FENOC
FirstEnergy Nuclear Operating Company

Beaver Valley Power Station
Route 168
P.O. Box 4
Shippingport, PA 15077-0004

L. William Pearce
Site Vice President

724-682-5234
Fax: 724-643-8069

August 27, 2003
L-03-132

Beaver Valley Power Station, Unit No. 1
Docket No. 50-334 License No. DPR-66
LER 2003-004-00

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

In accordance with Appendix A, Beaver Valley Technical Specifications, the following Licensee Event Report is submitted:

LER 2003-004-00, 10 CFR 50.73(a)(2)(i)(B), "Safety Related River Water Pump Not Declared Inoperable When Vibration Levels Exceeded Allowable Limits."

L. William Pearce

Attachment

c: Mr. T. G. Colburn, NRR Senior Project Manager
Mr. D. M. Kern, Sr. Resident Inspector
Mr. H. J. Miller, NRC Region I Administrator
INPO Records Center (via electronic image)
Mr. L. E. Ryan (BRP/DEP)

IE22

NRC FORM 366 (7-2001) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104 EXPIRES 7-31-2004

Estimated burden per response to comply with this mandatory information collection request: 50 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records Management Branch (T-6 E6), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to bjs1@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 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 No. 1	05000334	1 OF 4

4. TITLE

Safety Related River Water Pump Not Declared Inoperable When Vibration Levels Exceeded Allowable Limit

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MO	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO	MO	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
07	03	2003	2003	- 004 -	00	08	27	2003	None	
									FACILITY NAME	DOCKET NUMBER

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

12. LICENSEE CONTACT FOR THIS LER

NAME	TELEPHONE NUMBER (Include Area Code)
L. R. Freeland, Manager Regulatory Affairs / Performance Improvement	(724) 682-5284

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
X	BI	P	B-J Pump	Yes					

14. SUPPLEMENTAL REPORT EXPECTED			15. EXPECTED SUBMISSION DATE	MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE)	X	NO				

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

During a follow-up evaluation to NRC inspector questions regarding previously identified abnormal vibrations on the Beaver Valley Power Station (BVPS) Unit 1 River Water System "A" pump, it was determined on 7/3/2003 that prior vibration data on the "A" pump had exceeded its ASME Section XI Alert Range limit for that pump on 5/13/03, which was not recognized when the vibration readings were first documented. Exceeding this ASME XI limit renders the pump inoperable. BVPS Technical Specification (TS) 3.7.4.1 Limiting Condition for Operation requires that at least two river water subsystems be operable. TS 3.7.4.1 Action requires with less than two river water subsystems operable, restore at least two subsystems to operable status within 72 hours or be in at least Hot Standby within the next 6 hours. The total elapsed time between when the first vibration reading on the "A" river water pump above its ASME XI limit was obtained on 5/13/03 and when the "C" river water pump was placed into service on 5/16/03 was 78 hours and 28 minutes. Since the time to restore compliance to TS 3.7.4.1 was greater than 78 hours, a violation of TSs occurred. This event is reportable pursuant to 10 CFR 50.73(a)(2)(i)(B) as an event that previously resulted in a plant condition prohibited by plant TS.

The causes of this event were procedure noncompliance in that the vibration monitoring program was not followed and inadequate error detection in that the vibration readings obtained on 5/13/03 were not compared against the ASME XI limits contained in the pump surveillance test procedure. The safety significance of this event was low.

PLANT AND SYSTEM IDENTIFICATION

Westinghouse-Pressurized Water Reactor (PWR)
River Water System (Essential Service Water System) {BI}

CONDITIONS PRIOR TO OCCURRENCE

Unit 1: Mode 1 at 100 % power

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

DESCRIPTION OF EVENT

On 7/3/2003, during a follow-up evaluation to NRC inspector questions regarding previously identified abnormal vibrations on the Beaver Valley Power Station (BVPS) Unit 1 River Water System "A" pump, it was determined that prior vibration data on the "A" pump had exceeded its ASME Section XI Alert Range limit for that pump on 5/13/03. This condition was not recognized when the high vibration readings were first obtained. Exceeding this ASME XI limit renders the pump inoperable per BVPS Unit 1 Technical Specification Surveillance Requirement 4.0.5.

A vibration reading of 0.250 in/sec was obtained on the motor outboard bearing of the "A" river water pump during its regular periodic surveillance test on 5/9/03 which put the pump in the ASME XI Alert range for vibration and the pump was placed on double test frequency. This vibration reading was less than the ASME XI operability limit of 0.264 in/sec. At 1525 hrs on 5/13/03, a vibration reading of 0.400 in/sec was taken as part of a routine plant tour by the vibration analyst engineer. This reading was assessed by the vibration analyst and the control room as meeting the generic industry standards of 0.650 in/sec for this type of pump. They (incorrectly) concluded that this vibration level did not threaten pump operability at that time. Since it was not recognized that the pump had exceeded its ASME XI operable vibration limit, "A" river water pump operation continued. Six additional pump vibration measurements were taken between 5/13/03 and 5/15/03 which recorded vibration readings between 0.404 and 0.500 in/sec. Based on the continued trend of elevated vibration readings and prudence to correct the vibrations, the "A" river water pump was removed from service at 2138 hours on 5/16/03 and the "C" river water pump was placed in service at 2153 hrs on 5/16/03. The "A" pump was not declared inoperable prior to it being removed from service since it was not recognized to be inoperable due to exceeding its vibration limit.

BVPS Technical Specification (TS) 3.7.4.1 Limiting Condition for Operation (LCO) requires that "At least two reactor plant river water subsystems (RPRWS) supplying safety related equipment be operable." TS 3.7.4.1 Action states "With less than two RPRWS subsystems operable, restore at least two subsystems to operable status within 72 hours or be in at least Hot Standby within the next 6 hours."

FACILITY NAME (1)	DOCKET (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Beaver Valley Power Station Unit 1	05000334	2003	- 004 -	00	3 OF 4

DESCRIPTION OF EVENT (Continued)

The total elapsed time between when the first vibration reading on the "A" river water pump was obtained as being above its ASME XI limit and when the "C" river water pump was placed into service was 78 hours and 28 minutes. Per the guidance in the NRC Enforcement Manual, a violation of TSs exists if the required actions are not completed within the Allowed Outage Time (72 hours in this event) including the TS allowed time for reaching a lower mode (6 hours to reach Hot Standby in this event) which is a total of 78 hours for this event. Therefore, a violation of TSs occurred since compliance with the LCO was not restored until the "C" river water pump was placed in service which took more time than the total allowed time of 78 hours.

REPORTABILITY

This event is reportable pursuant to 10 CFR 50.73(a)(2)(i)(B) as an event that previously resulted in a plant condition prohibited by plant Technical Specifications since BVPS Unit 1 operated for greater than 78 hours with less than two operable reactor plant river water subsystems supplying safety related equipment and the plant was not placed in the Hot Standby mode.

CAUSE OF EVENT

There were three causes for this event. 1) The vibration monitoring program criteria was not followed during routine tour monitoring by the vibration analyst which requires that the more conservative of the ASME XI limit or the generic industry standard limit be utilized when performing vibration monitoring. The vibration analyst was only checking against the generic industry standard for the type of pump (whose vibrations were not above the industry standard and thus did not indicate an inoperable pump) and was not aware of the more limiting ASME XI limit that should have been used in the vibration assessment. 2) The vibration analyst also did not properly identify the significant increase in pump vibration readings in a follow-up written report as required by the monitoring program which could have identified the problem sooner. 3) Because the flow rate at which the vibration data was obtained during the routine tour was thought to be at a different set of plant conditions than used in the normal periodic surveillance test, the review of the vibration data on 5/13/03 by the control room shift manager did not compare the new vibration measurements against the ASME XI limits in the normal periodic surveillance test. Thus, the shift manager did not declare the pump inoperable when the higher vibrations were first identified by the vibration analyst. If an additional normal surveillance had been performed at this time to confirm the vibration levels at the normal test flow conditions, the inoperability of the River Water System pump would have been identified.

SAFETY IMPLICATIONS

Although the "A" river water pump exhibited higher than normal vibrations, it was supplying adequate river water flow to the required system loads during the time that it was in operation between 5/13/03 and when it was removed from service on 5/16/03 for maintenance. In addition, the "C" river water pump was available for use in place of the "A" river water pump during this event. Since the pump remained available during this period to perform its risk mitigating function, there was no impact on station risk and this condition would be considered "green" per the NRC Significance Determination Process (SDP). In addition, the "B" river water pump remained operable during this time period. Therefore, the safety significance of this event was low.

CORRECTIVE ACTIONS

1. The site procedure for predictive monitoring will be revised to require the vibration analyst obtain the current ASME XI vibration limits prior to performing a routine vibration surveillance for various safety related pumps.

2. The Predictive Maintenance Supervisor has reinforced with the BVPS vibration analysts their primary mission of trending vibrations with particular attention given to the root causes of this event and actions necessary to be taken if an unusual trend is detected.

3. This event will be reviewed with Senior Reactor Operators with particular attention given to the root causes of this event and actions to be taken if data is obtained during conditions other than during normal plant surveillances.

4. An extent of condition review was performed and found no other case where the ASME XI pump limits were being exceeded.

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

PREVIOUS SIMILAR EVENTS

A review of past Beaver Valley Power Station Licensee Event Reports for the last four years found no similar events involving vibration monitoring or inappropriate pump operability determinations.

ATTACHMENT

Beaver Valley Power Station, Unit No. 1
License Event Report 2003-004-00

Commitment List

The following list identifies those actions committed to by FirstEnergy Nuclear Operating Company (FENOC) for Beaver Valley Power Station (BVPS) Unit No. 1 in this document. Any other actions discussed in the submittal represent intended or planned actions by Beaver Valley. These other actions are described only as information and are not regulatory commitments. Please notify Mr. Larry R. Freeland, Manager, Regulatory Affairs/Performance Improvement, at Beaver Valley on (724) 682-5284 of any questions regarding this document or associated regulatory commitments.

Commitment	Due Date
The site procedure for predictive monitoring will be revised to require the vibration analyst obtain the current ASME XI vibration limits prior to performing a routine vibration surveillance for various safety related pumps.	As tracked through the Corrective Action Program.
This event will be reviewed with Senior Reactor Operators with particular attention given to the root causes of this event and actions to be taken if data is obtained during conditions other than during normal plant surveillances.	As tracked through the Corrective Action Program.