

Cheryl A. Gayheart
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April 15, 2014

Docket Nos.: 50-348
50-364

NL-14-0311

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D. C. 20555-0001

Joseph M. Farley Nuclear Plant – Units 1 and 2
Licensee Event Report 2014-001-00
Failure to Comply with Technical Specification 3.4.3
During Reactor Coolant System Vacuum Refill

Ladies and Gentlemen:

This Licensee Event Report, "Failure to Comply with Technical Specification 3.4.3 during Reactor Coolant System Vacuum Refill," is being submitted pursuant to the requirements of the Code of Federal Regulations, 10 CFR 50.73(a)(2)(i)(B) as an operation or condition prohibited by Technical Specifications.

This letter contains no NRC commitments. If you have any questions regarding the submittal, please contact Mr. Bill Arens at (334) 814-4765.

Sincerely,

A handwritten signature in black ink, appearing to read "Cheryl A. Gayheart".

Ms. C. A. Gayheart
Vice President – Farley
CAG/JAC

Enclosure: Units 1 and 2 Licensee Event Report 2014-001-00

cc: Southern Nuclear Operating Company
Mr. S. E. Kuczynski, Chairman, President & CEO
Mr. D. G. Bost, Executive Vice President & Chief Nuclear Officer
Mr. B. L. Ivey, Vice President – Regulatory Affairs
Mr. C. R. Pierce, Regulatory Affairs Director
Mr. D. R. Madison, Vice President – Fleet Operations
Mr. J. G. Horn, Regulatory Affairs Manager – Farley
Mr. J. E. Purcell, Nuclear Technical Specialist – Farley
Ms. K. A. Walker, Senior Engineer - Farley
RTYPE: CFA04.054

U. S. Nuclear Regulatory Commission
Mr. V. M. McCree, Regional Administrator
Mr. S. A. Williams, Licensing Project Manager – Farley
Mr. P. K. Niebaum, Senior Resident Inspector - Farley
Mr. J. R. Sowa, Resident Inspector - Farley
Mr. R. E. Martin, Senior Project Manager- Farley

Joseph M. Farley Nuclear Plant – Units 1 and 2

NL-14-0311

**Failure to Comply with Technical Specification 3.4.3
During Reactor Coolant System Vacuum Refill**

Enclosure

Units 1 and 2 Licensee Event Report 2014-001-00



LICENSEE EVENT REPORT (LER)
(See Page 2 for required number of digits/characters for each block)

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, 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.

1. FACILITY NAME Joseph M. Farley Nuclear Plant, Unit 1	2. DOCKET NUMBER 05000 348	3. PAGE Page 1 of 3
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4. TITLE
Failure to Comply with Technical Specification 3.4.3 during Reactor Coolant System Vacuum Refill

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
02	18	2014	2014	001	00	04	17	2014	Farley Nuclear Plant – Unit 2	05000 364
									FACILITY NAME	DOCKET NUMBER

9. OPERATING MODE	11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)			
1	<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)
10. POWER LEVEL 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 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

LICENSEE CONTACT William N. Arens – Licensing Supervisor	TELEPHONE NUMBER (Include Area Code) (334) 814-4765
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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

14. SUPPLEMENTAL REPORT EXPECTED <input type="checkbox"/> YES (If yes, complete 15. EXPECTED SUBMISSION DATE) <input checked="" type="checkbox"/> NO	15. EXPECTED SUBMISSION DATE MONTH: _____ DAY: _____ YEAR: _____
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ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)

On February 18, 2014 with FNP Units 1 and 2 operating at 100 percent thermal power, a review of industry operating experience determined that both units were in non-compliance with Technical Specification 3.4.3, Reactor Coolant System (RCS) Pressure and Temperature (P/T) Limits, during several previous refueling outages on each unit due to placing the RCS under vacuum conditions during RCS vacuum refill operations. From October 1995 through April 2012, 12 refueling outages have been conducted on Unit 1 and 11 on Unit 2 during which the RCS was placed under vacuum to perform vacuum refill operations. Technical Specification 3.4.3, applicable at all times, requires that RCS pressure, RCS temperature, and RCS heatup and cooldown rates be maintained within the limits specified in the Pressure Temperature Limit Report (PTLR). Although RCS temperature and heatup rates were maintained within limits, RCS pressure was lowered below zero pounds per square inch gage (psig), the lowest RCS pressure value identified on the curve.

The cause of not entering the required action for Technical Specification 3.4.3 was due to a failure to recognize that a negative RCS pressure is not allowed by Technical Specifications. An engineering review in support of the implementation of vacuum refill operations had previously determined that stress margins of the reactor pressure vessel and related components were not challenged. The station's P/T Limit curve is being revised to encompass RCS vacuum conditions.



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

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.

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Westinghouse - Pressurized Water Reactor
Energy Industry Identification Codes are identified in the text as [XX].

Requirement for Report

This report is required per 10 CFR50.73(a)(2)(i)(B) for an operation or condition which was prohibited by Technical Specifications Limiting Condition of Operation (LCO) 3.4.3, RCS Pressure and Temperature Limits, during vacuum refill of the reactor coolant system (RCS) when RCS pressure was lowered below zero pounds per square inch gage (psig).

Unit Status at Time of Event

At the time of discovery of the issue, both units were operating in Mode 1 at 100% reactor power. Previous vacuum refill operations were conducted with the applicable unit in Mode 5. There were no additional inoperable structures, systems, or components at the time of discovery that contributed to this event. This event is considered a discovery of an existing but previously unrecognized condition.

Description of Event

On February 18, 2014 with Farley Nuclear Plant (FNP) Units 1 and 2 operating at 100 percent thermal power, a review of industry operating experience determined that both units were in non-compliance with Technical Specification 3.4.3, RCS Pressure and Temperature (P/T) Limits, during 23 previous refueling outages due to placing the RCS under vacuum conditions during RCS vacuum refill operations. From October 1995 through April 2012, 12 refueling outages have been conducted on Unit 1 and 11 on Unit 2 during which the RCS was placed under vacuum to perform vacuum refill operations. Technical Specification 3.4.3, applicable at all times, requires that RCS pressure, RCS temperature, and RCS heatup and cooldown rates be maintained within the limits specified in the Pressure Temperature Limit Report (PTLR). Although RCS temperature and heatup rates were maintained within limits, RCS pressure was lowered below 0 psig, the lowest RCS pressure value identified on the curve.

In October, 1995 the system operating procedure to perform RCS fill and vent under vacuum conditions was developed in accordance with an approved safety evaluation to facilitate RCS vacuum refill and eliminate the need to perform multiple reactor coolant pump sweeps of the RCS for removal of non-condensable gases. The safety evaluation for this procedure properly evaluated the impact of vacuum conditions on the reactor pressure vessel [RPV], the RCS, and related components. It was not recognized that this evolution would be in non-compliance with Technical Specification 3.4.3. Upon review of industry operating experience, the non-compliance was identified and corrective action initiated to update the PTLR curves to account for operation under vacuum conditions.

These events are of very low safety significance and resulted in no adverse effects on the health or safety of the public.

Cause of Event

The direct cause of not entering the required action for Technical Specification 3.4.3 was a failure to recognize that a negative RCS pressure is not allowed by Technical Specifications. Establishing vacuum

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conditions in the RCS was not recognized to be a condition that required entry into the required action statement.

Safety Assessment

As determined in the safety evaluation for the vacuum refill implementing procedure, there were no challenges to any design or safety limit. Nuclear safety was not compromised because the negative (vacuum) internal pressures identified did not cause any concerns with applicable material stresses or analysis for the reactor pressure vessel or RCS piping. There was no impact to the safety of the public, industrial safety, or radiological safety as a result of the vacuum refill operations.

Corrective Action

Corrective Action to revise the FNP Pressure and Temperature Limit Report (PTLR) for Units 1 and 2 to address establishing a negative pressure (vacuum) in the reactor vessel has been initiated and will be completed prior to the next vacuum refill operation. A review of Technical Specifications for similar or related issues with other Technical Specification curves has been initiated.

Additional Information

A review of internal Operating Experience was performed, and no previous events were identified in which a curve referenced by Technical Specifications was inaccurately applied leading to violation of a Technical Specifications.