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February 26, 2007
L-07-030

Beaver Valley Power Station, Unit No. 2
Docket No. 50-412 License No. NPF-73
LER 2006-003-01

United States Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

The following Licensee Event Report supplement is submitted:

LER 2006-003-01, 10 CFR 50.73(a)(2)(i)(B), 10 CFR 50.73(a)(2)(ii)(B), 10 CFR 50.73(a)(2)(v)(C) and 10 CFR 50.73(a)(2)(v)(D), "Scaffolding Adversely Impacts Main Steam Isolation Valves Closure Capability."



James H. Lash

Attachment

- c: Ms. N. S. Morgan, NRR Project Manager
- Mr. P. C. Cataldo, NRC Senior Resident Inspector
- Mr. S. J. Collins, NRC Region I Administrator
- INPO Records Center (via electronic image)
- Mr. L. E. Ryan (BRP/DEP)

IE22

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 hrs. 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 Beaver Valley Power Station Unit Number 2	2. DOCKET NUMBER 05000412	3. PAGE 1 of 5
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4. TITLE
Scaffolding Adversely Impacts Main Steam Isolation Valves Closure Capability

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	01	2006	2006	003	01	02	26	2007	None	
									FACILITY NAME	DOCKET NUMBER

9. OPERATING MODE 1	11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: <i>(Check all that apply)</i>																																				
10. POWER LEVEL 60	<table style="width:100%; border: none;"> <tr> <td><input type="checkbox"/> 20.2201(b)</td> <td><input type="checkbox"/> 20.2203(a)(3)(i)</td> <td><input type="checkbox"/> 50.73(a)(2)(i)(C)</td> <td><input type="checkbox"/> 50.73(a)(2)(vii)</td> </tr> <tr> <td><input type="checkbox"/> 20.2201(d)</td> <td><input type="checkbox"/> 20.2203(a)(3)(ii)</td> <td><input type="checkbox"/> 50.73(a)(2)(ii)(a)</td> <td><input type="checkbox"/> 50.73(a)(2)(viii)(A)</td> </tr> <tr> <td><input type="checkbox"/> 20.2203(a)(1)</td> <td><input type="checkbox"/> 20.2203(a)(4)</td> <td><input checked="" type="checkbox"/> 50.73(a)(2)(ii)(B)</td> <td><input type="checkbox"/> 50.73(a)(2)(viii)(B)</td> </tr> <tr> <td><input type="checkbox"/> 20.2203(a)(2)(i)</td> <td><input type="checkbox"/> 50.36(c)(1)(i)(A)</td> <td><input type="checkbox"/> 50.73(a)(2)(iii)</td> <td><input type="checkbox"/> 50.73(a)(2)(ix)(A)</td> </tr> <tr> <td><input type="checkbox"/> 20.2203(a)(2)(ii)</td> <td><input type="checkbox"/> 50.36(c)(1)(ii)(A)</td> <td><input type="checkbox"/> 50.73(a)(2)(iv)(A)</td> <td><input type="checkbox"/> 50.73(a)(2)(x)</td> </tr> <tr> <td><input type="checkbox"/> 20.2203(a)(2)(iii)</td> <td><input type="checkbox"/> 50.36(c)(2)</td> <td><input type="checkbox"/> 50.73(a)(2)(v)(A)</td> <td><input type="checkbox"/> 73.71(a)(4)</td> </tr> <tr> <td><input type="checkbox"/> 20.2203(a)(2)(iv)</td> <td><input type="checkbox"/> 50.46(a)(3)(ii)</td> <td><input type="checkbox"/> 50.73(a)(2)(v)(B)</td> <td><input type="checkbox"/> 73.71(a)(5)</td> </tr> <tr> <td><input type="checkbox"/> 20.2203(a)(2)(v)</td> <td><input type="checkbox"/> 50.73(a)(2)(i)(A)</td> <td><input checked="" type="checkbox"/> 50.73(a)(2)(v)(C)</td> <td><input type="checkbox"/> OTHER</td> </tr> <tr> <td><input type="checkbox"/> 20.2203(a)(2)(vi)</td> <td><input checked="" type="checkbox"/> 50.73(a)(2)(i)(B)</td> <td><input checked="" type="checkbox"/> 50.73(a)(2)(v)(D)</td> <td>Specify in Abstract below or in NRC Form 366A</td> </tr> </table>	<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)	<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 checked="" 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 checked="" type="checkbox"/> 50.73(a)(2)(v)(D)	Specify in Abstract below or in NRC Form 366A
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12. LICENSEE CONTACT FOR THIS LER

FACILITY NAME C. P. Keller, Manager, Regulatory Compliance	TELEPHONE NUMBER <i>(Include Area Code)</i> (724) 682-4284
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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
A	SB	ISV	-	N					

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

At 0830 hours on 10/01/06, an Instrumentation and Control (I&C) supervisor noticed that the scaffolding erected near the Beaver Valley Power Station (BVPS) Unit 2 'A' and 'B' Main Steam Isolation Valves (MSIVs) could potentially interfere with the closing operation of these MSIVs. Both MSIVs 'A' and 'B' were declared inoperable at 0835 hours. Technical Specification (TS) 3.7.1.5 requires each MSIV to be operable during Modes 1, 2 and 3, and allows one MSIV to be inoperable for up to 4 hours in Mode 1. Since TS 3.7.1.5 does not address two MSIVs being inoperable, TS 3.0.3 was entered which requires the Unit to be placed within Hot Standby (Mode 3) within the next 6 hours. By 0945 hours, the scaffolding that potentially inhibited the 'A' and 'B' MSIV movement had been removed, allowing these two MSIVs to be declared operable and BVPS Unit 2 to exit TS 3.0.3 and 3.7.1.5. This event is reportable pursuant to 10 CFR 50.73(a)(2)(i)(B), 50.73(a)(2)(ii)(B), 50.73(a)(2)(v)(C) and 50.73(a)(2)(v)(D).

The root cause of this event has been determined to be that supervisors did not reinforce procedure use and adherence for the scaffold implementation process in that implementing organizations failed to perform the pre-installation walkdown in accordance with plant procedures. The safety significance of this event was very low.

LICENSEE EVENT REPORT (LER)

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

PLANT AND SYSTEM IDENTIFICATION

Westinghouse-Pressurized Water Reactor {PWR}
Main Steam System – Main Steam Isolation Valves {SB}

CONDITIONS PRIOR TO OCCURRENCE

Unit 2: Mode 1 at 60 percent power, slowly decreasing power as a prelude to commencing a scheduled refueling outage later that night.

There were no systems, structures, or components that were inoperable at the start of the event that contributed to the event, other than the Main Steam Isolation Valves as described below.

DESCRIPTION OF EVENT

In preparation for the upcoming refueling outage expected to start on October 2, 2006, scaffolding was being erected on September 29, 2006 near the 'A' and 'B' Main Steam Isolation Valves (MSIVs) at Beaver Valley Power Station (BVPS) Unit 2. Erection of this scaffolding was completed on September 30, 2006. Some scaffold bracing would have impeded the MSIVs during closure.

At 0830 hours on October 1, 2006, a FirstEnergy Nuclear Operation Company (FENOC) Instrumentation and Control (I&C) supervisor noticed that the scaffolding erected near the 'A' and 'B' MSIVs could potentially interfere with the closing operation of these MSIVs and notified the BVPS Unit 2 control room. After a brief walkdown of the area, MSIVs 'A' and 'B' were declared inoperable at 0835 hours. Technical Specification (TS) 3.7.1.5 requires each MSIV to be operable during Modes 1, 2 and 3, and allows one MSIV to be inoperable for up to 4 hours in Mode 1. Since TS 3.7.1.5 does not address two MSIVs being inoperable, TS 3.0.3 was entered which requires the Unit to be placed within Hot Standby (Mode 3) within the next 6 hours. By 0916 hours, the scaffolding that potentially inhibited the 'B' MSIV movement had been removed and 'B' MSIV was declared operable. TS 3.0.3 was exited but BVPS Unit 2 remained in TS 3.7.1.5 action for one MSIV inoperable. By 0945 hours, the scaffolding that potentially inhibited the 'A' MSIV movement had been removed, allowing 'A' MSIV to be declared operable. TS 3.7.1.5 was exited at that time.

The 'C' MSIV was not impacted during this event.

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

REPORTABILITY

The inoperability of two of the three MSIVs due to scaffolding interference could potentially have prevented design basis accident mitigation by preventing the MSIVs from closing within the design basis time frame. This could potentially invalidate the Main Steam Line Break and Steam Generator Tube Rupture design basis accident safety analyses results, and result in additional release of radioactive material to the environment beyond that already analyzed in the Updated Final Safety Analysis Report. This was reported to the Nuclear Regulatory Commission at 1524 hours on October 1, 2006 as a loss of safety function pursuant to 10 CFR 50.72(b)(3)(v)(C) and 50.72(b)(3)(v)(D) via Event Notification 42869.

BVPS Unit 2 Technical Specification (TS) 3.7.1.5 requires "Each main steam line isolation valve shall be operable." For Mode 1, TS 3.7.1.5 Action requires "With one main steam line isolation valve inoperable but open, power operation may continue provided the inoperable valve is restored to operable status within 4 hours; otherwise, be in Hot Standby within the next 12 hours." It is estimated that the 'A' and 'B' MSIVs were made inoperable by the scaffolding installation at approximately 1000 hours on September 30, 2006. The 'B' MSIV was not returned to operable status until 0916 hours on October 1 and the 'A' MSIV was not returned to operable status until 0945 hours on October 1. The time period that 'A' and 'B' MSIVs were inoperable was greater than the 16 hours allowed by TS 3.7.1.5 before being in Mode 3. Therefore, this was a condition prohibited by plant Technical Specifications and is reportable pursuant to 10 CFR 50.73(a)(2)(i)(B).

A subsequent engineering evaluation of the impact of the scaffold on the MSIV operability determined that if the 'A' MSIV had attempted to close, it would have caused the interfering scaffold component to fail. The 'A' MSIV would have closed, but may not have fully closed within its required design basis time limit of 6 seconds. If the 'B' MSIV had attempted to close, the 'B' MSIV would not have caused the interfering scaffold component to fail and thus would have impeded the valve from closing completely. Full closure of the MSIVs within 6 seconds is a required safety function needed to ensure design basis accident analysis remain valid to mitigate the consequences of an accident and to control the release of radiation during both the Main Steam Line Break (MSLB) and a Steam Generator Tube Rupture (SGTR) design basis accidents. Since the 'A' and 'B' MSIVs were not capable of performing this safety function, this is reportable pursuant to 10 CFR 50.73(a)(2)(v)(C) and 50.73(a)(2)(v)(D) as a condition that could have prevented the fulfillment of a safety function of a system that is needed to control the release of radioactive material, and is needed to mitigate the consequences of an accident. By the same considerations, the inability of the 'A' and 'B' MSIV to fully perform their safety functions is an unanalyzed condition that significantly degraded plant safety and is reportable pursuant to 10 CFR 50.73(a)(2)(ii)(B).

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

CAUSE OF EVENT

The root cause of this event has been determined to be that supervisors did not reinforce procedure use and adherence for the scaffold implementation process in that implementing organizations failed to perform the pre-installation walkdown in accordance with plant procedures. Contributing causes included inadequate implementation of previous corrective actions that were implemented following a prior scaffold-related event in 2003 and required periodic oversight was not conducted during this scaffold erection.

SAFETY IMPLICATIONS

The plant risk associated with the BVPS Unit 2 inoperability of two MSIVs due to scaffolding interferences preventing their closure beginning on September 30, 2006 and ending on October 1, 2006 is considered to be very low as a result of the relatively short duration of 25.5 hours for the event (from the estimated time that the initial interference on 'A' MSIV began on September 30, 2006 at 0815 hours until the time that both of the interferences were removed and Technical Specification 3.7.1.5 was exited at October 1, 2006 at 0945 hours).

The majority of the increase in risk is associated with SGTR initiating events that result in a faulted, ruptured steam generator on the 'A' and 'B' steam generators due to failure to close the MSIV associated with ruptured steam generator. Without the capability to close the MSIV and isolate the faulted, ruptured steam generator, the SG pressure will depressurize to atmospheric pressure. Therefore, the RCS pressure can not be reduced below the SG pressure, and the RCS to secondary break flow would continue. These faulted SGTR events can be mitigated by continuing safety injection and making up to the Refueling Water Storage Tank. However, due to the relatively short duration of the event, this event is considered to be of very low risk significance. Furthermore, given that an engineering evaluation concluded 'A' MSIV most likely would have closed, albeit somewhat slower than the Technical Specification allowable time of 6 seconds, the risk significance of SGTR events on the 'A' steam generator was further reduced.

Based on the above, the safety significance of this event was very low.

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

CORRECTIVE ACTIONS

1. The station procedure covering scaffolding erection will be revised to provide a graded classification approach for scaffold walk-downs, to more clearly specify responsibilities, to provide direction for more robust barriers, to require a higher level of management approval for high risk scaffolds, to provide clear definitions/examples of scaffold risk levels, and to align the scaffold erection procedure with the new risk matrix site procedure, as well as several other enhancements.
2. Management will review this event and reinforce scaffolding requirements with the appropriate personnel involved with scaffold erection, which includes applicable personnel from Operations, Maintenance Services, and Construction Services.
3. A method will be instituted for Maintenance Services and Construction Services personnel involved with scaffold installation to periodically receive operating experience on scaffolding activities.
4. Human performance aspects of this event were reinforced through the actions taken to reset the site human performance clock based upon this event.

Completion of the above and other corrective actions are being tracked through the BVPS corrective action program.

PREVIOUS SIMILAR EVENTS

A review found one prior BVPS Unit 1 and no prior BVPS Unit 2 Licensee Event Reports within the last five years for an event involving either scaffolding or Main Steam Isolation Valve abnormal operation.

- BVPS Unit 1 LER 2003-001, "Safety Injection and Reactor Trip Due to Inadvertent Main Steam Isolation Valve Closure." This event involved a worker causing a Main Steam Isolation Valve to inadvertently close during power operation during the erection of a nearby scaffold.

COMMITMENTS

There are no new commitments made by FirstEnergy Nuclear Operating Company for BVPS Unit 2 in this document.