



WISCONSIN PUBLIC SERVICE CORPORATION

600 North Adams • P.O. Box 19002 • Green Bay, WI 54307-9002

July 30, 1986

Mr. W. G. Guldemon
Chief, Reactor Projects Branch 2
Region III
U.S. Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, IL 60137

Gentlemen:

Docket 50-305
Operating License DPR-43
Kewaunee Nuclear Power Plant
Response to Inspection Report 50-305/86004 (DRP)

Reference: 1) Letter from W. G. Guldemon (NRC) to D. C. Hintz (WPSC)
dated June 23, 1986, transmitting inspection report
50-305/86004 (DRP)

The inspection report of reference 1 referred to a routine safety inspection conducted by Mr. R. L. Nelson (Senior NRC Resident Inspector) during the period of April 16 through June 15, 1986 of activities at Kewaunee Nuclear Power Plant. One item of noncompliance was identified and cited in this report.

A written response to the notice of violation was requested within 30 days of the date of the report. An extension to July 30 was obtained by the Senior Resident Inspector.

Our response is provided in Attachment 1.

Sincerely,

D. C. Hintz
Manager - Nuclear Power

DR/jms
Attach.

cc - Mr. Robert Nelson, US NRC
Mr. G. E. Lear, US NRC

8610100055 860730
PDR ADOCK 05000305
Q PDR

AUG 4 1986

11 IE 01

NOTICE OF VIOLATION

10 CFR, Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings" states, in part; "Activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings." This criterion is implemented by the licensee's Operational Quality Assurance Program, Section 12, "Plant Procedures."

Contrary to the above, activities were not accomplished in accordance with approved surveillance procedures (SP) on two identified occasions:

- a. On April 24, 1986, with the plant at 63% power, while performing SP 06-033, "Steam Generator Flow Mismatch Instrument Channel Test," the Control Room Operator did not place the Steam Generator Level Loop B Controller in the manual mode prior to shifting controlling channels, as required by procedure Step 6.7.a. A plant trip was experienced during the performance of this procedure.
- b. On May 13, 1986, with the plant at 100% power, while performing SP 48-003D, "Nuclear Power Range N-44 Instrument Channel Test", a test signal was mistakenly applied to Nuclear Power Range Channel N-43, causing a plant trip.

This is a Severity Level IV violation (Supplement I).

WPSC'S RESPONSE

Wisconsin Public Service Corporation (WPSC) recognizes the seriousness of personnel not adhering to procedures during the performance of surveillance activities. The notice of violation cites two examples of personnel error which occurred during surveillance testing. Personnel errors are of a concern to WPSC management, and a program has been developed to aggressively minimize their occurrence. The details of this program are included as a part of this response.

The unit trip on April 24, 1986, (LER 86-007) occurred while Instrument and Control personnel in conjunction with Control Operators were performing surveillance procedure (SP) "Steam Generator Flow Mismatch Instrument Channel Test". When the Control Operator transferred between automatic Steam Generator level control inputs, the 1B Main Feedwater Control Valve unexpectedly went from 40% open to 20% open. The operator promptly responded by switching control to the manual mode and attempted to open the valve. The valve failed to respond immediately resulting in a Lo Steam Generator level coincident with steam flow greater than feedwater flow reactor trip approximately 40 seconds into the transient.

The cause of the trip was attributed to problems with the control of 1B Main Feedwater Valve. After startup, Westinghouse and the equipment manufacturers were contacted for their support to perform a thorough investigation of the control problem. The conclusion of their review was that the trip was most likely caused by an intermittent failure of a feedwater control system component in conjunction with possible sticking of the control valve.

This surveillance procedure is the responsibility of the Instrument and Controls group. The surveillance procedure instructs the Control Operators to place the Steam Generator Level Loop B controller in manual and then switch between the control input channels. In this event the Control Operator left the controller in automatic while switching between the control input channels. In reviewing this event with the operators involved, they explained that past experience has shown difficulty in maintaining Steam Generator Level when switching between the automatic and manual modes due to occasional feedwater oscillations. Regardless of the method used to switch between the input channels, the valve should have remained at 40% open.

Although the surveillance procedure provides directions for switching between the level control channels, a formal Operating Procedure was not provided for this routine evolution. Management does not condone procedure violations; however, they had tacitly accepted the practice of allowing the operator to select the method to use when switching control channel input. When the operator switched the Steam Generator level control from automatic to manual, the valve should then have assumed the demand position called for by the manual controller. Instead, the valve remained at approximately 20% open. The operator increased the demand position signal twice in attempts to open the valve. The valve subsequently failed to respond to these attempts and the operator then inserted a large demand signal. The valve began to respond, but it was too late to prevent the plant trip.

The second event on May 13, (LER 86-00B) occurred as a result of an Instrument and Control man performing surveillance activities in the wrong instrument drawer. A senior and junior I & C man were assigned to perform the surveillance test on the power range Nuclear Instrumentation System (NIS). After completing the surveillance on channels N41, N42 and N43, they proceeded by placing the bistable output switches in the test (i.e. tripped) position from the relay rack outside of the control room for channel N44. In the control room, the senior I & C man continued by verifying status lights, and computer printout, and recording the proper signoffs on the SP checklist for N44. While in the meantime, the junior I & C man began preparation work in the instrument drawer. Per the procedure, the detector test signal potentiometer current was adjusted to readings corresponding to increased power levels. While increasing the detector current to correspond to 120% of full power, the reactor trip occurred. The I & C man immediately recognized that he had been increasing the test signal for channel N43 instead of N44.

WPSC acknowledges that the root cause of this event was a personnel error. Other factors which contributed to this event were the confusing format of the surveillance procedure and the instrument drawers not being clearly labeled.

CORRECTIVE ACTIONS TAKEN AND RESULTS ACHIEVED

Following each event actions were taken to address the specific problem area or weaknesses identified. Following the April 24th trip Westinghouse and the equipment manufacturers were contacted for their support. The trip review included an evaluation of the controller/loop control scheme, simulating the process signals in attempts to repeat the event and bench testing of the selector switches and automatic/manual control station.

The results of these activities were inconclusive; however, actions have been taken to decrease the probability of a recurrence and to obtain additional information should the event recur.

- 1) A strip chart trend recorder was installed to monitor parameters on the loop B steam and feedwater flow channels. A record of these values will assist in exact cause determination should the event recur.
- 2) New control board switches for transferring between the automatic level control input channels have been ordered.
- 3) Plant Operating Procedures have been revised to instruct the operators to switch to manual prior to changing input signals. This practice provides the capability of verifying that the proper control signal is present prior to returning valve control to automatic.
- 4) An in-house review of the Foxboro equipment is continuing based on the refurbishment activities planned for the 1987 and 1988 refueling outages.

Following the May 13, 1986 trip the individuals involved were counseled by the plant manager and the group supervisor. A discussion was held later in the day with the entire I & C group covering the areas of why the error occurred, what will prevent it from happening again, the importance of keeping reactor trips to a minimum, and following the procedure. In addition, the surveillance procedures for performing the NIS testing have been revised to reduce the amount of cross referencing, and actions have been initiated to better label the NIS drawers in the control room.

CORRECTIVE ACTIONS TAKEN TO AVOID FURTHER VIOLATIONS

The Plant Manager convened a group of management personnel to formulate an integrated program aimed at reducing personnel errors. The group did not limit their scope to addressing the most recent events.

An "Error Reduction Program" was decided upon. It is a multifaceted program aimed at reemphasizing a 'quality first' attitude with all the members of the plant staff, reducing the workers chance of making an error, and the plant vulnerability when an error is made.

The details of this program are:

- 1) A committee based on the 'Quality Circle' concept will be established. This group will be comprised of personnel from each major plant working area with varying levels of experience and background.

This working group will:

- a) Review all of the information available on recent personnel errors using the plant's internal Incident Reports and Licensee Event Reports (LERs) as a data base,

- b) Formulate a list of recommended corrective actions, and
 - c) Report to the Plant Manager on the effectiveness of implemented corrective actions.
- 2) Training will be provided to designated supervisory personnel on event investigation. With this training personnel will be better equipped to make root cause determinations and assess generic implications.
 - 3) The schedule of surveillance procedures which require operations support will be revised to more evenly distribute the monthly workload. This will allow the Control Operator to more closely follow work activities.
 - 4) The following methods of reducing the exposure to plant trips are being implemented:
 - a) The Shift Supervisors have been instructed to become more aware of activities when troubleshooting sensitive equipment, including utilizing an isolation procedure, where necessary, and
 - b) A review will be performed of Kewaunee Plant Technical Specification and Standard Technical Specifications to try to reduce the surveillance frequency on sensitive equipment.

Management has taken additional steps to increase supervision in the Instrument and Control Organization. Two additional supervisory personnel positions have been established in I & C to provide increased depth. In addition a qualified individual, who has held an SRO license, has been named as "Designate" to the position of Superintendent-Plant Instrument and Control. This latter personnel assignment will provide for continuity of management and experience in anticipation of the upcoming retirement of the current department head.

DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

This Notice of Violation was issued as a result of personnel errors and inattentiveness to detail. Reducing the frequency of personnel errors is an ongoing effort. WPSC's goal is to decrease the frequency of errors. Accordingly, when an error does occur, the event will be thoroughly investigated and proper corrective actions will be implemented in a timely manner.

WPSC is in full compliance with the intent of reducing personnel errors. Implementing management's "Error Reduction Program" as described above will reemphasize this commitment.