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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: Supplemental Licensee Event Report 2009-001-01, "Late Entry into Technical Specification Condition Associated with Reactor Coolant System Leakage Characterization Resulting in a Condition Prohibited by Technical Specifications"

The enclosed supplement Licensee Event Report (LER) is being submitted to provide updated information concerning the cause and corrective actions of the event. The LER involves the late entry of Technical Specification 3.4.13, "RCS Operational Leakage," Condition B on June 26, 2009.

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,

Daniel J. Enright
Site Vice President
Byron Station

Enclosure: LER Number 2009-001-01

NRC FORM 366 (9-2007) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0104 EXPIRES: 08/31/2010

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 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.

LICENSEE EVENT REPORT (LER)

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

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4. TITLE Late Entry into Technical Specification Condition associated with Reactor Coolant System Leakage Characterization resulting in a condition prohibited by Technical Specifications

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
									N/A	
06	24	2009	2009	001	01	02	10	2010	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)(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
☐ 20.2203(a)(2)(vi)	☒ 50.73(a)(2)(i)(B)	☐ 50.73(a)(2)(v)(D)	Specify in Abstract below or in NRC Form 366A

12. LICENSEE CONTACT FOR THIS LER

FACILITY NAME	TELEPHONE NUMBER *(Include Area Code)*
David Gudger, Regulatory Assurance Manager	(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

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

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

On June 24, 2009, at approximately 1:00 pm, a small pinhole leak was identified in a coupling weld connection of a 3/8 inch diameter Process Sampling (PS) tube which is connected to the Unit 2 Reactor Coolant System (RCS). The leak rate was characterized as less than one drop in five minutes which is estimated to be approximately 0.005 gallons per day. This pinhole leak was in a non-ASME code line and was isolated from the RCS via an ASME Class 2 closed sample control air operated valve. After a review of the appropriate Technical Specifications (TS), Shift Management concluded this small leak was considered RCS "identified" leakage and not RCS "pressure boundary" leakage. Therefore, no TS actions were deemed to be necessary for this condition. The NRC Senior Resident Inspector challenged the characterization of the leak as RCS "identified" leakage versus RCS "pressure boundary" leakage. The NRC's basis for this position was that the leak was not isolated because some leak by was occurring past the isolation valve's seat out through the fault.

After continued discussions with the NRC, the licensee acknowledged the NRC position and immediately entered TS 3.4.13 Condition B on Unit 2 for exceeding the RCS "pressure boundary" leakage limit at 4:30 pm on June 26, 2009. Condition B requires Unit 2 to be placed in Mode 3 in six hours and Mode 5 in 36 hours. In addition, an expedited repair effort of the PS line had been initiated earlier in the day. The repair to the line was successfully performed and tested by 8:07 pm, and TS 3.4.13 Condition B was exited prior to a power reduction.

Shift Management incorrectly characterized the RCS leakage as identified leakage. Shift Management personnel will be trained on how to correctly characterize RCS leakage of this nature. This event had very low safety significance due to the extremely small nature of the leakage past the seat of the closed isolation valve.

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NARRATIVE

A. Background

Technical Specifications defines the following three categories of Reactor Coolant System (RCS) Leakage:

a. Identified Leakage

1. Leakage, such as that from pump seals or valve packing (except reactor coolant pump (RCP) seal water injection or leakoff), that is captured and conducted to collection systems or a sump or collecting tank;
2. Leakage into the containment atmosphere from sources that are both specifically located and known either not to interfere with the operation of leakage detection systems or not to be pressure boundary Leakage; or
3. Reactor Coolant System (RCS) Leakage through a Steam Generator (SG) to the Secondary System (primary to secondary leakage);

b. Unidentified Leakage

All leakage (except RCP seal water injection or leakoff) that is not identified Leakage;

c. Pressure Boundary Leakage

Leakage (except primary to secondary Leakage) through a nonisolable fault in an RCS component body, pipe wall, or vessel wall.

B. Description of Event

Event Date/Time: June 24, 2009 / 1:00 pm CDT

Unit 2 was in Mode 1 – Power Operations

Unit 2 Reactor Coolant System (RCS) [AB]: Normal operating temperature and pressure

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

On June 24, 2009, at approximately 1:00 pm, a small pinhole leak was identified in a coupling weld connection of a 3/8 inch diameter Process Sampling (PS) [KN] tube which is connected to the Unit 2 RCS. The leak rate was characterized as less than one drop in five minutes which is estimated to be approximately 0.005 gallons per day. This pinhole leak was in a non-American Society of Mechanical Engineers (ASME) code line and was isolated from the RCS via an ASME Class 2 closed sample control air operated valve (i.e., 2PS9350B). Also, upstream of the leak was a manual valve, however, the manual valve was open and could not be closed at power due to its location within the biological shield due to radiological concerns.

The observed leakage was likely due to a small amount of seat leakage by the closed 2PS9350B valve seat. This leakby was well within the design specifications of the isolation valve for seat leakby.

NARRATIVE

Shift Management was immediately notified. After a review of the appropriate Technical Specifications (TS), Shift Management concluded this small leak was considered RCS "identified" leakage and not RCS "pressure boundary" leakage. No TS actions were necessary for this condition since the TS 3.4.13, "RCS Operational Leakage", limit on RCS "identified" leakage is less than 10 gpm and the existing identified leakage for Unit 2 at the time was 0.0467 gpm. This conclusion of RCS "identified" leakage was based on the determination that the leak was through an isolable fault in the RCS pressure boundary and this fault was isolated from the RCS via the closed 2PS9350B. 2PS9350B was fully qualified, operable and no degraded condition existed with the valve's operation at the time. Although a small amount of leakby was likely occurring past the closed isolation valve it was still considered isolated from the RCS. The condition was placed into the Corrective Action Program and appropriate administrative controls were initiated to ensure the 2PS9350B remained closed.

On June 26, 2009, at 7:00 am, the site was informed by the NRC Senior Resident Inspector that they disagreed with our characterization of the leak as RCS "identified" leakage and that it should be instead considered RCS "pressure boundary" leakage. The NRC's basis for this position was that the leak was not isolated because some leakby was occurring past the isolation valve's seat out through the fault.

In light of the NRC's position, the site re-visited the basis for the original conclusion by Shift Management and concluded the original decision to characterize the leakage as RCS "identified" leakage was appropriate. The NRC was notified accordingly. At approximately 4 pm, the NRC again reiterated that they disagreed with the site's conclusion and that they believed the leakage is RCS "pressure boundary" leakage and the appropriate TS needed to be followed.

The licensee acknowledged the NRC position and immediately entered TS 3.4.13 Condition B on Unit 2 for exceeding the RCS "pressure boundary" leakage limit at 4:30 pm on June 26, 2009. Condition B requires Unit 2 to be placed in Mode 3 in six hours and Mode 5 in 36 hours. In addition, an expedited repair effort of the PS line had been initiated earlier in the day. The repair to the line was successfully performed and tested by 8:07 pm, and TS 3.4.13 Condition B was exited prior to beginning the required ramp down to Mode 3. Note that during the repair when the line was drained and 2PS9350B was used as an isolation point, a small trickle of water came out which tapered quickly down to less than discernable.

Applying the NRC position to this condition, a TS non-compliance existed in that TS 3.4.13 Condition B should have been entered on June 24, 2009, at approximately 1:00 pm. Unit 2 not being in Mode 3 by 7:00 pm on June 24, 2009, is a condition prohibited by TS and reportable to the NRC in accordance with 10 CFR 50.73(a)(2)(i)(B).

C. Cause of the Event

Through the application of TS and TS Bases, Shift Management and organizational support personnel incorrectly characterized an RCS leakage situation as identified leakage versus RCS pressure boundary leakage. Contributing to this leakage characterization was unclear Technical Specification requirements concerning RCS pressure boundary leakage.

NARRATIVE

D. Safety Significance

This event had very low safety significance due to the extremely small nature of the leakage past the seat of the closed isolation valve for approximately 55 hours before Technical Specification 3.4.13 Condition B was entered.

A postulated worst-case leakage from a complete severance of the 3/8 inch PS line, and assuming the isolation valve was stuck full open, would still be well within the RCS system makeup system's capability. The reactor could be shutdown and cooled in an orderly manner.

E. Corrective Actions

The leak has been repaired. Shift Management personnel have been informed of this event and will be trained on how to correctly characterize RCS leakage situation of this nature. Training for appropriate organizational support personnel will be assessed and implemented as required. The NRC will engage the Industry's Technical Specifications Task Force to provide clarifying guidance in the Technical Specification. Byron Station intends to adopt this clarification once approved by the NRC through the Consolidated Line Item Improvement Process.

F. Previous Occurrences

None