Entergy

Entergy Nuclear Operations, Inc.
Pilgrim Nuclear Power Station
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Kevin H. Bronson
Site Vice President

February 16, 2010

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D.C. 20555

SUBJECT: Entergy Nuclear Operations, Inc.
Pilgrim Nuclear Power Station
Docket No.: 50-293
License No.: DPR-35

Licensee Event Report 2009-002-00

LETTER NUMBER: 2.10.013

Dear Sir or Madam:

The enclosed Licensee Event Report (LER) 2009-002-00, "Failure to Meet Technical Specification Requirements for Secondary Containment" is submitted in accordance with 10 CFR 50.73.

This letter contains no commitments.

Please do not hesitate to contact Mr. Joseph R. Lynch, (508) 830-8403, if there are any questions regarding this submittal.

Sincerely,

Kevin H. Bronson

Kevin H. Bronson

RMB
Enclosure

cc: Mr. James S. Kim, Project Manager
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IE22
NRR

Enclosure to Letter Number 2.10.013
(5 pages)

NRC Form 366 (9-2007) U.S. NUCLEAR REGULATORY COMMISSION	Approved by OMB: No. 3150-0104 Expires: 08/31/2010
LICENSEE EVENT REPORT (LER)	Estimated burden per response to comply with this mandatory information collection request: 80 hrs. 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 and information collection does not display a currently valid control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

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4. TITLE
Failure to Meet Technical Specification Requirements for Secondary Containment

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE)			8. OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME N/A	DOCKET NUMBER 05000
12	22	2009	2009	002	00	02	16	2010	FACILITY NAME N/A	DOCKET NUMBER 05000

9. OPERATING MODE	11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR: (Check one or more)							
N		20.2201(b)		22.2203(a)(3)(i)		50.73(a)(2)(i)(C)		50.73(a)(2)(vii)
		22.2202(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(3)(1)(i)(A)		50.73(a)(2)(iii)		50.73(a)(2)(ix)(A)
		20.2203(a)(2)(ii)		50.36(3)(1)(ii)(A)		50.73(a)(2)(iv)(A)		50.73(a)(2)(x)
10. Power Level		20.2203(a)(2)(iii)		50.36(c)(2)		50.73(a)(2)(v)(A)		73.71(a)(4)
100		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)	X	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 (

NAME	TELEPHONE NUMBER (Include Area Code)
Joseph R. Lynch, Licensing Manager	(508) 830-8403

13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX
E	BD			N					

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

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

On December 22, 2009, at 0845 hours, with the reactor at 100% core thermal power and steady state conditions, Pilgrim Nuclear Power Station (PNPS) declared Secondary Containment inoperable due to the loss of a water seal on two 14 inch drain lines in the Torus Compartment designed to mitigate the consequences of a flood in the Reactor Auxiliary Bay. There are two troughs that are designed to provide a floodable volume (the torus room) in the event of a significant water leak in the auxiliary bay, while maintaining secondary containment integrity by ensuring a given water level is maintained in the troughs. The initial assessment of the condition indicated that the cross-sectional area of pipes, as found, have the potential to exceed the analytical value of allowable Secondary Containment leakage pathway size documented in the design calculations.

The Limiting Condition for Operation (LCO) for Technical Specification (TS) 3.7.C.2.a, was immediately entered at 0845 until the condition was corrected. Immediate corrective actions taken were to refill the trough to the correct level, initiate repairs to the level switch, which was found to be defective, and to enhance the weekly tour requirement of the Torus Compartment performed by plant operations. The TS LCO was subsequently exited at 0945 hours, one hour into the allowed 4 hour time frame, at which time Secondary Containment was declared operable.

The event posed no threat to public health and safety.

Narrative

BACKGROUND

The Secondary Containment System, in conjunction with other engineered safeguards and nuclear safety systems, limits radioactive material release during normal plant operations to within 10 CFR 20 limits and limits the release to the environs of radioactive materials so that the offsite dose from a postulated DBA will be below the guideline values of 10CFR100. The secondary containment is designed to minimize any ground level release of radioactive materials that might result from a serious accident. The Reactor Building provides secondary containment during reactor operation, when the drywell is sealed and in service; the Reactor Building provides primary containment during periods when the reactor is shutdown, the drywell is open, and activities are ongoing that require secondary containment to be operable. Because the secondary containment is an integral part of the complete containment system, secondary containment is required at all times that primary containment is required as well as during movement of recently irradiated fuel and during operations with the potential to drain the reactor vessel (OPDRVs). There are two principal accidents for which credit is taken for secondary containment operability. These are a loss of coolant accident (LOCA) although not specifically evaluated for alternate source term methodology and a fuel handling accident involving recently irradiated fuel. The secondary containment performs no active function in response to each of these limiting events; however, its leak tightness is required to ensure that the release of radioactive materials from primary containment is restricted to those leakage paths and associated leakage rates assumed in the accident analysis that fission products entrapped within the secondary containment structure will be treated by the Standby Gas Treatment System (SGTS) prior to discharge to the environment. An operable secondary containment provides a control volume into which fission products that bypass or leak from primary containment, or are released from the reactor coolant pressure boundary components located in secondary containment can be diluted and processed prior to release to the environment. For the secondary containment to be considered operable, it must have adequate leak tightness to ensure that the required vacuum can be established and maintained. The Reactor Building ventilation system always maintains flow from areas of least potential contamination to areas of highest potential contamination. The Reactor Building is maintained at all times at a small negative pressure with respect to its surroundings to ensure any contamination will be contained with its boundaries.

All normally open drains which are open both to the secondary containment and the outside atmosphere are provided with water seals to maintain secondary containment integrity. This is exemplified by the four 14 inch dewatering lines for the Reactor Building auxiliary bay floor sumps. These lines penetrate the secondary containment boundary, two below each of the two sumps, and terminate in a pair of troughs within the torus compartment about 6 inches above the trough floor. The two 4 foot cubic shaped troughs maintain secondary containment integrity by providing water seals for each of the four lines. High and low trough water levels are alarmed in the control room. On low water level, the operators are directed by procedure to refill the troughs via the Condensate Transfer System, to maintain containment integrity. The troughs provide pipe break flood protection for the auxiliary bay RBCCW/ TBCCW equipment. Pipe break events causing flooding in the auxiliary bay would drain into the torus troughs and then overflow onto the torus room floor.

The water level in the trough is intended to ensure auxiliary bay drain pipe submergence and therefore a water seal between the reactor building (secondary containment) and the auxiliary bay which would allow either normal reactor building ventilation for routine operations or the standby gas treatment system to establish the 0.25 inches of negative water pressure required by Technical Specifications.

Technical Specification (TS) Limiting Condition for Operation (LCO) 3.7.C.1 requires, in part, that whenever the reactor is critical, secondary containment integrity must be maintained.

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Narrative

EVENT DESCRIPTION

On December 22, 2009, at approximately 0845 hours a design engineer performing a walk down of the torus room notified the main control room (MCR) that the torus trough (bay #15) for auxiliary bay 'A' was dry. The engineer also indicated that the torus trough (bay #13) for auxiliary bay 'B' appeared to be at a lower level than normally observed. The Shift Manager immediately took actions to verify the engineer's observations. Main Control Room (MCR) alarm, C904L-A7, Torus Trough Hi/Lo, which was not in alarm status, was verified to be enabled. The Operations Field Shift Supervisor was dispatched to the torus room to verify the engineer's observations.

Secondary containment integrity is ensured by maintaining a controlled water level above the drain pipe openings in each trough such that a water seal ensures the ability to establish and maintain 0.25 inches of negative water pressure within secondary containment. Active LCO, LCO ACT-1-09-0219, was entered at 0845 hours because secondary containment integrity could not be ensured with one trough dry. The trough was filled and the LCO was exited one hour later at 0945 hours.

Additionally, an 8-hour 50.72 notification was made to the USNRC.

CAUSE

The apparent cause of this event is due to a small leak of water from the torus bay 'A' trough. This leakage caused the trough level to slowly lower over time which ultimately challenged the failed low level alarm level switch, LS-9038B. Plans for repair of the torus trough are ongoing and are being tracked in PNPS's Corrective Action Program via CR-PNP-2009-5309.

The second apparent cause of this event was the failure of level switch LS-9038B which provides the torus trough low level alarm signal. The level switch actuating plate was found misaligned which had required compensation with the adjustment screws during functional calibrations and eventually over time, failed to provide the trough low water level condition to the control room. This alarm is designed to alert the main control room of a high or low level in the torus trough condition and to initiate appropriate corrective actions.

The lack of a specific trough level acceptance criteria in the operator rounds contributed to this event. While operators performed the weekly torus room check/ tour, there were no inspections of the troughs or criteria for acceptable level bands.

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CORRECTIVE ACTION

Immediate corrective actions taken were to refill the trough to the correct level, repair the level switch which was found to be defective, ensured other the trough had adequate water level and it's level switches were working properly, and enhanced the weekly tour requirement of the Torus Compartment performed by plant operations.

Corrective actions planned include leak repair of the torus trough, level switch surveillance test enhancements, and level switch preventative maintenance (PM) basis document revision.

These above actions are being tracked in the Pilgrim Station Corrective Action Program (CR-PNP-2009-5295 and CR-PNP-2009-5309).

SAFETY CONSEQUENCES

The event posed no threat to public health and safety.

The plant was operating at 100% power prior to and during the time period when the torus trough was found without a water seal and required repair. All other secondary containment sub-systems were operable during this time period.

Secondary containment integrity is ensured by maintaining a given water level in each of the two torus troughs. The lack of a water seal in a torus trough creates a scenario in which the auxiliary bay atmosphere would communicate directly with the secondary containment atmosphere. This would cause the effective volume upon which the standby gas system would attempt to maintain at 0.25 inches of water negative pressure to be larger. This presents the potential for secondary containment air pressure to approach, equal or be greater than the air pressure in ambient building or atmospheric pressures. If this occurred and remained undetected the design principle of leakage into secondary containment, filtration by standby gas and release from the main stack would be reduced or neutralized. Ultimately the potential for an unmonitored ground level release would increase.

Technical Specification 3.7.C requires that the secondary containment be operable in the RUN mode. The Secondary Containment integrity definition was not satisfied during this time period.

Technical Specification definition for Secondary Containment Integrity means that the reactor building is intact and the following conditions are met:

1. At least one door in each access opening is closed,
2. The standby gas treatment system is operable,
3. All automatic ventilation system isolation valves are operable or secured in the isolated position.

Since the Secondary Containment System was able to be restored to an operable status following the re-filling of the torus troughs to a proper level, there was no long term safety significance associated with this event.

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REPORTABILITY

This report was submitted in accordance with 10 CFR 50.73(a)(2)(i)(B).

SIMILARITY TO PREVIOUS EVENTS

A review was conducted of Pilgrim Station LERs since 1974. There were no LERs related to the torus troughs with the failure to maintain secondary containment.

The review identified Secondary Containment events that occurred in 1985 and 2008.

- LER 1985-18 addressed an event where a Secondary Containment damper (AO-N-90) would not fully close.
- LER 2008-001 addressed on-line testing of the Reactor Building Isolation Control System (RBICS) ventilation dampers. This testing identified that in the closed position, damper AO-N-78 did not fully close. The damper was reported to have a one-half inch gap opening across two of the four damper blades and did not meet Technical Specification requirements for full damper closure.

These events were reported as events where Technical Specifications were not satisfied.

ENERGY INDUSTRY IDENTIFICATION SYSTEM (EIIS) CODES

The EIIS codes for this report are as follows:

SYSTEMS	CODES
Containment Leak System	BD