

Exelon Generation Company, LLC
Byron Station
4450 North German Church Road
Byron, IL 61010-9794

www.exeloncorp.com

November 26, 2001

LTR: BYRON 2001-0156
File: 2.01.0700

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

Byron Station, Units 1 and 2
Facility Operating License Nos. NPF-37 and NPF-66
NRC Docket Nos. STN 50-454 and STN 50-455

Subject: Licensee Event Report (LER) 454-2001-002-00

Enclosed is an LER involving the September 26, 2001, event involving an entry into Technical Specification (TS) Surveillance Requirement (SR) 3.0.3 when it was discovered the SRs for (TS) 3.7.1, "Main Steam Isolation Valves" were not performed in the required plant mode. This event is reportable to the NRC in accordance with 10 CFR 50.73 (a)(2)(i)(b).

Should you have any questions concerning this matter, please contact Mr. William Grundmann, Regulatory Assurance Manager, at (815) 234-5441, extension 2800.

Respectfully,



Richard P. Lopriore
Site Vice President
Byron Nuclear Generating Station

RPL/JL/dpk

Enclosure: LER 454-2001-002-00

cc: Regional Administrator, NRC Region III
NRC Senior Resident Inspector – Byron Station
NRC Project Manager – NRR – Byron Station
Office of Nuclear Facility Safety – Illinois Dept. of Nuclear Safety

IE22

LICENSEE EVENT REPORT (LER)

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.

1. FACILITY NAME Byron Station, Unit 1				2. DOCKET NUMBER 05000454				3. PAGE 1 OF 5				
4. TITLE Main Steam Isolation Valves Surveillance not Performed in Mode 3 as Required by Technical Specification Bases Due to Improper Procedure Revision												
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		
09	26	2001	2001	- 002 - 00		11	26	2001	Byron Unit 2	05000455		
									FACILITY NAME	DOCKET NUMBER		
										05000		
9. OPERATING MODE		1		11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)								
10. POWER LEVEL		100		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)		✓ 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 William Grundmann, Regulatory Assurance Manager						TELEPHONE NUMBER (Include Area Code) (815) 234-5441, X2800						
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 EXPECTED SUBMISSION DATE)								✓ NO				

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

At 1600 hours on September 26, 2001, it was determined that the two Surveillance Requirements (SR) for the Main Steam Isolation Valves (MSIVs) were not tested in Mode 3, as required. The failure to test the valves in Mode 3 resulted in missed Technical Specifications (TS) Surveillance Requirements (SRs) on all 4 MSIVs on each unit, which resulted in both units entering SR 3.0.3. SR 3.0.3 allows up to 24 hours to either perform the missed surveillances or take other remedial measures. In accordance with the TS Bases, these SRs must be performed in Mode 3. Byron Station has been previously testing the MSIVs in Mode 4. The surveillances can not be performed at power since the SRs require the MSIVs to close. Enforcement Discretion and a subsequent exigent License Amendment Request (LAR) were requested from the NRC to allow continued operations without satisfying the SRs in Mode 3. On September 27, 2001, the NRC granted verbal approval of the Notice of Enforcement Discretion (NOED). The LAR was approved on November 1, 2001. The cause of the missed SR occurred during the Improved Technical Specifications (ITS) implementation project. The procedure revision implementation for the MSIV SRs did not recognize that the more restrictive requirement (i.e., to perform the MSIV SR in Mode 3) was introduced into the TS Bases wording. The root cause of the implementation error was determined to be unknown. Corrective actions include correcting the outage schedule and procedures and reviewing for other potential ITS implementation errors. This event is being reported pursuant to 10CFR50.73(a)(2)(i)(b).

NRC FORM 366A (7-2001)		U.S. NUCLEAR REGULATORY COMMISSION		APPROVED BY OMB NO. 3150-0104 EXPIRES 07/31/2004	
LICENSEE EVENT REPORT (LER) 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.	
FACILITY NAME (1)		DOCKET NUMBER (2)		LER NUMBER (6)	
Byron Station, Unit 1		STN 05000454		YEAR	SEQUENTIAL NUMBER
				REVISION NUMBER	PAGE (3)
				2001 - 002 - 00	
				2 of 5	

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

A. Plant Conditions Prior to Event:

Event Date / Time: September 26, 2001 / 1600 hours

Unit 1 – 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.

B. Description of Event:

Prior to the implementation of Improved Technical Specifications (ITS) at Byron Station the methodology and the implementing procedures for Main Steam [SB] Isolation Valve (MSIV) stroke testing had allowed the stroke testing to be performed in Modes 3, 4, or 5. Prior to implementing ITS, the Surveillance Requirement (SR) allowed entry into Mode 3 to perform the surveillance, but did not require the SR to be performed in Mode 3. The Bases for the TS provided no guidance on when the surveillance was to be performed. Therefore, Station procedures were written to allow testing in Modes 3, 4, or 5.

In the conversion to ITS, the Bases documents were also converted using NUREG 1431, "Standard Technical Specifications Westinghouse Plants." Any deviation from the NUREG Bases documents was identified and documented. In this case, Byron Station did not identify a deviation from the words provided in the NUREG. The following sentence was contained in the new Bases for SR 3.7.2.1: "This test is conducted in MODE 3 with the unit at operating temperature and pressure." This sentence created an unrecognized more restrictive requirement than the Current Technical Specification.

On July 28 and 30, 1997, a non-licensed contract individual initiated Revision 1 to Units 1 and 2, Byron Station Engineering Surveillance Requirements Procedures (1/2 BVSR) 7.2.1-1, "Main Steam Isolation Valve Operability Tests," and 7.2.1-2, "Main Steam Isolation Valve Partial Stroke Test," (henceforward, referred to as ITS procedures). The procedure change request form indicated the procedures were being changed for ITS implementation. The request form also stated the procedure and referenced Limiting Condition for Operations Action Requirement had been renumbered to be consistent with ITS and editorial changes had been made. The procedure revision did not change the required operational mode for testing to Mode 3 as required by the new ITS Bases for SRs 3.7.2.1 and 3.7.2.2.

NRC FORM 366A (7-2001)		U.S. NUCLEAR REGULATORY COMMISSION		APPROVED BY OMB NO. 3150-0104 EXPIRES 07/31/2004	
LICENSEE EVENT REPORT (LER) 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.	
FACILITY NAME (1)		DOCKET NUMBER (2)		LER NUMBER (6)	
Byron Station, Unit 1		STN 05000454		YEAR	SEQUENTIAL NUMBER
				REVISION NUMBER	PAGE (3)
				2001 - 002 - 00	
				3 of 5	

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

B. Description of Event (continued):

Between September 22, 1998, and October 15, 1998, the System Engineer performed a technical review of the four ITS procedures. His review did not identify the discrepancy between the ITS procedures and the SR Bases mode requirement for completing the surveillance. Procedures 1/2 BVSR 7.2.1-1 allow testing in modes 2 through 6 and indicates the test is normally done in Mode 4 or 5. Whereas, procedures 1/2 BVSR 7.2.1-2 allow testing in any mode with no reference to a Mode the surveillance is normally performed in.

Between October 1, 1998, and October 15, 1998, the In-Service Test (IST) Engineer also performed a technical review of the ITS procedures. This review was for IST requirements only. The American Society of Mechanical Engineers (ASME) Code OMa-1998, Part 10, "Inservice Testing of Valves in Light Water Reactors Power Plants," allows testing of valves in cold shutdown (i.e., Mode 5) if not practicable during plant operations; however, TS requirements take precedence over the ASME Code.

Between October 8, 1998, and October 19, 1998, the System Engineering Department's Thermal Group Leader approved the ITS procedures for use. On February 5, 1999, ITS was implemented at Byron Station. Beginning on this date, the ITS procedures were not in exact compliance with the TS Bases since they allowed testing in modes other than Mode 3.

On March 7, 2001, procedures 2BVSR 7.2.1-1 and 7.2.1-2 were converted to Unit 2 Byron Operating Surveillance Requirement (2BOSR) 7.2.1-1 and 7.2.1-2. There were no technical changes to the procedures for this conversion. The Unit 1 procedures were scheduled to be converted at a later date.

On September 26, 2001, during a review of the SR section of the Bases in support of outage activities, a Byron Station person working at Braidwood Station for their refuel outage found the current Operating Department surveillance procedures were inconsistent with the TS Bases. Byron Station was notified immediately of the concern.

At 1600 hours, September 26, 2001, Byron Station entered SR 3.0.3 due to a missed TS SR, allowing 24 hours to perform the surveillance or take other remedial measures, such as requesting a Notice of Enforcement Discretion (NOED) from the NRC.

On September 27, 2001, the NOED was verbally requested and granted by the NRC.

On October 1, 2001, after Nuclear Safety Review Board (NSRB) approval of the Licensing Amendment Request (LAR), the NOED and exigent LAR were submitted to the NRC for review and approval. The NRC subsequently approved the exigent LAR.

NRC FORM 366A (7-2001)		U.S. NUCLEAR REGULATORY COMMISSION		APPROVED BY OMB NO. 3150-0104 EXPIRES 07/31/2004	
LICENSEE EVENT REPORT (LER) 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.	
FACILITY NAME (1)		DOCKET NUMBER (2)		LER NUMBER (6)	
Byron Station, Unit 1		STN 05000454		YEAR	SEQUENTIAL NUMBER
				REVISION NUMBER	PAGE (3)
				2001 - 002 - 00	
				4 of 5	

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

C. Cause of Event:

The contract individual responsible for incorporating the requirements of ITS into site procedures failed to properly capture this new mode restriction for testing the MSIVs. This individual was unavailable to be interviewed, consequently, the root cause of this failure is unknown.

A contributing cause to this error was that inadequate guidance was provided to procedure reviewers by the ITS project management in the Regulatory Assurance Department. The guidance provided was to focus on the ITS SR wording to ensure it was implemented in the procedure correctly.

D. Safety Analysis:

The consequence of operating for a timeframe without demonstrating the ability to isolate the MSIVs within the required time under the Mode 3 limiting test conditions has been conservatively assessed. This was done by postulating that the valve stroke time could have been greater than previously measured. The likelihood and magnitude of such a postulated increase, and the margin available to accommodate it, were evaluated and determined to be acceptable as discussed below. Failure of the MSIVs to close was not postulated due to the successful past history of fast exercise tests.

The MSIVs are required to stroke closed within 5 seconds with the unit at operating temperature and pressure. The most recent stroke time data for Byron Station indicates a maximum stroke time of 2.9 seconds for Unit 1 MSIVs and 2.94 seconds for Unit 2.

According to the valve's manufacturer, a few tenths of a second would be added to the valve stroke times under maximum design steamline pressure (i.e., steamline pressure in Mode 3) versus a stroke time without steamline pressure. A review was conducted of the surveillance history for stroke time testing the MSIVs. The stroke time testing has generally been performed in Modes 4 and 5 with two instances of being tested in Mode 2. The stroke times achieved range from 1.1 to 3.2 seconds. The Unit 1 "D" MSIV was stroke timed at 2.63 seconds on April 24, 1999, in Mode 2 under operating temperature and pressure after an emergent valve packing problem was corrected. Eight days prior, the valve was timed under cold conditions at 2.34 seconds.

Based on the above data, it was concluded that the ability of the MSIVs to close within the required time at operating temperature and pressure was not adversely affected.

NRC FORM 366A (7-2001)		U.S. NUCLEAR REGULATORY COMMISSION		APPROVED BY OMB NO. 3150-0104 EXPIRES 07/31/2004	
LICENSEE EVENT REPORT (LER) 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.	
FACILITY NAME (1)		DOCKET NUMBER (2)		LER NUMBER (6)	
Byron Station, Unit 1		STN 05000454		YEAR	SEQUENTIAL NUMBER
				REVISION NUMBER	PAGE (3)
				2001 - 002 - 00	5 of 5

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

D. Safety Analysis (continued):

Sufficient justification exists to conclude that the MSIVs were fully capable of achieving the 5-second closure criteria at normal operating pressure and temperature. Performing the SR under less limiting test conditions did not affect the failure frequency assumed for the MSIVs. Therefore, since the failure frequency is unaffected, the results of the probabilistic risk assessment are unaffected by this situation.

The event did not result in a Safety System Functional Failure.

E. Corrective Actions:

Byron Station requested a NOED and exigent TS amendment to defer performing the MSIV surveillance requirements until the first unit startup after September 27, 2001. Enforcement discretion was granted by the NRC on September 27, 2001, and the subsequent exigent license amendment was approved on November 1, 2001.

The outage work control schedule has been revised to ensure MSIV surveillance testing is conducted in Mode 3.

The procedures utilized for satisfying the SRs are in the process of being revised to ensure the procedures are performed in Mode 3.

The Engineering Department will provide continuing training to Engineering personnel on their roles and responsibilities in conducting technical reviews.

A review was conducted of other TS SR Bases that contain modifying notes similar to the SRs for the MSIVs to ensure they are being implemented correctly. No additional concerns were identified.

The current process to change the TS Bases is the TS Bases Control Program. The program requires the requestor to identify the affected sections and include a marked up copy of the Bases change. In addition, it also requires a review of implementation requirements that includes any possible procedure changes.

F. Previous Occurrences:

LER 454 00-004, "Solid State Protection System Slave Relay Response Time Untested Due to Inadequate Procedures"