7.6.1.12, "Anticipated Transient Without Scram (ATWS) Instrumentation and Controls".
 - (c) Section 9.3.5, "Standby Liquid Control (SLC) System".
 - (d) Appendix 15C, "Anticipated Transients Without Scram (ATWS)".
- (4) System Description Manual, Chapter C22, "Redundant Reactivity Control," Revision 4.
- (5) Drawings
 - (a) No. D-206-065, Revision D.
 - (b) No. D-208-023 Series, "RRCS".
- (6) Training Scenarios
 - (a) No. OT-3034-019-00, "Failure to Scram with ATWS".
 - (b) No. OT-3034-039-00, "Failure to Scram, Failure of ATWS, Challenge to Containment, and SLC".
- (7) Course Completion and Training Records for Crews On-Shift Relative to ATWS Training.

b. Inspection Results

The inspector verified the following aspects of the PNPP ATWS mitigating systems.

- (1) The required ATWS mitigating systems were designed, installed, and tested in accordance with established procedures. Performance to date has been satisfactory; however, the licensee's design has not been endorsed by a NRR safety evaluation (SER). Pending the inspector's review of the forthcoming SER, this is considered an open item (440/88013-01).
- (2) Operating procedures have been written and implemented for the RRCS. 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 and SLC were implemented. The inspector reviewed a sample of the procedures for one train of the level and pressure surveillances with acceptable results.
- (4) The inspector verified that the RRCS has been tested at power following installation. This is accomplished by only testing one train of logic at a time which maintains ATWS mitigation capability during the test.
- (5) Permanent test switches were observed on each RRCS cabinet for testing logic. The system does not have bypass switches for maintenance and testing (optional).
- (6) Review of the RRCS schematic control diagrams verified that once the ARI was initiated there was a 30 second time delay built in to ensure that the system would complete its action (all rods inserted). Once the system times out, return to normal operation is accomplished with reset switches.
- (7) Manual initiation of the RRCS was verified by observance of the manual initiation switches on the H13-P680 panel benchboard of the control room.
- (8) One RO was interviewed relative to location of ATWS controls, indicators, and system operation. The RO accompanied the inspector on a control room tour. One supervisor on shift was interviewed relative to Emergency Operating Procedures ATWS entry conditions, operator actions, and system operation. Both persons interviewed appeared knowledgeable and capable of operating the systems.

4. Exit Interview

The inspector met with licensee representatives denoted in Paragraph 1 during and at the conclusion of the inspection on September 15, 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.