

JUN 10 2019

Docket No.: 50-364

NL-19-0671

U. S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, D. C. 20555-0001Joseph M. Farley Nuclear Plant - Unit 2  
Licensee Event Report 2019-001-00  
Inoperable Containment Isolation Valve due to Design Control Error

Ladies and Gentlemen:

In accordance with the requirements of 10 CFR 50.73(a)(2)(i)(B), Southern Nuclear Company is submitting the enclosed Licensee Event Report for Unit 2.

This letter contains no NRC commitments. If you have any questions regarding this submittal, please contact Gene Surber at (334) 814-5448.

Respectfully submitted,

Cheryl A. Gayheart  
Regulatory Affairs Director

CAG/rgs/scm

Enclosure: Unit 2 Licensee Event Report 2019-001-00

cc: Regional Administrator, Region II  
NRR Project Manager – Farley Nuclear Plant  
Senior Resident Inspector – Farley Nuclear Plant  
RTYPE: CFA04.054

**Joseph M. Farley Nuclear Plant - Unit 2  
Licensee Event Report 2019-001-00  
Inoperable Containment Isolation Valve due to Design Control Error**

**Enclosure**

**Unit 2 Licensee Event Report 2019-001-00**



**LICENSEE EVENT REPORT (LER)**

(See Page 2 for required number of digits/characters for each block)

(See NUREG-1022, R.3 for instruction and guidance for completing this form  
<http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1022/r3/>)

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 Information Services Branch (T-2 F43), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by e-mail to [InfoCollect.Resource@nrc.gov](mailto:InfoCollect.Resource@nrc.gov), and to the Desk Officer, Office of Information and Regulatory Affairs, NEOF-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.

<b>1. Facility Name</b> Joseph M. Farley Nuclear Plant, Unit 2	<b>2. Docket Number</b> 05000 364	<b>3. Page</b> 1 OF 3
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**4. Title**  
Inoperable Containment Isolation Valve due to Design Control Error

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	12	2019	2019	001	00	06	10	2019	Facility Name	Docket Number
										05000
										05000

**9. Operating Mode**      **11. This Report is Submitted Pursuant to the Requirements of 10 CFR §: (Check all that apply)**

<b>6</b>	<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.73(a)(2)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)
	<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(ii)(B)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)
	<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)(A)
	<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 50.38(c)(1)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(iv)(A)	<input type="checkbox"/> 50.73(a)(2)(x)
<b>10. Power Level</b>	<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 50.38(c)(1)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(A)	<input type="checkbox"/> 73.71(a)(4)
<b>000</b>	<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.38(c)(2)	<input type="checkbox"/> 50.73(a)(2)(v)(B)	<input type="checkbox"/> 73.71(a)(5)
	<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.46(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(v)(C)	<input type="checkbox"/> 73.77(a)(1)
	<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)(D)	<input type="checkbox"/> 73.77(a)(2)(i)
	<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)(vii)	<input type="checkbox"/> 73.77(a)(2)(ii)
		<input type="checkbox"/> 50.73(a)(2)(i)(C)	<input type="checkbox"/> Other (Specify in Abstract below or in NRC Form 366A)	

**12. Licensee Contact for this LER**

<b>Licensee Contact</b> Gene Surber, Licensing Manager	<b>Telephone Number (include Area Code)</b> 334-814-5448
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**13. Complete One Line for each Component Failure Described in this Report**

Cause	System	Component	Manufacturer	Reportable to ICES	Cause	System	Component	Manufacturer	Reportable to ICES
A	BI	ISV	L200	Yes					

<b>14. Supplemental Report Expected</b>	<b>15. Expected Submission Date</b>
<input type="checkbox"/> Yes (If yes, complete 15. Expected Submission Date) <input checked="" type="checkbox"/> No	Month:      Day:      Year:

**Abstract (Limit to 1400 spaces, i.e., approximately 14 single-spaced typewritten lines)**

On April 12, 2019, with Farley Nuclear Plant (FNP) Unit 2 in Mode 6 (refueling) it was determined through surveillance testing that Containment Isolation Valve (CIV) Q2P16MOV3131 (MOV-3131), Service Water (SW) From Reactor Coolant Pump (RCP) Air Cooler would not close on a simulated Safety Injection (SI) Signal. Following troubleshooting it was identified on April 24, 2019 (Mode 6) that MOV-3131 was incorrectly wired. An omission error completed in a previous design change (October 2017) created a wiring discrepancy that prevented MOV-3131 from closing on an SI signal. This condition is being reported pursuant to the requirements of 10 CFR50.73(a)(2)(i)(B) as an operation prohibited by the Technical Specifications for the inoperable containment isolation valve.

The wiring discrepancy was caused by an engineering human performance error during issuance of a design change. The circuit wiring was corrected, post-maintenance testing was completed satisfactorily, and the valve was returned to service.





**LICENSEE EVENT REPORT (LER)  
CONTINUATION SHEET**

(See NUREG-1022, R.3 for instruction and guidance for completing this form  
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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 Information Services Branch (T-2 F43), U. S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by e-mail to [Infocollects.Resource@nrc.gov](mailto: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  Joseph M. Farley Nuclear Plant, Unit 2	2. DOCKET NUMBER  05000- 364	3. LER NUMBER		
		YEAR 2019	SEQUENTIAL NUMBER 001	REV NO. 00

**NARRATIVE**

**EVENT DESCRIPTION:**

On April 12, 2019, Farley Nuclear Plant (FNP) Unit 2 was in Mode 6 at 0% reactor power with the Reactor Coolant System (RCS) [AB] at atmospheric pressure and 97 degrees Fahrenheit. During the performance of FNP-2-STP-40.0A, A Train Safety Injection With Loss of Offsite Power Test, Containment Isolation Valve (CIV) Q2P16MOV3131 (MOV-3131) [EII:BI/ISV] did not close on a simulated Safety Injection (SI) Signal [EII:JE]. Following subsequent troubleshooting and reviewing previous work history it was identified on April 24, 2019 while in Mode 6 with the RCS at atmospheric pressure and 82 degrees Fahrenheit that MOV-3131 was incorrectly wired. An error (omitted design drawing) from a previous design change (October 2017) created a wiring discrepancy that prevented MOV-3131 from closing on an SI signal. During this time frame MOV-3131 was capable of operation (open / close) and only the "Auto" function was affected.

**SYSTEM DESCRIPTION:**

Containment Isolation Valve MOV-3131, SW From RCP Air Cooler, is located inside containment and is the return for SW from the three RCP Air Coolers. MOV-3131 is operated from its three-position hand switch (Close/Auto/Open) on the Main Control Board. When in "Auto" MOV-3131 will close on an SI Signal. MOV-3131 provides a containment isolation function. Q2P16MOV3134 (MOV-3134)[EII: BI/ISV] is the outside containment return for SW from the three Reactor Coolant Pumps Air Coolers and also receives a SI close signal. MOV-3131 and MOV-3134 support isolation of containment penetration number 32 [PEN].

**TECHNICAL SPECIFICATIONS:**

Technical Specification (TS) Limiting Condition for Operation (LCO) 3.6.3 requires each containment isolation valve be operable while the plant is operating in Modes 1, 2, 3, and 4. With a containment isolation valve inoperable in Modes 1 to 4 for a penetration flow path with two containment isolation valves, TS LCO 3.6.3 Condition A requires the affected penetration flow path be isolated in 4 hours and verified isolated once per 31 days. If this action and associated completion time cannot be met, then TS LCO 3.6.3 Condition E requires the plant be placed in Mode 3 in 6 hours and in Mode 5 in 36 hours.

**CAUSE OF THE EVENT:**

The wiring discrepancy is considered an engineering human performance event. During the development of the Design Change an electrical drawing (connection diagram) was missed as an affected document. This drawing was required in conjunction with the marked up schematic drawing to ensure the proper wiring terminations were made to the control circuit for MOV-3131. The absence of the connection diagram however was not identified in any of the design review meetings, impact reviews, or the design verification process itself. Additionally, closure upon receipt of a SI signal was not identified as a critical characteristic of the design and consequently post modification testing requirements to verify this characteristic were not identified.

The Design Change was implemented during the 2017 Unit 2 outage and all specified testing in the package was performed with no deficiencies noted. SI testing is typically performed on one train each outage. In the 2017 refueling outage the B train was tested and MOV-3131 is an A train component. Consequently, verification of closure upon receipt of an SI signal was not completed at that time. During the 2019 Unit 2 outage, the A train test was run and the legacy design error was discovered.





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**NARRATIVE**

**ANALYSIS OF THE EVENT:**

Technical Specification Surveillance Requirement 3.6.3.6 verifies that each automatic containment isolation valve that is not locked, sealed or otherwise secured in position, actuates to the isolation position on an actual or simulated actuation signal. Based on the design control error the containment isolation signal for MOV-3131 has not worked since October of 2017. This resulted in operation of the facility in a manner prohibited by the Technical Specifications. However, the isolation function would have been met by MOV-3134 which was fully OPERABLE.

In addition to closing requirements, containment isolation valves also have pressure integrity requirements. Pressure integrity for the containment penetration is tested in accordance with the integrated and local leak rate testing (I/LLRT) requirements and there have been no containment penetration 32 I/LLRT failures between April 2019 (e.g., the time of discovery) and October 2017 (e.g., when the legacy issue occurred).

Based on these test results, FNP concludes that although the closure circuit for MOV-3131 was inoperative, the penetration integrity was tested satisfactory during the I/LLRT tests, proving the valve was positioning and functioning as a containment isolation feature between October 2017 and April 2019.

**SAFETY SIGNIFICANCE:**

Although automatic closure of MOV-3131 was not tested in the 2017 U2 Outage, the valve did respond to open / close signals as demonstrated by successful LLRT test results. Based on the above, containment integrity was not challenged by this legacy condition. In addition, if MOV-3131 had remained open during post-accident containment isolation the 'B' channel containment isolation signal would have closed the outboard containment isolation valve (MOV-3134). Additionally, operators would have been alerted to the problem by MCB indication and closed MOV-3131 per plant emergency procedures. This event was within the analysis of the UFSAR Chapter 15 and the wiring error had no impact on the health and safety of the public. There was no release of radioactivity above Part 100 limits.

**REPORTABILITY:**

With MOV-3131 not capable of automatically closing, the valve was not capable of performing its design function of isolating containment as required by TS LCO 3.6.3. This valve was inoperable for the entire operating cycle, which exceeded the Completion Time specified in TS LCO 3.6.3 to restore the valve to Operable status or shutdown the plant. Therefore, this issue is being reported in accordance with 10 CFR 50.73(a)(2)(i)(B) as it resulted in operation of the plant in a condition prohibited by the TS. This event had very low safety significance as an additional failure would be required to create a potential containment bypass pathway. Thus, this issue did not result in a loss of safety function.

**CORRECTIVE ACTIONS:**

The circuit wiring was corrected, post-maintenance testing was completed satisfactorily, and MOV-3131 was returned to service. Corrective actions will also include a training performance analysis for the engineering staff on design control, planning, and identification of modification testing requirements.

**SIMILAR EVENTS:**

None