



Entergy Nuclear Operations, Inc.
Pilgrim Nuclear Power Station
600 Rocky Hill Road
Plymouth, MA 02360

November 19, 2015

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

SUBJECT: Licensee Event Report 2015-010-00, Motor-Operated Valve Control Circuit
Vulnerability to IN 92-18 Concern

Entergy Nuclear Operations, Inc.
Pilgrim Nuclear Power Station
Docket No.: 50-293
License No.: DPR-35

LETTER NUMBER: 2.15.083

Dear Sir or Madam:

The enclosed Licensee Event Report (LER) 2015-010-00, Motor-Operated Valve Control Circuit Vulnerability to IN 92-18 Concern, is submitted in accordance with 10 CFR 50.73.

This letter contains no commitments.

Please do not hesitate to contact Mr. Everett P. Perkins, Jr. at (508) 830-8323, if there are any questions regarding this submittal.

Sincerely,

David E. Moyes
Director, Regulatory and Performance Improvement

Attachment 1: Licensee Event Report 2015-010-00, Motor-Operated Valve Control Circuit
Vulnerability to IN 92-18 Concern (4 pages)

IE22
NRK

cc: Mr. Daniel H. Dorman
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Ms. Booma Venkataraman, Project Manager
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USNRC Senior Resident Inspector
Pilgrim Nuclear Power Station

Attachment 1

Letter Number 2.15.083

Licensee Event Report 2015-010-00

Motor-Operated Valve Control Circuit Vulnerability to IN 92-18 Concern

(4 Pages)



LICENSEE EVENT REPORT (LER)

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the FOIA, Privacy and Information Collections Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to Infocollects.Resource@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 Pilgrim Nuclear Power Station	2. DOCKET NUMBER 05000293	3. PAGE 1 OF 4
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4. TITLE
Motor-Operated Valve Control Circuit Vulnerability to Information Notice 92-18 Concern

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
10	05	2015	2015	010	00	11	19	2015	N/A	N/A
									FACILITY NAME	DOCKET NUMBER
									N/A	N/A

9. OPERATING MODE		11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)							
N	<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 checked="" 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)	
100	<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 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

LICENSEE CONTACT Mr. Everett P. Perkins, Jr. - Regulatory Assurance Manager	TELEPHONE NUMBER (Include Area Code) 508-830-8323
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13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX
NA									

14. SUPPLEMENTAL REPORT EXPECTED	15. EXPECTED SUBMISSION DATE	MONTH	DAY	YEAR
<input type="checkbox"/> YES (If yes, complete 15. EXPECTED SUBMISSION DATE) <input checked="" type="checkbox"/> NO				

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

On Monday, October 5, 2015 at 1725 hours EST, with the Reactor Mode Select Switch in the Run position and the reactor at approximately 100 percent core thermal power, Pilgrim Station identified and reported a vulnerability applicable to 10 CFR 50, Appendix R, Section III.G, Fire Protection of Safe Shutdown Capability. The specific vulnerability involved lack of limit and torque switch protection of motor operated valves (MOVs) during an unlikely scenario of a large scale fire, forced evacuation of the Main Control Room (MCR), and spurious operation of MOVs due to fire damage. This potential vulnerability is identified in NRC Information Notice (IN) 92-18. Discovery of the vulnerability was determined to be reportable.

The cause of the event was evaluated and determined to be the result of incorrect assumptions applicable to the initial evaluation of the IN 92-18 concern and improper use of the Corrective Action Program when discovering new Appendix R open items. Corrective actions taken included the performance of hourly fire watches in the plant areas where MOV local operation is credited for the MOV control cables that could be affected. Valve control circuit modifications are under development and scheduled for implementation.

A fire event did not occur. There was no impact to public health and safety.

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BACKGROUND

Pilgrim is an Appendix R plant. As such, Pilgrim is required to meet 10 CFR 50, Appendix R Sections III.G, J, and O requirements. Section III.G, provides for fire protection of safe shutdown capability. Section III.G.3 identifies that Alternative or Dedicated Shutdown capability should be provided if the requirements of Section III.G.2 of Appendix R are not satisfied.

Pilgrim provided Alternative Shutdown capability for fires in the Main Control Room (MCR), Cable Spreading room (CSR), and for the east and west portions of the Reactor Building. The NRC approved this Alternative Shutdown capability as part of the initial Appendix R program reviews. NRC SER dated November 2, 1983 documents approval of the proposed Alternative Shutdown strategy.

As part of industry driven actions taken to address operator manual actions (OMAs) and multiple spurious operations (MSOs) in the 2006 to 2012 time frame, Pilgrim Station initiated actions to update the site calculation (PS-32) used to evaluate circuit separation and the associated software program used to perform the circuit separation analysis. This update effort involved resolution of numerous issues, including the following regulatory and non-regulatory compliance concerns:

1. Operator Manual Actions in III.G.2 fire areas (not allowed for Hot shutdown, but allowed if important to shutdown or used for cold shutdown)
2. Operator Manual Actions in III.G.3 fire areas (allowed if feasible for both hot shutdown and cold shutdown)
3. Multiple Spurious Operations (MSOs) in III.G.2 areas (required review for reg compliance)
4. Multiple Spurious Operations (MSOs) in III.G.3 areas (not a required review for reg compliance)
5. Other Appendix R Open Issues as noted in update reviews (i.e., Information Notice (IN) 92-18; required for compliance)

These specific issues were identified as open items and listed as open items to the Station's Appendix R circuit separation calculation (PS-32).

As part of the update effort, the station reviewed the initial assumptions related to IN 92-18 concerns. Valve wiring reviews were performed and identified that IN 92-18 wiring modifications were not performed for numerous valves that are credited for use to demonstrate Alternative Shutdown capability. This issue was identified in the PS-32 calculation as open item E and tracked as a required corrective action under a condition report (CR-PNP-2012-669). This condition report addressed actions to update the overall Appendix R report.

EVENT DESCRIPTION

During preparation for the 2015 Fire Protection Triennial Inspection, it was noted that PS-32 unresolved open items existed in Section 6.5 of the report. A review of compensatory actions taken to address these open items indicated that compensatory fire watches were not established for areas where IN 92-18 concerns were identified to exist. Condition Report (CR-PNP-2015-7993) was issued due to the lack of a compensatory fire watch.

The reportability review of the condition report for lack of a compensatory fire watch was performed on Monday, October 5, 2015. This reportability review concluded that a vulnerability applicable to 10 CFR 50, Appendix R, Section III.G, Fire Protection of Safe Shutdown Capability existed and that the issue should be reported per 10 CFR 50.72 report requirements. The concern was reported as a condition that resulted in an unanalyzed condition that could degrade plant safety. The specific vulnerability involves lack of limit and

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torque switch protection of motor operated valves (MOV) credited for use in the Alternative Shutdown strategy. These valves are required to be isolated from their associated power and control cables routed in the MCR and CSR, and operated locally to accomplish safe shutdown. The requirement to locally operate the MOVs involves the unlikely scenario of a large scale fire, forced evacuation of the MCR, and spurious operation of MOVs due to fire damage. This is the potential vulnerability identified in NRC IN 92-18.

CAUSE OF THE EVENT

The apparent cause of the event was evaluated and determined to be the incorrect use of the Corrective Action Program by not initiating new condition reports when discovering new issues where compliance questions could not be readily answered. This would have driven a formal evaluation for each PS-32 open item for operability/reportability determination and the implementation of fire watches.

Initial tracking for MSO III.G.2, MSO III.G.3 and traditional Appendix R open items obscured recognition of problems that needed fire watches with issues that did not need fire watches. This led to a loss of focus and a distraction from issue resolution instead of proper condition report characterization. The difference between the regulatory requirements for MSO categories and Appendix R compliance contributed to the error trap.

When the updated Appendix R analysis report (PS-32) from the contractor was accepted by Pilgrim acknowledging all issues, a separate CR was not written to capture and evaluate the individual open items for operability and reportability.

CORRECTIVE ACTIONS

Corrective actions taken included the posting of compensatory hourly fire watches in the plant areas where MOV local operation is credited and the MOV control cables could be affected.

Valve control circuit modifications are under development to address the IN 92-18 concern. The modifications have been scheduled for implementation.

Additional corrective actions were issued to review current Appendix R (PS-32) gap items to ensure appropriate compensatory measures are in-place.

SAFETY CONSEQUENCES

Postulated Appendix R fire events have been evaluated and Safe and Alternative Shutdown strategies and capability have been provided. Safe and alternative safe shutdown systems and procedures have been developed to address the potential for postulated plant fire events that affect all equipment and all cables located in a given plant fire area. The IN 92-18 concern was identified to have a potential affect on safe shutdown capability in the MCR, CSR, and the Reactor Building east and west fire areas.

The postulated fire is assumed to spread and challenge all safe shutdown equipment and cables located in the area regardless of whether the area has significant fire hazards, ignition sources, or large spatial separation. The postulated fire evaluation does not credit plant actions taken to minimize potential fires by controlling transient combustibles in plant areas and providing fire retardant cables. The evaluation also does not provide credit for automatic fire detection capability which alarms in the continuously manned control room; automatic suppression capability in areas with fire hazards; or the availability of a continuously manned fire brigade staff that will respond to a fire and manually suppress and control the spread of fire.

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A detailed evaluation of the risk significance of fires in the areas potentially impacted by the IN 92-18 issue was performed. This risk review involved evaluation of potential ignition sources in the area; location of credited Appendix R equipment and cables in relation to the ignition sources; available fire safe shutdown procedures; the fire resistant qualities of cables and equipment provided in the area; the automatic fire detection capability provided in the area; and the automatic and manual suppression capability provided. This risk significance determination review identified that the Pilgrim vulnerability to the IN 92-18 concern met NRC acceptance criteria for a very low fire risk concern.

Based on these reviews, there was no adverse impact on the public health or safety.

REPORTABILITY

This report is submitted in accordance with 10 CFR 50.73(a)(2)(ii)(B) – Any event or condition where resulted in: the nuclear power plant being in a unanalyzed condition that significantly degraded plant safety.

PREVIOUS EVENTS

10 CFR 50, Appendix R fire protection issues that resulted in LER reports were reviewed. The most recent Appendix R LERs were reported in the 1997 to 1999 timeframe. These LERS are summarized as follows:

- LER 97-029-00, Shutdown Cooling (SDC) Suction Valves Vulnerability to Damage from Potential Failure Mode Involving Hot Shorts.
- LER 98-012-00, Incomplete Installation of Fire Barrier in the Cable Spreading Room.
- LER 98-013-00 thru LER 98-013-02, Inconclusive Fire Barrier Test Data.
- LER 98-023-00, Incorrect Wiring Modifications Affected RBCCW Train "B" Alternate Shutdown Panel.
- LER 99-011-00, Postulated Fire in Cable Spreading Room Potentially Affecting Safe Shutdown.

These prior LERs self-identified concerns that are related to this LER because they addressed actions necessary to ensure safe shutdown capability are installed and maintained.

ENERGY INDUSTRY IDENTIFICATION SYSTEM (EIIS) CODES

The EIIS codes for Components and Systems referenced in this report are as follows:

COMPONENTS	CODES
NA	
SYSTEMS	CODES
NA	

REFERENCES:

Condition Reports CR-PNP-2015-7993 and CR-PNP-2015-8286 were issued to address fire protection compensatory measures for plant fire areas where the control circuits for MOVs are vulnerable to the IN 92-18 concern.