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November 14, 2003

LTR: BYRON 2003-0111  
File: 2.01.0700

United States Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, DC 20555-0001

Subject: Licensee Event Report (LER) 454-2003-004-00, "Two Main Steam Safety Valves Lift Setpoints Found Out of Tolerance During Testing Due to Unknown Causes

Byron Station, Unit 1  
Facility Operating License No. NPF-37  
NRC Docket No. STN 50-454

Enclosed is an LER involving the September 16 2003, event involving two Main Steam Safety Valves found out of tolerance during testing. This event is reportable to the NRC in accordance with 10CFR 50.73 a.2.i.b, as a condition prohibited by Technical Specifications.

Should you have any questions concerning this matter, please contact Mr. William Grundmann, Regulatory Assurance Manager, at (815) 406-2800.

Respectfully,



*for* Stephen E. Kuczynski  
Site Vice President  
Byron Nuclear Generating Station

Attachment LER 454-2003-004-00

cc: Regional Administrator, Region III, NRC  
NRC Senior Resident Inspector- Byron Station

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<b>NRC FORM 366</b> (7-2001)		<b>U.S. NUCLEAR REGULATORY COMMISSION</b>		<b>APPROVED BY OMB NO. 3150-0104 EXPIRES 7-31-2004</b> 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, NEOB0202 (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.							
<b>LICENSEE EVENT REPORT (LER)</b>											
<b>1 FACILITY NAME</b> Byron Station, Unit 1				<b>2 DOCKET NUMBER</b> 05000454		<b>3 PAGE</b> 1 OF 4					
<b>4. Two Main Steam Safety Valves Lift Setpoints Found Out of Tolerance During Testing Due to Unknown Causes</b>											
<b>5. EVENT DATE</b>			<b>6. LER NUMBER</b>			<b>7. REPORT DATE</b>			<b>8. OTHER FACILITIES INVOLVED</b>		
MO	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO	MO	DAY	YEAR	FACILITY NAME	DOCKET NUMBER	
09	16	2003	2003	004	00	11	14	2003			
<b>9. OPERATING MODE</b> 1		<b>11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 50. (Check all that apply)</b>									
<b>10. POWER LEVEL</b> 94		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					
20.2203(a)(2)(iii)		50.46(a)(3)(ii)		50.73(a)(2)(v)(C)		Specify in Abstract below or in NRC Form 366A					
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)							
<b>12. LICENSEE CONTACT FOR THIS LER</b>											
<b>NAME</b> William Grundmann, Regulatory Assurance Manager								<b>TELEPHONE NUMBER (Include Area Code)</b> (815) 406-2800			
<b>13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT</b>											
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX		
X	SB	SV	C568	Yes							
<b>14. SUPPLEMENTAL REPORT EXPECTED</b>								<b>15. EXPECTED SUBMISSION DATE</b>			
YES (If yes, complete EXPECTED SUBMISSION DATE)				X NO				MONTH	DAY	YEAR	

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

During setpoint testing of the Unit 1 Main Steam Safety Valves (MSSVs) on September 16, 2003, two of the 20 MSSVs (i.e., 1MS016A and 1MS015D) failed to meet Technical Specification (TS) required lift setpoint tolerances. The 1MS016A valve's as found lift setting was 3.9% low and the 1MS015D valve's as found lift setting was 3.5% low. Operations personnel entered the applicable TS Action Condition until each valve was reset and tested satisfactorily. Because the MSSVs were tested sequentially, only one valve was known to be inoperable at any one time. The cause of the 1MS016A and 1MS015D valves lifting low is unknown. An engineering analysis concluded that this condition was still bounded by the design basis analyses. This condition of multiple MSSVs being outside of their required lift setting tolerance band is reportable in accordance with 10 CFR 50.73 (a)(2)(i)(b), "Any operation or condition prohibited by the plants Technical Specifications."

<b>NRC FORM 366A</b> (7-2001)		<b>U.S. NUCLEAR REGULATORY COMMISSION</b>		<b>APPROVED BY OMB NO. 31500104</b> <b>EXPIRES 07/31/2004</b>	
<b>LICENSEE EVENT REPORT (LER)</b> TEXT CONTINUATION				Estimated burden per response to comply with this mandatory information collection request: 50 hrs. Reported lessons learned are incorporated into the licensing process and fed back to industry. Forward comments regarding burden estimate to the Information and Records Management Branch (t-6 f33), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, and to the Paperwork Reduction Project (3150-0104), Office Of Management And Budget, Washington, DC 20503. If 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>FACILITY NAME (1)</b>		<b>DOCKET NUMBER (2)</b>		<b>LER NUMBER (6)</b>	
Byron Station, Unit 1		STN 05000454		YEAR SEQUENTIAL NUMBER	REVISION NUMBER
				2003 - 004 - 00	
				2 of 4	

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

**A. Plant Conditions Prior to Event:**

Event Date/Time: September 16, 2003 / 0551 hours

Unit 1 - Mode 1 – Power Operations, Reactor Power 94%

Reactor Coolant System [AB]: Normal operating temperature and pressure.

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

**B. Description of Event:**

Byron Station, Unit 1 is configured with four steam generators. Each steam generator has five Main Steam Safety Valves (MSSV) [SB], which provide overpressure protection. The MSSVs are tested each cycle in accordance with the In-Service Testing (IST) program. On September 16, 2003, with Unit 1 at 94% power, the setpoint testing of the MSSVs was initiated. Specifically, the IST program requires testing a minimum of four valves (i.e., 20%) of the twenty total MSSVs on the four steam generator loops, with all 20 valves being tested at least once every five years. However, due to the test failures incurred, the testing sample was expanded to include all 20 valves. These MSSV tests verify that the actual MSSV lift settings are in accordance with Technical Specification (TS) 3.7.1, "Main Steam Safety Valves." The TS allows a 3% tolerance on the as found lift setting and requires all tested valves to be set to a 1% as left tolerance. The test determines each valve's actual lift setting using normal system pressure with assistance from a hydraulic testing device. The MSSV testing is performed in accordance with Byron Station Maintenance Procedure (BMP) 3114-15, "Main Steam Safety Valve Verification of Lift Point Using Furmanite's Trevitest Equipment." The procedure's as left acceptance criteria require two consecutive lift tests within 1% of the valve's required lift setpoint with no adjustments performed between these tests.

The MSSV tests, and any required valve adjustments, were performed on only one valve at a time. Valves not meeting acceptance criteria were adjusted and satisfactorily tested before proceeding to the next valve.

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Byron Station, Unit 1		STN 05000454		YEAR	SEQUENTIAL NUMBER
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### Description of Event (cont.)

The initial lift test results on two of the 20 MSSV valves exceeded the 3% TS as found tolerance limit. The test results are as follows:

Valve	TS Setpoint (psi)	3% TS Limits (psi)	Initial Lift (psi)	% Difference
1MS016A	1190	1160 - 1220	1143	-3.9%
1MS015D	1205	1175 - 1235	1163	-3.5%

This condition of multiple MSSVs being outside of their required lift setting tolerance band is reportable in accordance with 10 CFR 50.73 (a)(2)(i)(b), "Any operation or condition prohibited by the plant's Technical Specifications."

### **C. Cause of Event:**

The cause of the two MSSV failures is currently unknown. A root cause investigation is still in progress and a supplement to this report will be issued if a definitive cause is determined.

### **D. Safety Analysis:**

The primary purpose of the MSSVs is to provide overpressure protection for the secondary system. These valves also provide protection against over-pressurizing the reactor coolant pressure boundary by providing a heat sink for the removal of energy from the reactor coolant if the preferred heat sink provided by the condenser [SD] is not available. The MSSVs also serve as containment isolation valves.

An engineering evaluation was conducted to determine the effect of having two MSSVs out of tolerance on Chapter 15, "Accident Analyses," in the Updated Final Safety Analysis Report. This analysis concluded that considering the as-found MSSV setpoints, the conclusions of Chapter 15 analyses still remain valid. Therefore, the overall impact on plant safety due to the identified condition was minimal. This condition is not a safety system functional failure.

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

**E. Corrective Actions:**

The Maintenance Department immediately notified Operations after each of the initial MSSV lifts that exceeded the +/-3% TS limit and the appropriate TS Action Condition was entered. The valves were adjusted and re-tested satisfactorily.

The 1MS016A and 1MS015D valves will be retested in the next setpoint testing campaign scheduled for Spring 2005.

**F. Previous Occurrences:**

During the previous four years there have been several LERs at Byron Station involving multiple MSSVs lifting outside their acceptance criteria, however these events involve the MSSVs lifting high and were attributed to the disc bonding phenomena. One previous LER was found involving multiple valves lifting low.

LER 454-2003-002, "Two Main Steam Safety Valves Lift Setpoints Found Out of Tolerance During Testing Due to Unknown Causes," dated 4/14/003.

**G. Component Failure Data:**

<u>Manufacturer</u>	<u>Nomenclature</u>	<u>Model</u>	<u>Mfg. Part Number</u>
Dresser	Main Steam Safety Valve (MSSV)	3707R	N/A