

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 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.

1. FACILITY NAME Byron Station, Unit 1	2. DOCKET NUMBER 05000454	3. PAGE 1 of 4
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4. TITLE One of Two Trains of Hydrogen Recombiners Inoperable Longer Than Allowed by Technical Specifications Due to Inadequate Procedure

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
09	26	2004	2005	- 002 -	00	04	15	2005	Byron Station, Unit 2	05000455
									N/A	N/A

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 100	<input type="checkbox"/> 20.2201(b) <input type="checkbox"/> 20.2203(a)(3)(i) <input type="checkbox"/> 50.73(a)(2)(i)(C) <input checked="" 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)(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 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) <div style="text-align: right; font-size: small;">Specify in Abstract below or in NRC Form 366A</div>

12. LICENSEE CONTACT FOR THIS LER

NAME William Grundmann, Regulatory Assurance Manager	TELEPHONE NUMBER (Include Area Code) (815) 406-2800
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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
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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

On February 14, 2005, the System Engineer for the hydrogen recombiner (OG) system discovered a flow transmitter test tap pipe cap was not installed on the 0A train. This condition rendered the 0A OG train inoperable and Technical Specification (TS) 3.6.8, "Hydrogen Recombiners" action condition "A" was entered. This condition allows one train of OG to be inoperable for 30 days. A cap was installed and TS 3.6.8 condition "A" exited. The last maintenance activity on the 0A OG train was the August 27, 2004 execution of the 18 month surveillance calibration procedure, Byron Instrument Maintenance Surveillance Requirement (BISR) Z.6.A.1-202, "Surveillance Calibration Of Hydrogen Recombiner Inlet Flow Loop." During this calibration activity, the flow transmitter test tap pipe cap was removed as setup for the calibration activity and not replaced at the conclusion of the calibration. As a result, the 0A OG train was inoperable since August 27, 2004. Consequently, 30 days later, on September 26, 2004 both units were inadvertently in a condition prohibited by TS 3.6.8. This condition existed from September 26, 2004 until February 14, 2005. The 0B train was always operable in this time period. The cause of the event was inadequate procedure and poor enforcement of management's expectation that procedural inadequacies be fixed. Corrective actions will fix the procedure and institute activities that will re-enforce expectations. There were minimal safety consequences. Any operation or condition prohibited by Technical Specifications is reportable to the NRC in accordance with 10 CFR 50.73 (a)(2)(i)(b).

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		2005	- 002	- 000	

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

A. Plant Condition Prior to Event:

Event Date/Time: September 26, 2004 / 0936 hours

Unit 1 and Unit 2 - Mode 1 – Power Operations, Reactor Power 100%

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.

Background

The Containment Combustible Gas Control System (OG) [BB] at Byron Station consists in part, of two 100% capacity independent hydrogen recombiner trains (i.e., 0A and 0B) and are shared between the two units.

B. Description of Event:

On February 14, 2005, during the performance of a scheduled gaseous leakage test of the 0A OG train, the System Engineer (non-licensed) discovered a flow transmitter test tap pipe cap was not installed. This condition rendered the 0A OG train inoperable due to inaccurate flow indication. The 0A train was declared inoperable and Technical Specification (TS) 3.6.8, "Hydrogen Recombiners" action condition "A" was entered for both units at 1045 hours. This condition allows one train of OG to be inoperable for 30 days. A cap was installed and TS 3.6.8 condition "A" exited at 1700 the same day. The 0B OG train was checked and found to have its corresponding cap installed.

An investigation ensued and the review of historical work records identified that the last maintenance activity on the 0A OG train was the August 27, 2004 execution of the 18-month calibration procedure, Byron Instrument Maintenance Surveillance Requirement (BISR) Z.6.A.1-202, "Surveillance Calibration Of Hydrogen Recombiner Inlet Flow Loop." It was determined that during this calibration activity, the flow transmitter test tap pipe cap was removed as setup for the calibration activity and not replaced at the conclusion of the calibration procedure.

As a result, the 0A OG train was unknowingly inoperable since 0936 hours on August 27, 2004. TS 3.6.8 condition "A" allows for one train of OG to be inoperable for 30 days and if the train is not restored to operable status then condition "C" requires both units to be in Mode 3 in the next 6 hours.

Consequently, on September 26, 2004 at 1536 hours, (i.e., 30 days plus 6 hours) both units were inadvertently in a condition prohibited by TS 3.6.8 in that both units were in Mode 1 and not in Mode 3.

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(B. Description cont.)

This condition existed from September 26, 2004 until February 14, 2005. A review of Operator logs indicates the 0B train was always operable in this time period.

C. Cause of Event:

The calibration procedure BISR Z.6.a.1-202 was inadequate in that it failed to contain the explicit procedural steps to ensure the test tap pipe caps were properly re-installed.

In addition, the Maintenance Management enforcement of the use of human performance tools within the maintenance departments was inadequate. The IM technicians involved in the August 27, 2004 calibration and other IM technician involved in previous calibrations using this procedure should have recognized the procedural inadequacies prior to execution and revised the procedure accordingly. The IM technicians involved accepted the inadequate procedure and relied on their craft capabilities to properly conduct the calibration.

D. Safety Analysis

The current licensing basis for the hydrogen recombiners is to provide the capability of controlling bulk hydrogen concentration in containment to less than the lower flammable concentration of 4.0 volume percent following a design basis accident. This capability was still maintained with the 100% redundant 0B train. However, for this approximate six-month period the reliability of the overall system function of hydrogen control inside containment was reduced in that one train was inoperable.

The NRC has recently revised 10 CFR 50.44, "Combustible gas control for nuclear power reactors" to eliminate, in part, the requirements for hydrogen recombiners in gas controls in light water cooled power reactors. Consequently, Byron Station has submitted to the NRC a license amendment request (LAR) (reference 1) to eliminate the hydrogen recombiner Technical Specifications requirements. This LAR is in accordance with the NRC's consolidated line item improvement process for Technical Specification Task Force Standard Technical Specification Change Traveler 447, "Elimination of Hydrogen Recombiners and Change to Hydrogen and Oxygen Monitors."

Based on a preliminary engineering assessment using the Alternate Source Term methodology with known containment and control room leakage rates, the total doses for the Main Control Room, Exclusion Area Boundary and the Low Population Zone are within regulatory limits. A conservatively high value of leakage from the missing fitting on the recombiner was used as input to the dose calculations. In addition to the dose effects, the following were reviewed with acceptable consequences:

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(D. Safety Analysis cont.)

1. Effects of venting hydrogen to the Auxiliary Building,
2. Effects of venting high temperature/high humidity vapor to the Auxiliary Building.
3. Effects of the jet impingement on nearby components,
4. Effects on required Operator access to equipment.

Based on the above, the leakage from the recombiner has minimal safety significance.

E. Corrective Actions

BISR Z.6.A.1-202 will be revised prior to the next calibration to address the procedural deficiencies that led to this event.

The Instrument Maintenance Department will implement, within the standard work preparation process, a requirement six weeks prior to work execution, to conduct a review of the adequacy of involved procedures.

An extent of condition review will be conducted of instrument maintenance procedures related to TS systems to identify any similar inadequacies.

Maintenance Management's expectations will be re-enforced to use human error prevention tools in reviewing procedures and to revise procedures when found to be inadequate.

Maintenance Management will develop and institutionalize specific annual training for the Maintenance organization on human error events involving complacency/overconfidence and the failed defense of procedure adherence.

F. Previous Occurrences

There have been no LERs within the past two years of a similar nature.

G. Component Failure Data:

Manufacturer _____ Nomenclature _____ Model _____

N/A

H. Reference/s

1. Keith Jury (Exelon) to U.S. NRC Document Control Desk, "Request for Amendment to Technical Specifications to Eliminate Requirements for Hydrogen Recombiner and Hydrogen/Oxygen Monitors Using the Consolidated Line Item Improvement Process," dated September 15, 2004.