

Constellation Energy

Nine Mile Point Nuclear Station

P.O. Box 63
Lycoming, NY 13093

June 13, 2005
NMP1L 1957

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555-0001

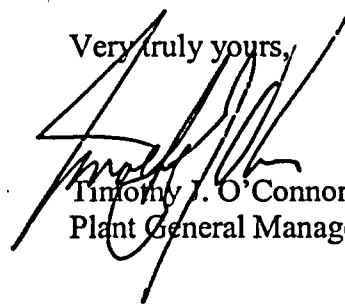
SUBJECT: Nine Mile Point Unit 1
Docket No. 50-220
Facility Operating License No. DPR-63

Licensee Event Report 05-002, "Fuel Moved with an Inoperable Source Range Monitor Due to Human Error Resulting in a Technical Specification Violation"

Gentlemen:

In accordance with 10 CFR 50.73(a)(2)(i)(B), Nine Mile Point Nuclear Station, LLC hereby submits Licensee Event Report 05-002, "Fuel Moved with an Inoperable Source Range Monitor Due to Human Error Resulting in a Technical Specification Violation."

Very truly yours,



Timothy J. O'Connor
Plant General Manager

TJO/KSE/sac
Attachment

cc: Mr. S. J. Collins, NRC Regional Administrator, Region I
Mr. G. K. Hunegs, NRC Senior Resident Inspector

IEZ

LICENSEE EVENT REPORT (LER)

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

Estimated burden per response to comply with this mandatory collection request: 50 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records and FOIA/Privacy Service Branch (T-5 F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

1. FACILITY NAME Nine Mile Point, Unit 1	2. DOCKET NUMBER 05000220	3. PAGE 1 OF 5
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4. TITLE
Fuel Moved with an Inoperable Source Range Monitor Due to Human Error Resulting in a Technical Specification Violation

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
04	14	2005	2005	- 002 -	00	06	13	2005	FACILITY NAME	DOCKET NUMBER

9. OPERATING MODE
N

10. POWER LEVEL
000

11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR§: (Check all that apply)

<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.73(a)(2)(i)(C)	<input type="checkbox"/> 50.73(a)(2)(vii)
<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)
<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.73(a)(2)(ii)(B)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)
<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 50.36(c)(1)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)(A)
<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 50.36(c)(1)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(iv)(A)	<input type="checkbox"/> 50.73(a)(2)(x)
<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(v)(A)	<input type="checkbox"/> 73.71(a)(4)
<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.46(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(v)(B)	<input type="checkbox"/> 73.71(a)(5)
<input type="checkbox"/> 20.2203(a)(2)(v)	<input type="checkbox"/> 50.73(a)(2)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(C)	<input type="checkbox"/> OTHER
<input type="checkbox"/> 20.2203(a)(2)(vi)	<input checked="" type="checkbox"/> 50.73(a)(2)(i)(B)	<input type="checkbox"/> 50.73(a)(2)(v)(D)	Specify in Abstract below or in NRC Form 366A

12. LICENSEE CONTACT FOR THIS LER

NAME M. Steven Leonard, General Supervisor Licensing	TELEPHONE NUMBER (Include Area Code) 315-349-4039
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#13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX
A	IG	RI	GE	Y					

14. SUPPLEMENTAL REPORT EXPECTED
 YES (If yes, complete 15. EXPECTED SUBMISSION DATE) NO

15. EXPECTED SUBMISSION DATE

MONTH	DAY	YEAR

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

On April 14, 2005, at approximately 1654 hours, with the reactor in the "Refueling Condition" and spiral core reload in process, fuel moves were stopped when source range monitor (SRM) 12 failed to indicate any neutron counts when a twice burnt fuel bundle was placed adjacent to the SRM to achieve the required minimum count rate.

Technical Specification 3.5.3.b states, "During core alterations two SRMs shall be operable, one in and one adjacent to any core quadrant where fuel or control rods are being moved. Operable SRMs shall have a minimum of 3 counts per second except as specified in d and e below." Contrary to this, fuel was moved adjacent to an inoperable SRM (12).

The SRM failed to indicate any counts because the SRM instrumentation cabling was left disconnected following a maintenance activity earlier in the outage. The cause of this event involved human performance errors associated with failure to adhere to maintenance work instructions. Had the work instructions been implemented as written, the event would not have occurred.

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

I. Description of Event

On March 21, 2005, Nine Mile Point Unit 1 commenced refueling outage 18. During this outage, a full core spiral unload and reload was implemented.

As of shift turnover on April 14, 2005, at approximately 0630 hours, the reactor was in the "Major Maintenance Condition" (no nuclear fuel in the reactor vessel), at zero pounds pressure and zero percent reactor power. Final preparations to begin moving fuel from the spent fuel pool to the reactor were underway. Later that same day at approximately 1155 hours, operators entered the Refuel mode with the Reactor Mode Switch locked in the "Refuel" position. Permission was given to commence core reload in accordance with fuel handling procedures.

On April 14, 2005, at approximately 1654 hours, while completing move 7 of ~ 650 moves of the core reload plan, a twice-burnt fuel bundle was placed next to source range monitor (SRM) 12 to ensure 3 counts per second would be achieved to satisfy SRM operability verification requirements of Technical Specification 3.5.3.e. This move placed the first fuel bundle next to SRM 12; however, no response was observed on SRM 12 or the associated period meter as was expected. Due to the unexpected response, Operations stopped fuel moves pending investigation of the problem.

The investigation determined that SRM 12 was inoperable due to instrumentation cables being disconnected from the SRM drawer. An extent of condition review was conducted which determined that the remaining three SRMs were operable. However, two intermediate range monitors (IRMs), 11 and 15, were also found with disconnected cables. Fuel moves did not recommence until an investigation was completed to understand the causes of the inoperability and operability of the SRM 12 was verified. Maintenance activities and associated work instructions on SRM 12 on April 9, 2005, required the cables to be reconnected. The work steps were not signed off by the technician. However, based on an ineffective review of the supporting documentation, the undervessel coordinator annotated the steps as complete when in fact the cables were left disconnected by the technician. There were two major activities associated with the nuclear instrumentation work. One activity involved cable testing by the Nine Mile Point instrument and controls shop and the other activity involved the undervessel work performed by supplemental work force personnel.

Violation of Technical Specification 3.5.3.b is the basis for submitting this report. Technical Specification 3.5.3.b states, "During core alterations two SRMs shall be operable, one in and one adjacent to any core quadrant where fuel or control rods are being moved." NMP believes a violation of Technical Specification 3.5.3.b occurred because the specification presumes operability of the SRMs based on effective maintenance procedures and practices. However, due to maintenance errors, an SRM was left inoperable in the quadrant where fuel was moved.

There were no equipment or component failures associated with this event caused by degradation or piece-part failure. Instrumentation cabling left disconnected following maintenance resulted in the SRM being inoperable. The inoperable SRM did not result in the failure of other functions or components.

II. Cause of Event

Following maintenance activities, instrumentation cabling associated with SRM 12 was not reconnected due to failure to follow technical work instructions as written, resulting in leaving the SRM inoperable. The root cause for this is that management expectations regarding procedural compliance were neither met nor adequately enforced. The maintenance supervisor and undervessel coordinator failed to adequately verify the status of the lifted lead. The Lifted Lead Log Sheet had identified that the cable had been lifted but not relanded. The specific work step in the procedure was not signed off by any worker. This step was signed off by a coordinator who misinterpreted the lifted lead log.

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II. Cause of Event (Continued)

Contributing causes included:

Inadequate pre-job briefs. The pre-job briefs were not thorough and their content was inadequate. Work packages were not present at the pre-job briefs and details about the entire work scope were not known. The maintenance crew and undervessel team did not conduct an integrated pre-job brief, even though the work procedures required an interface to occur.

Inadequate self checking. The undervessel coordinator did not use the STAR (Stop, Think, Act, and Review) human performance tool effectively while reviewing work documents and the maintenance crew did not display a questioning attitude when finding the nuclear instrumentation cables already disconnected.

III. Analysis of Event

No other systems or components were inoperable at the start of the event that contributed to the severity of the event. The condition of the inoperable SRM did not result in any required automatic plant response nor did it initiate any plant transient or directly impact the operability of any other equipment. All control rod drive mechanisms were installed in the reactor and all control rods were fully inserted prior to the event to maintain full shutdown margin.

Technical Specification 3.5.3, Extended Core and Control Rod Drive Maintenance, applies to core reactivity limitations during major core alterations. The objective is to assure that inadvertent criticality does not result when control rods are being removed from the core. Technical Specification 3.5.3.b requires two operable SRMs, one in and one adjacent to any core quadrant where fuel is being moved. Contrary to this, the SRM in the core quadrant into which fuel was moved was not operable due to cables being disconnected. The inoperable SRM was identified when the first fuel bundle was moved into the quadrant.

Because only a single fuel bundle was placed in the quadrant associated with the inoperable SRM, there was no chance of an inadvertent criticality since a single bundle cannot provide the required geometry and neutron source necessary to support criticality. This is based upon the fact that the core is designed to be subcritical with all bundles loaded and one control rod fully withdrawn. Unit 1 Technical Specification 3.5.3.e is designed to prevent an inadvertent criticality by allowing no more than two bundles to be placed in a quadrant during a spiral reload to verify SRM operability before proceeding with loading additional fuel.

The availability of systems or components that are needed to shutdown the reactor or maintain safe shutdown conditions, remove residual heat, control the release of radioactive material, or mitigate the consequences of an accident were not impacted during this event. Three of four SRMs were operable during this event. The SRMs are provided to monitor the core during periods of station shutdown and to guide the operator during refueling operations and station startup. Three operable SRMs ensures adequate coverage for all possible critical configurations produced by fuel loading or dispersed withdrawals of control rods during station startup. At the time of the event, all control rods were fully inserted. Because the probability of fuel damage was not increased during the event and the condition did not challenge the limiting transient/accident condition already analyzed for the cycle, the core damage risk was not increased.

Had the operators not recognized the inoperable condition of the SRM when the first bundle was placed next to SRM 12, per Technical Specification 3.5.3.e., the operators would have been required to verify SRM 12 operability when a second fuel bundle was placed next to SRM 12. Technical Specification 3.5.3.e. requires plant operators to obtain and maintain 3 cps on the SRM before more than two fuel bundles are moved into the quadrant. When the operators stopped fuel moves after the first bundle was moved next to SRM 12, they ensured Technical Specification 3.5.3.e. was not challenged. Therefore, there was no possibility of an inadvertent criticality resulting.

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III. Analysis of Event (Continued)

While in the Refuel Condition, Technical Specification 3.6.2 (Table 3.6.2a), Protective Instrumentation, requires a minimum of two tripped or operable trip systems with a minimum of three operable instrument channels per operable trip system. IRMs 11 and 15, also found to be inoperable due instrument cables left disconnected, are in different trip systems. IRM 11 provides input to Reactor Protection System (RPS) trip system A and IRM 15 provides input to RPS trip system B. All other IRMs were operable. With all IRMs operable except for 11 and 15, the minimum requirements of Technical Specification 3.6.2 were met.

Based on the above, the event did not pose a threat to the health and safety of the public or plant personnel. The Emergency Plan was not activated because no entry conditions were met.

IV. Corrective Actions

A. Action Taken to Return Affected Systems to Pre-Event Normal Status:

The cause of the inoperable SRM was determined and corrected before fuel moves in the affected quadrant were re-commenced. An extent of condition review was completed to verify the operability of the other three SRMs. The extent of condition review identified two IRMs that were also left with disconnected instrumentation cables following maintenance. These IRMs were returned to operable status.

B. Action Taken or Planned to Prevent Recurrence:

NOTE: There are no NRC regulatory commitments in this Licensee Event Report.

- Took accountability actions regarding supervisory and craft personnel involved with this event. This accountability included lessons on procedure compliance, use of human performance error prevention tools, such as STAR self-checking and conduct of integrated pre-job briefings using copies of the work documents that are flagged for critical steps. These accountability actions included job performance counseling with the personnel involved and documentation of the actions in the individual's personnel files through Human Resources.
- As a compensatory measure, a detailed review of a representative sample of closed maintenance work orders and procedures will be conducted to verify the extent of procedure compliance issues.
- The procedure compliance element of the human performance training material will be enhanced with specific examples from this and similar events.
- The appropriate Maintenance department administrative procedure for the conduct of Maintenance will be revised to require that work orders and procedures be present and reviewed at pre-job briefs.

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V. Additional Information

A. Failed Components:

There were no equipment or component failures associated with this event caused by degradation or piece-part failure. The inoperability of the SRM was caused by instrumentation cabling being left disconnected following maintenance work due to human error. The inoperable SRM did not result in the failure of other functions or components.

B. Previous Similar Events:

During reactor startup from refueling outage 17 (April 2003), IRM 15 failed to respond to a neutron flux. Troubleshooting revealed the undervessel detector connector was disconnected. The cause of the event focused on failure to perform adequate post maintenance testing (PMT), Characterization (CHAR) testing, as originally scheduled. Review of the associated connector work performed by Constellation I&C revealed the IRM 15 undervessel Lemo connector was not fully seated. The work package was completed, however the CHAR test which had been scope-added into the refueling outage was deleted based on a false assumption that the IRM 15 connector was never disconnected, when in fact it was. There are some parallels with this event in that the IRM 15 undervessel connector was not fully seated and that assumptions were made about the PMT based on false information and it appears to be a lack of validation and verification of that information. This is similar to the SRM 12 and IRM 11 and 15 events in refueling outage 18 in that mis-communication and assumptions were made on who performed the reconnects and what work document completed the work.

C. Identification of systems and components referred to in this Licensee Event Report:

<u>Components</u>	<u>IEEE 805 System ID</u>	<u>IEEE 803A Function</u>
Source Range Monitor (SRM)	IG	RI
Intermediate Range Monitor (IRM)	IG	RI
Reactor Protection System	JC	N/A
Spent Fuel Pool (SFP)	DB	N/A
Vessel, Reactor	AD	RPV
Control Rods	AA	75
Nuclear Fuel	AC	N/A