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SUBJECT: LER 96-001-00:on 960306,TS violation,occuring from APRM setdown channel functional test.Caused by poor written communication & work practices.C/A:no immediate corrective actions required.W/960408 ltr.

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April 8, 1996
NMP2L 1621

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

RE: Docket No. 50-410
LER 96-01

Gentlemen:

In accordance with 10CFR50.73 (a)(2)(I)(B), we are submitting LER 96-01, "Technical Specification Violation Caused by Inadequate APRM Setdown Channel Functional Test."

Very truly yours,

John T. Conway
Plant Manager - NMP2

JTC/TWR/lmc
Attachment

xc: Mr. Thomas T. Martin, Regional Administrator, Region I
Mr. Barry S. Norris, Senior Resident Inspector

150045

JE22

NRC FORM 366 (6-89) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104
EXPIRES: 4/30/92
ESTIMATED BURDEN PER RESPONSE TO COMPLY WTH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Nine Mile Point Nuclear Station Unit 2	0 5 0 0 0 4 1 0	1 OF 0 6

TITLE (4)
Technical Specification Violation Caused by Inadequate APRM Setdown Channel Functional Test

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 NAMES	DOCKET NUMBER(S)
									N/A	0 5 0 0 0
0 3	0 6	9 6	9 6	0 0 1	0 0	0 4	0 8	9 6	N/A	0 5 0 0 0

OPERATING MODE (9)	1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)			
POWER LEVEL (10)	1 0 0	20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)
		20.405(a)(1)(i)	50.36(c)(1)	50.73(a)(2)(v)	73.71(c)
		20.405(a)(1)(ii)	50.36(c)(2)	50.73(a)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)
		20.405(a)(1)(iii)	X 50.73(a)(2)(i)	50.73(a)(2)(viii)(A)	
		20.405(a)(1)(iv)	50.73(a)(2)(ii)	50.73(a)(2)(viii)(B)	
		20.405(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
	AREA CODE
K. D. Ward, Manager Technical Support NMP2	3 1 5 3 4 9 - 1 0 4 3

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

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

On March 6, 1996, with Nine Mile Point Unit 2 (NMP2) in Operational Condition (OC) 1 (Power Operation) and reactor thermal power at approximately 100 percent, Technical Support personnel identified a technical specification (TS) required surveillance test procedure deficiency that resulted in a violation of the TS. Specifically, on September 12, 1995, while NMP2 was conducting a plant startup from a maintenance outage, the reactor mode switch was placed in Startup with an inadequate channel functional test performed on the reactor mode switch contacts for the Average Power Range Neutron Monitors (APRM) setdown function (neutron flux, upscale, setdown). This is a violation of TS Surveillance Requirement (SR) 4.3.1.1-1.2.a. This also constitutes a violation of TS SR 4.3.1.2 which requires a Logic System Functional Test at least once per 18 months.

The most probable root cause of this event is poor written communication in that the required source information was extremely difficult to locate when the deficient surveillance procedure was initially written. A contributing cause is poor work practices in that the required source information was not properly reviewed during later procedure reviews and revisions.

No immediate corrective actions were required. NMP2 has been in OC 1 since the condition was discovered and the APRM setpoint setdown is not required to be operable in OC 1.

I. DESCRIPTION OF EVENT

On March 6, 1996, with Nine Mile Point Unit 2 (NMP2) in Operational Condition (OC) 1 (Power Operation) and reactor thermal power at approximately 100 percent, while performing a post-maintenance testing evaluation, Technical Support personnel identified a technical specification (TS) required surveillance test procedure deficiency that resulted in a violation of the TS. At that time Deviation/Event Report (DER) 2-96-0581 was initiated to track and resolve this issue, and notification was made to the NRC Resident Inspector.

Specifically, on September 12, 1995, while NMP2 was conducting a plant startup following a maintenance outage, the reactor mode switch was placed in Startup with an inadequate channel functional test performed on the reactor mode switch contacts for the Average Power Range Neutron Monitors (APRM) setdown function (neutron flux, upscale, setdown). Further, every time that this channel functional test was performed prior to startup and in OC 3, 4, and 5 since the initial operation of the unit it has failed to fully satisfy the surveillance requirements. This is a violation of TS Surveillance Requirement (SR) 4.3.1.1-1.2.a, which states that each reactor protection system instrumentation channel shall be demonstrated operable by the performance of the channel functional test for the operational conditions and at the frequencies shown in Table 4.3.1.1-1. Table 4.3.1.1-1 requires that a channel functional test be performed every 7 days in OC 2, 3, 4, and 5, and within 24 hours before startup, if not performed within the previous 7 days. This also constitutes a violation of TS SR 4.3.1.2 which requires a Logic System Functional Test at least once per 18 months.

Sequence of Events

The initial version of the surveillance procedure to test the APRM setdown function was approved in August 1986. The circuit was tested by pulling the C51B-K18 relay out of its socket and replacing it with a test relay. The test relay could then be toggled to ensure all circuit functions worked correctly. This test method does not test the relay or the related reactor mode switch contacts. Failure to test the mode switch contacts prior to startup is a channel functional test violation. The USAR, in appendix 15 H, (originally FSAR Question and Responses question number F421.27) describes that the APRM setdown channel functional test will include a test of the mode switch contacts prior to startup. This requirement was not included in the surveillance test procedure that performs the APRM setdown channel functional test. Since neither the channel functional test nor the channel calibration adequately tested the mode switch contacts or the C51B-K18 relay and associated contacts, the LSFT requirement was not satisfied.

The historically utilized test method remains valid for a pre-shutdown SR with the plant in OC 1 as it correctly simulates opening the mode switch contacts which cannot be opened in OC 1.

I. DESCRIPTION OF EVENT (cont'd)

The relay removal test method is not valid in OC 2, 3, 4 and 5 since under these conditions the mode switch contacts can readily be tested in accordance with the USAR description.

This surveillance has been implemented over the years by several different procedures. These procedures have gone through periodic reviews and procedure change processes. None of these reviews identified that this surveillance was inadequate.

On March 6, 1996, a review of post maintenance testing requirements, including logic system functional test (LSFT) requirements, was performed for a planned C51B-K18 relay replacement. At that time it was determined that the existing surveillance test procedures failed to test the mode switch contacts, the actual C51B-K18 relay, and associated contacts as described in the USAR.

II. CAUSE OF EVENT

The most probable root cause of the event was poor written communication. The method of presentation of the FSAR Questions and Responses, which described how the subject channel functional test would be performed, was formatted in a way that made identifying the specific test requirements extremely difficult. The Questions and Responses were originally appended to the FSAR in three separate volumes, and were not organized by topic. Thus a procedure writer would have little chance of identifying the test description.

These volumes have since been incorporated into the body of the USAR. However, this method of presentation is still difficult to use in that this specific test requirement is not located in a logical spot from the point of view of a procedure writer. The FSAR Questions and Answers information concerning the mode switch contacts are now located in Appendix 15 H, whereas, neutron monitoring is described in Section 7.2.

A contributing cause of this event is poor work practices. The required documents were not effectively used in a subsequent procedure review and revision process. The Appendix 15 H requirement could have been identified, but the reviewer's search technique utilizing the computer search routine, failed to identify the critical information.

Since the time these events occurred, Nine Mile Point has substantially upgraded the training and qualification process for performing 10CFR50.59 reviews. The training specifically details the use of the computer search routine, and the necessity for thoroughly reviewing the USAR wording for each section identified by the computer.

III. ANALYSIS OF EVENT

This event is reportable in accordance with 10CFR50.73(a)(2)(I)(B), "any operation or condition prohibited by the plant's Technical Specifications."

The purpose of the neutron monitoring system is to monitor, detect, alarm, and terminate (by initiating a reactor scram) an uncontrolled increase in reactor power. Operability of the system is proven by channel checks, channel functional tests, channel calibrations, and LSFTs, on a frequency specified by the Technical Specifications.

The purpose of the APRM set point setdown function is to reduce the reactor scram set point from 118% power to 15% power to reduce the time to scram during a low power reactivity excursion. Per NEDC-32410P-A, section 8.3.3.3, this function is a secondary scram to the IRMs. This scram function is not taken credit for in any accident analysis. If an event had occurred and the IRMs and the setdown function both failed to scram the reactor, the APRM flow-biased scram or the 118% neutron scram would scram the reactor before any safety limits were exceeded. Therefore there is minimal safety significance to this violation.

IV. CORRECTIVE ACTIONS

No immediate corrective actions were required. NMP2 has been in OC 1 since the event was discovered and the APRM set point setdown is not required in OC 1.

The following corrective actions have been or will be taken:

1. Procedure N2-ISP-NMS-@007, "Average Power Range Monitor (APRM) Start-up (S/U) Channel Functional Test," will be revised to properly test the subject mode switch contacts, the C51B-K18 relay and associated contacts in OC 2, 3, 4, and 5, and within 24 hours prior to startup. This will be completed by April 30, 1996.

2. Procedures N2-OP-101C, "Plant Shutdown," and N2-SOP-101C, "Reactor SCRAM," were changed to identify that the reactor mode switch must be locked in shutdown within one hour of achieving OC 3. This will ensure that the TS action statement for an inoperable setdown function in OC 3 and 4 is taken. This also ensures that OC 2 is not entered until the surveillance has been revised and performed. This was completed on March 6, 1996. Further, an administrative control (Equipment Status Log entry) has been put in place to ensure these actions remain in force, and to prevent core alterations from occurring in OC 5 until the surveillance has been revised and performed.

IV. CORRECTIVE ACTIONS (cont'd)

3. The remaining Neutron Monitoring channel functional test procedures were reviewed for steps which removed relays in a manner that could have caused components to be inadequately tested. No other problems of this nature were found. A condition relating to test schedule requirements was discovered which will be reported as LER 96-02.

4. NMP2 will review TS required surveillance test procedures in accordance with the program that will be submitted to the NRC in response to Generic Letter 96-01.

5. A sampling of the original FSAR Questions and Responses will be reviewed to ensure adequate incorporation of applicable technical requirements into unit procedures and programs. This will be completed by September 30, 1996.

6. The need to rigorously review potentially applicable USAR sections when performing 10CFR50.59 reviews will be incorporated into the 10CFR50.59 requalification training program by September 30, 1996.

V. ADDITIONAL INFORMATION

A. Failed components: None.

B. Previous similar events:

NMP2 has experienced a number of instances where inadequate procedure preparation or review caused missed or inadequately performed Surveillance Tests. As a result of previous events, enhancements were made to the procedure preparation, review, and issue process with the implementation of Nuclear Division Interface Procedure, NIP-PRO-03, "Preparation and Review of Technical Procedures." Both this event and those discussed in LER 94-03 and 94-05 involved problems with past practice which were identified by individuals involved in current procedure preparation and review activities. Identifying these conditions demonstrates the effectiveness of the previous corrective actions, and reflects the heightened awareness and questioning attitude of personnel involved in procedure review activities.

V. ADDITIONAL INFORMATION

C. Identification of components referred to in this LER:

COMPONENT	IEEE 803 FUNCTION	IEEE 805 SYSTEM ID
Setdown Relay C51B-K18	RLY	IG
Average Power Range Monitor (APRM)	MON	IG
Reactor Mode Switch	HS	JC