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Docket No. 50-461

10CFR50.73

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Nuclear Regulatory Commission
Washington, D.C. 20555

Subject: Clinton Power Station - Unit 1
Licensee Event Report No. 96-019-00

Dear Madam or Sir:

Enclosed is Licensee Event Report No. 96-019-00: Inadequate Surveillance Procedures Due to Misinterpretation of Technical Specification Bases Results in Source Range Monitor Reactor Period Display Not Verified Operable. This report is being submitted in accordance with the requirements of 10CFR50.73.

Sincerely yours,

Wilfred Connell
Vice President

RSF/csm

Enclosure

cc: NRC Clinton Licensing Project Manager
NRC Resident Office, V-690
Regional Administrator, Region III, USNRC
Illinois Department of Nuclear Safety
INPO Records Center

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EXPIRES 04/30/98

LICENSEE EVENT REPORT (LER)

(See reverse for required number of
digits/characters for each block)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS MANDATORY INFORMATION COLLECTION REQUEST: 60.0 HRS. REPORTED LESSONS LEARNED ARE INCORPORATED INTO THE LICENSING PROCESS AND FED BACK TO INDUSTRY. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (T-6 F33), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20566-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

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05000461

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TITLE (4)

Inadequate Surveillance Procedures Due to Misinterpretation of Technical Specification Bases Results in Source Range Monitor Reactor Period Display Not Verified Operable

EVENT DATE (5)			LER NUMBER (6)		REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)		
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
11	20	96	96	019	00	12	17	96	None	05000
									FACILITY NAME	DOCKET NUMBER
									None	05000

OPERATING MODE (9)	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)
5	20.2201(b) <input type="checkbox"/> 20.2203(a)(2)(v) <input checked="" type="checkbox"/> 50.73(a)(2)(i) <input type="checkbox"/> 50.73(a)(2)(viii) <input type="checkbox"/>
POWER LEVEL (10)	20.2203(a)(1) <input type="checkbox"/> 20.2203(a)(3)(i) <input type="checkbox"/> 50.73(a)(2)(ii) <input type="checkbox"/> 50.73(a)(2)(x) <input type="checkbox"/>
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	20.2203(a)(2)(iii) <input type="checkbox"/> 20.2203(a)(4) <input type="checkbox"/> 50.73(a)(2)(iv) <input type="checkbox"/> OTHER <input type="checkbox"/>
	20.2203(a)(2)(iv) <input type="checkbox"/> 50.36(c)(1) <input type="checkbox"/> 50.73(a)(2)(v) <input type="checkbox"/> Specify in Abstract below or in NRC Form 366A <input type="checkbox"/>
	20.2203(a)(2)(iv) <input type="checkbox"/> 50.36(c)(2) <input type="checkbox"/> 50.73(a)(2)(vii) <input type="checkbox"/>

LICENSEE CONTACT FOR THIS LER (12)

NAME

T. P. Johnson, Project Specialist-Procedures

TELEPHONE NUMBER (Include Area Code)

(217) 935-8881, Extension 3649

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS

SUPPLEMENTAL REPORT EXPECTED (14)

EXPECTED
SUBMISSION
DATE (15)

MONTH DAY YEAR

YES

(If yes, complete EXPECTED SUBMISSION DATE).

X

NO

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

A review of the Technical Specification (TS) Bases for source range monitors (SRM) identified that the reactor period display function available to operators in the "at the controls" area of the main control room is required to be operable but is not verified to be operable by the surveillance procedures for channel check, channel functional test, and channel calibration of SRMs. This condition has existed since initial plant operation. The cause of this event is attributed to inadequate surveillance procedures for channel check, channel functional test, and channel calibration of SRMs. During procedure development, the TS Bases SRM surveillance requirements were incorrectly interpreted. Corrective actions include revising the surveillance procedures for channel check, channel functional test, and channel calibration of SRMs to include verification of reactor period display, and calibrating the four SRM channels to restore them to operable status.

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TEXT (If more space is required, use additional copies of NRC Form 366A) (17)

DESCRIPTION OF EVENT

On November 20, 1996, the plant was in Mode 5 (REFUELING) and reactor [RCT] coolant temperature was being maintained within a band of 80 to 90 degrees Fahrenheit (F) and pressure was atmospheric. The sixth refueling outage (RF-6) was in progress. A procedure writer was reviewing the Technical Specification (TS) Bases document associated with the Neutron Monitoring System [IG] source range monitor [MON] subsystem for a revision to the channel functional test procedure. At about 0710 hours, the procedure writer recognized that reactor period display function available to the operators in the "at the controls" area of the main control room is required to be operable but is not verified to be operable by the surveillance procedures for channel check, channel functional test, or channel calibration of SRMs. The procedure writer initiated condition report 1-96-11-319 to track an investigation of this issue. The Operations shift supervisor was notified about the issue at 0850 hours.

TS 3.3.1.2 requires SRM instrumentation to be operable in Modes 2 (STARTUP), 3 (HOT SHUTDOWN), 4 (COLD SHUTDOWN), and 5, prior to the intermediate range monitors (IRM) being on scale on Range 3 to provide neutron monitoring.

TS Bases section B3.3.1.2 for the Limiting Condition for Operation (LCO) associated with TS 3.3.1.2 states that during startup in Mode 2, three of the four SRM channels are required to be operable to monitor the reactor flux level prior to and during control rod withdrawal, to monitor subcritical multiplication and reactor criticality, and to monitor neutron flux level and reactor period until the flux level is sufficient to maintain the intermediate range monitor on range 3 or above. The TS Bases states that in Modes 3 and 4, two SRM channels provide redundant monitoring of flux levels in the core, and indicates that in Mode 5 the SRM channel monitors neutron flux indication.

Surveillance Requirements (SR) for TS 3.3.1.2 include channel check, channel functional test, and channel calibration of SRMs. Based on the TS Bases discussed above and the definitions of channel check, channel functional test, and channel calibration provided in TS 1.1, "Definitions," verification of SRM display functions, that is, neutron flux level and reactor period, is required during channel check, channel functional test, and channel calibration in certain modes of plant operation. Specifically, a channel check, channel functional test, and channel calibration of display functions for neutron flux and reactor period is required during startup in Mode 2. A channel check, channel functional test, and channel calibration of neutron flux level display is required during Modes 3, 4, and 5.

Surveillance test procedures CPS 9000.01D001, "Control Room Surveillance Log - Mode 1, 2, 3," and CPS 9000.01D002, "Control Room Surveillance Log - Mode 4, 5 Data Sheet," provide steps for performing channel checks of SRMs in Modes 2, 3, 4, and 5, to verify neutron flux level display via SRM Log Count Recorders C51-R602A and C51-R602B. However, the procedures do not provide steps for verifying reactor period display.

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Surveillance test procedure CPS 9031.13, "SRM Channel Functional," provides steps for performing channel functional tests of SRMs to verify neutron flux level display, but the procedure does not include steps to functionally verify reactor period display.

Surveillance test procedure CPS 9431.13, "Source Range Monitor C51-K600A(B,C,D) Channel Calibration," provides steps for performing channel calibrations of SRMs to verify calibration of neutron flux level display at SRM drawer 1H13-P678 SRM Log Count Recorders C51-R602A and C51-R602B, and computer points C51-DA001, C51-DA002, C51-DA003, and C51-DA004. The procedure further provides steps to verify calibration of reactor period trip and associated display at the SRM drawer. However, the procedure does not provide steps to verify calibration of reactor period display at the Nuclenet benchboard in the main control room.

Illinois Power (IP) has determined that the LCO and ACTION requirements of TS 3.3.1.2 have not been met since January 1, 1995, when the TS requirement became effective as part of IP's conversion to the current (Improved) TS. Additionally, with respect to the TS requirements that were in effect prior to the conversion to the Improved TS, IP has concluded that surveillance procedures for channel check, channel functional test, and channel calibration did not include verification of reactor period display while the initial TS was in effect (TS 3.3.7.6, Source Range Monitors, effective from initial plant operation until December 31, 1994). Therefore, the LCO and ACTION requirements of the initial TS were not met from initial plant operation to December 31, 1994.

No automatic or manually initiated safety system responses were necessary to place the plant in a safe and stable condition. No other equipment or components were inoperable at the start of this event to the extent that their inoperable condition contributed to this event.

CAUSE OF EVENT

The cause of this event is attributed to inadequate surveillance procedures. During development of surveillance procedures to implement the TS surveillance requirements for SRMs, the original TS Bases were incorrectly interpreted. The original TS Bases did not mention reactor period in discussing Mode 2 applicability, only flux levels were mentioned. In addition, the definitions provided in TS 1.0, "Definitions," of the original TS did not clearly discuss the requirement to verify display functions during the channel check, channel functional test, and channel calibration surveillances. The incorrect interpretation resulted in the failure to include steps for verifying reactor period display in channel check, channel function, and channel calibration surveillance procedures for SRMs. Therefore, the reactor period display functions were not checked.

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The Bases (section B3.3.1.2) provided in the Improved TS implemented January 1, 1995, clearly discuss the operability requirements for the neutron flux and reactor period functions of the SRMs. The definitions provided in TS 1.1 of the Improved TS clearly discuss the requirement to verify the display function of the channel during channel check, channel functional test and channel calibration. During preparation for the conversion from the original TS to the Improved TS, the changes in the Bases and definitions were reviewed and considered administrative in nature such that the intent of the applicable requirements and definitions were not changed, but such that the changes did define more precisely the operability requirements for the SRMs. When the Improved TS was reviewed for impact on plant procedures, an assumption was apparently made that the reactor period display function was being verified since initial plant operation. The review of changes to the definitions and Bases sections of the Improved TS prior to implementation was a missed opportunity to identify earlier the failure to verify reactor period display.

CORRECTIVE ACTION

Surveillance procedures CPS 9000.01D001 and CP 9000.01D002 will be revised to include a channel check of SRM reactor period on the "at the controls" display screen of the main control room.

Surveillance procedure CPS 9031.13 will be revised to include a channel functional test of SRM reactor period on the "at the controls" display screen.

Surveillance procedure CPS 9431.13 will be revised to include a channel calibration of SRM reactor period display.

The four SRM channels will be calibrated using the revised procedure and restored to an operable status.

ANALYSIS OF EVENT

This event is reportable under the provisions of 10CFR50.73(a)(2)(i)(B) due to the failure to satisfy the Technical Specification surveillance requirements for SRMs.

An assessment of the safety consequences and implications of this event identified that this event was not nuclear safety significant.

The SRM subsystem of the Neutron Monitoring System consists of four channels. Each channel includes one detector that can be physically positioned in the reactor core. Each detector assembly consists of a miniature fission chamber with associated cabling, signal conditioning equipment, and electronics associated with the various SRM functions. Each channel also includes indication, alarm, and control rod blocks. However, the LCO of TS 3.3.1.2 specifies operability requirements only for the monitoring and indication functions of the SRMs. The SRM functions for prevention and mitigation of prompt reactivity excursions during refueling and low power operation are provided by other TS LCOs.

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The SRMs provide the operator with information relative to the neutron level at very low flux levels in the reactor core. During refueling, shutdown, and low power operations, the primary indication of neutron flux levels is provided by the SRMs or special movable detectors connected to the normal SRM circuits. The SRMs provide monitoring of reactivity changes during fuel or control rod movement and give the control room operator early indication of unexpected subcritical multiplication that could be indicative of an approach to criticality. However, the SRMs have no safety function and are not assumed to function during any design basis accident or transient analysis.

The reactor period display function has not been verified through channel check, channel functional test, or channel calibration since initial plant operation. The failure to perform the verification of reactor period display was discovered on November 20, 1996. Reactor period display verification will be completed prior to startup from RF-6 to restore the SRM function to operable status.

ADDITIONAL INFORMATION

No equipment or components failed during this event.

LERs 87-051, 87-035, 87-044, 87-046, 89-025, 89-026, 92-007, and 96-001 discuss failures to satisfy TS surveillance requirements because of incorrect procedures and confusion/misinterpretation of the TS; however, none of these LERs involved the SRM subsystem.

For further information regarding this event, contact T. P. Johnson, Project Specialist - Procedures, at (217) 935-8881, extension 3649.