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April 21, 2014
L-14-142

10 CFR 50.73

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

SUBJECT:
Beaver Valley Power Station, Unit Nos. 1 and 2
BV-1 Docket No. 50-334, License No. DPR-66
BV-2 Docket No. 50-412, License No. NPF-73
LER 2014-003-00

Enclosed is Licensee Event Report (LER) 2014-003-00, "Operation Outside of the Pressure and Temperature Limits Report During Isolated RCS Loop Vacuum Fill." This event is being reported in accordance with 10 CFR 50.73(a)(2)(i)(B).

There are no regulatory commitments contained in this submittal. Any actions discussed in this document that represent intended or planned actions are described for the NRC's information, and are not regulatory commitments.

If there are any questions or if additional information is required, please contact Mr. Brian F. Sepelak, Supervisor, Regulatory Compliance at 724-682-4282.

Sincerely,

E. A. Larson

Eric A. Larson

Enclosure – LER 2014-003-00

cc: Mr. W. M. Dean, NRC Region I Administrator
NRC Resident Inspector
Mr. J. A. Whited, NRR Project Manager
INPO Records Center (via INPO Consolidated Event System)
Mr. L. E. Ryan (BRP/DEP)

IE22
NRR

NRC FORM 366 (02-2014) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104 EXPIRES 01/31/2017

Estimated burden per response to comply with this mandatory information 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 Section (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.

LICENSEE EVENT REPORT (LER)

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

1. FACILITY NAME	2. DOCKET NUMBER	3. PAGE
Beaver Valley Power Station Unit Number 1	05000334	1 OF 3

4. TITLE

Operation Outside of the Pressure and Temperature Limits Report During Isolated RCS Loop Vacuum Fill

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
									Beaver Valley Unit 2	05000412
02	26	2014	2014	- 003 -	00	04	21	2014	FACILITY NAME	DOCKET NUMBER

9. OPERATING MODE

Mode 1

10. POWER LEVEL

100

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

☐ 20.2201(b)	☐ 20.2203(a)(3)(i)	☐ 50.73(a)(2)(i)(C)	☐ 50.73(a)(2)(vii)
☐ 20.2201(d)	☐ 20.2203(a)(3)(ii)	☐ 50.73(a)(2)(ii)(A)	☐ 50.73(a)(2)(viii)(A)
☐ 20.2203(a)(1)	☐ 20.2203(a)(4)	☐ 50.73(a)(2)(ii)(B)	☐ 50.73(a)(2)(viii)(B)
☐ 20.2203(a)(2)(i)	☐ 50.36(c)(1)(i)(A)	☐ 50.73(a)(2)(iii)	☐ 50.73(a)(2)(ix)(A)
☐ 20.2203(a)(2)(ii)	☐ 50.36(c)(1)(ii)(A)	☐ 50.73(a)(2)(iv)(A)	☐ 50.73(a)(2)(x)
☐ 20.2203(a)(2)(iii)	☐ 50.36(c)(2)	☐ 50.73(a)(2)(v)(A)	☐ 73.71(a)(4)
☐ 20.2203(a)(2)(iv)	☐ 50.46(a)(3)(ii)	☐ 50.73(a)(2)(v)(B)	☐ 73.71(a)(5)
☐ 20.2203(a)(2)(v)	☐ 50.73(a)(2)(i)(A)	☐ 50.73(a)(2)(v)(C)	☐ OTHER Specify in Abstract below or in NRC Form 366A
☐ 20.2203(a)(2)(vi)	☒ 50.73(a)(2)(i)(B)	☐ 50.73(a)(2)(v)(D)	

12. LICENSEE CONTACT FOR THIS LER

FACILITY NAME	TELEPHONE NUMBER (*Include Area Code*)
Brian Sepelak, Supervisor, Regulatory Compliance	724-682-4282

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

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*)

During a review of external operating experience, it was discovered that Beaver Valley Power Station (BVPS) Unit 1 and Unit 2 had previously operated outside of the limits specified in the Pressure and Temperature Limits Report (PTLR) during past Reactor Coolant System (RCS) loop vacuum fill evolutions, which were performed while in Mode 5, usually following unit refueling (Mode 6). Technical Specifications (TS) Limiting Condition for Operation (LCO) 3.4.3 requires RCS pressure and temperature be maintained within the limits specified in the PTLR at all times.

Approved procedures permit the RCS loops to be vacuum filled, while isolated from the reactor vessel, during Mode 5. Placing a vacuum on the RCS loop results in pressures below 0 psig. Since pressures below 0 psig are not specified on the applicable PTLR figures, vacuum filling of the RCS loops results in a condition prohibited by TS which is reportable under 10 CFR 50.73(a)(2)(i)(B).

The evaluation of the procedure changes to permit vacuum fill of the RCS in the year 2000 focused on the technical evaluation and did not adequately consider the TS compliance aspect of a vacuum condition being below the pressure range specified on the applicable RCS P/T limits figures. The BVPS Unit 1 and Unit 2 PTLRs have been revised to address vacuum conditions.

Energy Industry Identification System (EIIS) codes are identified in the text as [XX].

CONDITIONS PRIOR TO OCCURRENCE

The events described in this LER are a result of a legacy issue that was discovered on February 26, 2014, during a review of external operating experience. Beaver Valley Power Station (BVPS) Unit 1 and Unit 2 were in Mode 1 at 100 percent power when the issue was identified.

There were no systems, structures, or components that were inoperable at the start of the event that contributed to the event.

DESCRIPTION OF EVENT

On February 26, 2014, during a review of external operating experience, it was discovered that BVPS Unit 1 and Unit 2 had previously operated outside of the limits specified in the Pressure and Temperature Limits Report (PTLR) during past Reactor Coolant System (RCS) [AB] loop vacuum fill evolutions, which were performed while in Mode 5, usually following unit refueling (Mode 6). Technical Specifications (TS) Limiting Condition for Operation (LCO) 3.4.3 requires RCS pressure and temperature be maintained within the limits specified in the PTLR at all times.

BVPS Unit 1 and Unit 2 operating procedures were revised in the year 2000 to allow the vacuum assist filling of an RCS loop, isolated from the reactor vessel. The procedures permit the RCS loops to be vacuum filled during Mode 5. Placing a vacuum on the RCS loop results in pressures below 0 psig. Procedure change evaluations were completed which determined that there was sufficient technical justification for the procedure changes at each unit, however failed to identify that conditions below 0 psig were not defined on the applicable pressure/temperature (P/T) limits figures.

In the past three years, isolated RCS loops at each unit were filled using the applicable vacuum fill procedure, while in Mode 5, during the periods of: March 30, 2011 to April 2, 2011 (2R15); April 28, 2012 to May 3, 2012 (1R21); October 23, 2012 to October 26, 2012 (2R16); June 4, 2013 (2FOAC9); and October 25, 2013 to October 27, 2013 (1R22).

CAUSE OF EVENT

The evaluation of the procedure changes to permit vacuum fill of isolated RCS loops focused on the technical evaluation and did not adequately consider the TS compliance aspect of a vacuum condition being below the pressure range specified on the applicable RCS P/T limits figures.

ANALYSIS OF EVENT

In 2000, the BVPS Unit 1 and Unit 2 operating procedures were revised to allow for vacuum assist filling of an isolated RCS loop. Procedure change evaluations were completed which determined that there was adequate technical justification for the changes and concluded that the RCS components are adequately designed to withstand the effects of full vacuum conditions. These conclusions were validated during the investigation of this event. Since the RCS components are adequately designed to withstand vacuum conditions, there are no safety consequences resulting from previous vacuum filling of the isolated RCS loops.

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Beaver Valley Power Station Unit Number 1	05000334	2014	- 003	- 00	3 OF 3

NARRATIVE

TS LCO 3.4.3 requires RCS pressure and temperature be maintained within the limits specified in the PTLR at all times. Required Action C.1 states, Initiate action to restore parameter(s) to within limits with a Completion Time of Immediately. NUREG-1022, Revision 3, specifies that events that occurred within three years of the date of discovery are reportable. Since pressures below 0 psig are not specified on the applicable PTLR figures, vacuum filling of the RCS loops at each unit within the last three years are conditions prohibited by TS which is reportable under 10 CFR 50.73(a)(2)(i)(B).

CORRECTIVE ACTIONS

The BVPS Unit 1 and Unit 2 PTLRs have been revised to address vacuum conditions.

PREVIOUS SIMILAR EVENTS

A review of internal operating experience was performed for the past 10 years. No previous BVPS Unit 1 or Unit 2 LERs were identified in which a figure referenced by TS was inaccurately applied leading to a violation of a TS.

CR 2014-03819