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10 CFR 50.73

December 12, 2011  
Byron Ltr 2011 - 0171  
File #: 1.10.0101

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

Byron Station, Unit 2  
Facility Operating License No. NPF-66  
NRC Docket No. STN 50-455

Subject: Licensee Event Report 2011-002-00, "Containment Pressure Not Within Limits Longer than Allowed by Technical Specifications Due to Personnel Error"

The enclosed Licensee Event Report (LER) is being submitted in accordance with 10 CFR 50.73, "Licensee event report system," paragraph (a)(2)(i)(B), as a condition prohibited by Technical Specifications. The LER involves a condition where Unit 2 containment pressure Technical Specifications limit was exceeded due to instrument technician error.

There are no regulatory commitments contained in this letter. Should you have any questions concerning this submittal, please contact Mr. David Gudger, Regulatory Assurance Manager, at (815) 406-2800.

Respectfully,



Timothy J. Tulon  
Site Vice President  
Byron Station

Enclosure: LER Number 455-2011-002-00

**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: 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](mailto: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.

<b>1. FACILITY NAME</b> Byron Station, Unit 2	<b>2. DOCKET NUMBER</b> 05000455	<b>3. PAGE</b> 1 OF 4
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<b>4. TITLE</b> Containment Pressure Not Within Limits Longer than Allowed by Technical Specifications Due to Personnel Error
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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	13	11	2011	- 002 - 00		12	12	2011	N/A	05000
									FACILITY NAME	DOCKET NUMBER
										05000

<b>9. OPERATING MODE</b> 1	<b>11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)</b>									
<b>10. POWER LEVEL</b> 095	<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)(vii)(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 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							

<b>12. LICENSEE CONTACT FOR THIS LER</b>									
FACILITY NAME David Gudger, Regulatory Assurance Manager								TELEPHONE NUMBER (Include Area Code) 815-406-2800	

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

<b>14. SUPPLEMENTAL REPORT EXPECTED</b>					<b>15. EXPECTED SUBMISSION DATE</b>			MONTH	DAY	YEAR
<input type="checkbox"/> YES (If yes, complete 15. EXPECTED SUBMISSION DATE)					<input checked="" type="checkbox"/> NO					

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

On October 12, 2011, Operations personnel noticed Safety Injection (SI) containment pressure indications (wide range) exceeded Technical Specifications limits while the Containment Ventilation (VP) pressure indicator (narrow range) indicated pressure was within limits. The VP indicators are used to verify containment pressure is within Technical Specifications limits. This discrepancy was entered into the Corrective Action Program to investigate. On October 13, 2011, it was determined that the SI containment pressures were functioning correctly and the VP pressure indicator was non-functional. The appropriate Technical Specifications Condition was entered and containment pressure reduced to within limits. The cause of the non-functioning VP pressure indicator was due to instrument technicians inappropriately installing a foreign material exclusion (FME) cap over an external fitting of the inside containment pressure transmitter's housing during a recent calibration activity. This fitting is connected to the transmitter pressure sensing unit. The technicians failed to use the Maintenance Alteration Process correctly by installation of this FME cap when the Maintenance Alteration log did not indicate a FME cap was removed. Corrective actions include reinforcement of the requirement to use the Maintenance Alteration Process with Maintenance personnel and revising the inside containment pressure transmitter's calibration procedures to contain a warning that the external fitting on the transmitter's housing must remain open during plant operations.

U.S. NUCLEAR REGULATORY COMMISSION

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**NARRATIVE**

Background

Technical Specifications (TS) 3.6.4, "Containment Pressure," applicable in Modes 1 through 4, requires containment pressure to be greater than or equal to 0.1 psig and less than or equal to 1.0 psig. If containment pressure is not within limits, then Condition A requires it to be restored to within limits within one hour. If Condition A is not met, then Condition B requires the Unit to be in Mode 3 in six hours and Mode 5 in 36 hours. Surveillance Requirement 3.6.4.1 requires verification of containment pressure to be within limits every 12 hours. This is accomplished by an Operator recording and verifying pressure is within limits from a narrow range Containment Ventilation (VP) [BK] system differential pressure indicator (i.e., 2PDI-VP236) located in the Main Control Room. Pressure Indicator 2PDI-VP231, also displays in the Main Control Room, is fed from the same pressure transmitters as the 2PDI-VP236 indicator. Other containment pressure indications exist, such as the four Safety Injection (SI) [BQ] system containment pressure indicators 2SI-0934, 0935, 0936 and 0937, however each are wide range instruments and their control board indicators are not conducive to accurately measuring pressures in the normal containment pressure range.

Unit 2 had just completed a refueling outage on October 9, 2011.

**A.    Plant Operating Conditions Before the Event:**

Unit 2 was in Mode 1 — Power Operations at approximately 95% power and ramping to full power.

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

**B.    Description of Event**

On October 12, 2011, during standard Main Control Room control board instrument monitoring, an Operator identified that the four wide range SI containment pressure indicators displayed containment pressure ranging from approximately 1.5 to 2.0 psig while the narrow range 2PDI-VP236 indicated pressure was within limits at value of 0.5 psig. 2PDI-VP231 also indicated containment pressure was within limits. This condition was entered into the Corrective Action Program to investigate and resolve this discrepancy. On October 13, 2011, initial investigations indicated the four SI containment pressure indicators appeared to be working properly. Consequently, at approximately 1400, a containment release was initiated to reduce containment pressure, as sensed by the SI pressure instruments, to below the one psig limit. During the release, the four SI pressure channels correctly indicated the expected pressure reduction trend while the 2PDI-VP236 indicated no change in containment pressure. As a result, the 2PDI-VP236 was declared non-functional and at 1430, Condition A for TS 3.6.4 was entered. All four SI containment pressure channels were below the 1.0 psig limit by 1512, and Condition A was exited.

An investigation determined that during the calibration of the inside containment pressure transmitter for the 2PDI-VP236 instrument loop on September 28, 2011, an instrument technician inappropriately installed a foreign material exclusion (FME) cap over the brass fitting that exits the transmitter housing. This fitting is connected to the pressure sensing unit within the transmitter's housing. With this FME cap installed,

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Description of Event (cont'd)

containment atmosphere was isolated from the pressure sensing unit and therefore, rendered it unresponsive to containment pressure changes.

A historical review from the process computer of the SI containment pressure indicates that on October 9, 2011, at approximately 1600, containment pressure high limit of 1.0 psig was exceeded and remained above the limit until the containment release on October 13, 2011. Consequently, at approximately 2300 on October 9, 2011, TS 3.6.4 was unknowingly violated by not complying with TS 3.6.4 Conditions A and B. This is a condition prohibited by TS and reportable to the NRC in accordance with 10 CFR 50.73 (a)(2)(i)(B).

On October 14, 2011, the FME cap was removed and the transmitter restored to functional status.

**C.    Cause/s of the Event**

The instrument technicians conducting the calibration of the inside containment transmitter on September 28, 2011, failed to correctly use the Maintenance Alteration Process.

The calibration of the inside containment pressure transmitter was initiated by one instrument maintenance crew on September 23, 2011, and due to delays, later finished by a second crew on September 28, 2011.

The second crew believed a FME cap was necessary for the open fitting after the calibration was completed as a FME control device; however, a FME cap should not have been installed unless the Maintenance Alteration log indicated a FME cap had been previously removed from the fitting. The second crew assumed the FME cap was removed previously by the first crew and they had failed to document it on the Maintenance Alteration log.

Contributing causes include the instrument technician's unfamiliarity with the purpose of the fitting on the pressure transmitter's housing and operator's over reliance on one indicator to verify containment pressure was within limits when other indicators indicated containment pressure limits were exceeded.

**D.    Safety Significance**

There were minimal adverse safety consequences from this event. The instrument loop for 2PDI-VP236 only provides the Main Control Room indication of containment pressure and provides input to the "Containment Pressure High" annunciator.

During this timeframe the inside containment pressure transmitter's pressure sensing fitting was capped, the highest containment pressure indication from the SI pressure indicators was 1.91 psig. Had a design basis loss of coolant accident occurred during the brief time period containment pressure exceeded the TS limit, the peak containment pressure would have reached approximately 40 psig. This is approximately 1.0 psig higher than currently analyzed. However, ample margin still exists to the containment design pressure of 50 psig.

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**NARRATIVE**

Though the containment high pressure annunciator was disabled, standard operating monitoring of control room indicators would have detected and prevented containment pressure from inadvertently reaching the SI Containment Pressure High setpoint of 3.4 psig. This is not a safety system functional failure.

**E.    Corrective Actions**

The requirement to use the Maintenance Alteration Process will be re-inforced with Maintenance personnel.

The VP pressure transmitters will be labeled and their calibration procedures revised to contain a warning that the external fitting on the transmitter's housing must remain open during plant operations.

An extent of condition review will be conducted to identify other pressure instrumentation that must be open to the environment.

The Instrument Maintenance department will evaluate the need for additional training to technicians regarding pressure instrumentation.

Other daily/shiftly readings by Operations will be reviewed and enhanced based on lessons learned of this event.

**F.    Previous Occurrences**

No previous events were identified at Byron Station in previous three years.