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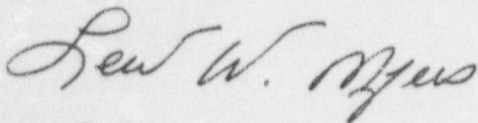
Perry Nuclear Power Plant
Docket No. 50-440

Ladies and Gentlemen:

Enclosed is Licensee Event Report 1998-003, "Missed Technical Specification Surveillance Requirement on Hydrogen Igniters."

If you have questions or require additional information, please contact Mr. Henry L. Hegrat, Manager-Regulatory Affairs, at (440) 280-3606.

Very truly yours,



Enclosure

cc: NRC Region III Administrator
NRC Resident Inspector
NRR Project Manager

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LICENSEE EVENT REPORT (LER)

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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 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) PERRY NUCLEAR POWER PLANT, UNIT 1	DOCKET NUMBER (2) 050000440	PAGE (3) 1 OF 4
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TITLE (4)
Missed Technical Specification Surveillance Requirement on Hydrogen Igniters

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
10	01	1998	1998	-- 003	-- 00	11	02	1998	FACILITY NAME	DOCKET NUMBER

OPERATING MODE (9) 1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5: (Check one or more) (11)									
POWER LEVEL (10) 100	20.2201(b)		20.2203(a)(2)(v)		<input checked="" type="checkbox"/>	50.73(a)(2)(i)		50.73(a)(2)(viii)		
	20.2203(a)(1)		20.2203(a)(3)(i)		<input type="checkbox"/>	50.73(a)(2)(ii)		50.73(a)(2)(x)		
	20.2203(a)(2)(i)		20.2203(a)(3)(ii)		<input type="checkbox"/>	50.73(a)(2)(iii)		73.71		
	20.2203(a)(2)(ii)		20.2203(a)(4)		<input type="checkbox"/>	50.73(a)(2)(iv)		OTHER		
	20.2203(a)(2)(iii)		50.36(c)(1)		<input type="checkbox"/>	50.73(a)(2)(v)		Specify in Abstract below or in NRC Form 366A		
20.2203(a)(2)(iv)		50.36(c)(2)		<input type="checkbox"/>	50.73(a)(2)(vii)					

LICENSEE CONTACT FOR THIS LER (12)

NAME Bruce A. Luthanen, Compliance Engineer	TELEPHONE NUMBER (Include Area Code) (440) 280-5389
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COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURE	REPORTABLE TO EPIX

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE)	<input checked="" type="checkbox"/> NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
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ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

On October 1, 1998, during a review of a completed hydrogen igniter surveillance instruction, it was determined that a surveillance requirement for testing of igniters every 92 days had not been accomplished.

On March 15, 1998, Perry Nuclear Power Plant personnel had performed routine surveillance testing of Division 2 hydrogen igniters. Seven hydrogen igniters in the Division 2 systems failed the surveillance requirements of Technical Specification 3.6.3.2.1, and were declared inoperable. A work order was generated, which restored two of the seven igniters to operable status, leaving five igniters still inoperable. Since the number of inoperable igniters in one division was greater than four, the frequency of testing for the igniters in Division 2 was specified as once per 92 days, in accordance with Technical Specification Surveillance Requirement 3.6.3.2.2. This requirement was not recognized to be applicable by plant personnel.

On October 1, 1998, at approximately 1525 hours, station personnel performed the surveillance for hydrogen igniter operability. During an operability review prior to system restoration, it was discovered that Surveillance Requirement 3.6.3.2.2 had not been performed at the specified frequency of 92 days, and should have been performed on June 15, 1998. A Condition Report was generated to document the missed surveillance requirement.

The cause of this event was personnel error. A format error in the surveillance instruction was not identified by the author or reviewer. As a result, there was inadequate guidance to direct station personnel to schedule the increased frequency of testing.

The Division 2 hydrogen igniters were declared operable on October 1, 1998, at approximately 2000 hours based on the satisfactory completion of the surveillance instruction.

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

I. INTRODUCTION

On October 1, 1998, at approximately 2000 hours, the Operations Unit Supervisor was reviewing documentation for the Division 2 hydrogen igniter surveillance (Surveillance Requirement (SR) 3.6.3.2.1) in preparation for system restoration. In the process, two prior performances of the surveillance, from March 12, 1998, and March 15, 1998, were reviewed. It was discovered that seven Division 2 hydrogen igniters had failed surveillance requirements (SR) on March 15, 1998. A work order was initiated, and two of the seven were repaired, leaving five hydrogen igniters still inoperable. With five igniters in one division inoperable, SR 3.6.3.2.2 was applicable for the igniters, and the frequency of the Surveillance Requirement was once per 92 days instead of 184 days.

The NRC was notified via the Emergency Notification System on October 2, 1998, at 1705 hours (ENF 34867), in accordance with the requirements of the Perry operating license.

At the time of discovery, the plant was in Mode 1 at 100 percent of rated thermal power. The reactor vessel was at approximately 1024 pounds per square inch gauge, with the reactor coolant at saturated conditions. There were no systems, structures or components that were inoperable that contributed to this event.

II. EVENT DESCRIPTION

On October 1, 1998, at approximately 2000 hours, a missed SR for Division 2 hydrogen igniters was discovered by the on-shift Unit Supervisor during routine work package review. In the process of closing out the work package, it was discovered that five Division 2 igniters had been out-of-service since the last time that the surveillance instruction (SVI) for hydrogen igniters had been performed on March 15, 1998.

With five igniters in one division inoperable, the surveillance frequency for the igniters was specified as once per 92 days, in accordance with SR 3.6.3.2.2. Under the increased frequency, the igniters should have been tested on June 15, 1998. The surveillance had not been performed to satisfy that requirement.

III. CAUSE OF EVENT

The cause of this event was personnel error. The applicable SVI text was written such that the increased frequency of testing was not identified and tracked. Neither the author nor the reviewers identified this error.

The surveillance instruction guidance which would have directed the user to the surveillance requirement with reduced frequency was included in a "Note" block in the performance section. This did not provide sufficient guidance to plant personnel to ensure that the 92 day frequency was instituted and tracked. This did not conform with site guidance for the procedure and instruction format. The site format specifies that a note may not direct action. As a consequence, the note within the instruction did not direct action to ensure that the SR was scheduled at the increased frequency.

IV. SAFETY ANALYSIS

In a design basis accident (DBA) such as a loss-of-coolant-accident (LOCA), a substantial volume of the reactor coolant would be released into either the containment or drywell atmosphere. Hydrogen gas would also be released as a consequence of radiolytic decomposition of water, or due to reaction of the bulk fluid with the zirconium cladding on the fuel assemblies.

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IV. SAFETY ANALYSIS, continued

In sufficient concentration, the hydrogen gas would present a detonation concern, resulting in a pressure transient which could present a challenge to containment systems. The Containment Combustible Gas Control System [BB] will mitigate this effect.

Control of hydrogen gas generated during a DBA is accomplished through the use of either recombiners or igniters. The recombiners use a thermally catalytic reaction to react hydrogen with oxygen from ambient air to produce water vapor. Alternately, the igniters serve as continuous ignition sources for hydrogen gas which would accumulate in the elevated regions of the containment. The igniters provide hydrogen control by a controlled burn, and will function even if 75 percent of the available core cladding were to be involved in hydrogen generation.

There are one hundred and two hydrogen igniters, total, in the Division 1 and 2 systems. The igniters are electrical Class 1E and Seismic Category 1. Each igniter is powered from a Class 1E power supply, which can be powered from the associated divisional diesel generator. The hydrogen igniters are not susceptible to mechanical failure, and could only credibly fail to perform their design function for a loss of power or burnout.

The use of redundant trains of igniters ensures that the capacity to deplete hydrogen after a DBA is maintained. Per the bases for Technical Specification 3.6.3.2, the use of redundant trains ensures that the system would be capable of a controlled ignition in a post-accident environment. The 92 day surveillance frequency was chosen for cases where the occurrence of failure was greater than normal. The reduced frequency is considered a prudent move by TS bases, since six igniters in one divisional system would result in an inoperable igniter division. In this case, recent testing confirmed that the igniter function was not compromised.

During the period in which the 92 day frequency should have been used, routine maintenance was conducted on the Division 1 hydrogen igniters (September 16, 1998, through September 22, 1998) and the Division 2 hydrogen igniters (September 22, 1998, through September 24, 1998). Both divisions remained available throughout these maintenance periods, and both divisions remained fully capable of event mitigation.

With five igniters out of service, the divisional train of hydrogen igniters would still be operable. Since two trains of igniters provide redundancy of function for hydrogen control, the loss of these five igniters would have no safety significance.

V. CORRECTIVE ACTIONS

The following corrective actions have been completed:

1. The missed surveillance was performed on the day of discovery of the item. The function of the hydrogen igniters were verified. The Division 2 igniters were placed on the 92 day frequency for testing.
2. The SVI was revised such that the increased frequency for hydrogen igniter testing was changed from a text note to an action step. The need for this change was identified independently from this event through the in-depth review process. The step which directed increased testing frequency was moved into the Acceptance Criteria section of the SVI, which includes a signature block for Unit Supervisor review and acceptance.

Other corrective actions in the Corrective Action Program include training Plant Operations personnel (Senior Reactor Operator license holders) and Plant System Engineering staff on this event, emphasizing attention-to-detail in the review of test results, and reviewing the Technical Specifications and Operational Requirements Manual to identify similar items.

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VI. PREVIOUS SIMILAR EVENTS

Licensee Event Report (LER) 96-007 addressed an issue in which a design modification program weakness resulted in missed surveillance requirements. The LER resulted from inadequate post-modification testing following the installation of a complex change to leak detection system [IJ] instrumentation. Testing for numerous division isolations were never incorporated into the applicable surveillance instruction, and consequently SRs were missed.

None of the corrective actions prescribed for LER 96-007 would have prevented this LER from occurring.

No regulatory commitments are identified in this report.

Energy Industry Identification System (EIIS) Codes are identified in the text by square brackets [XX].