Entergy

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J. E. Pollock
Site Vice President

NL-10-121

November 9, 2010

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Mail Stop O-P1-17
Washington, D.C. 20555-0001

SUBJECT: Licensee Event Report # 2010-008-00, "Safety System Functional Failure Due to Inoperable Refueling Water Storage Tank Low-Low Level Alarms"
Indian Point Unit No. 2
Docket No. 50-247
DPR-26

Dear Sir or Madam:

Pursuant to 10 CFR 50.73(a)(1), Entergy Nuclear Operations Inc. (ENO) hereby provides Licensee Event Report (LER) 2010-008-00. The attached LER identifies an event which is reportable as a safety system functional failure under 10 CFR 50.73(a)(2)(v)(D). This condition was recorded in the Entergy Corrective Action Program as Condition Report CR-IP2-2010-05713.

There are no new commitments identified in this letter. Should you have any questions regarding this submittal, please contact Mr. Robert Walpole, Manager, Licensing at (914) 734-6710.

Sincerely,

JEP/sp

cc: Mr. William Dean, Regional Administrator, NRC Region I
NRC Resident Inspector's Office, Indian Point 3
Mr. Paul Eddy, New York State Public Service Commission
LEREvents@inpo.org

JE22
NRR

NRC FORM 366 (10-2010) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104 EXPIRES: 10/31/2013

LICENSEE EVENT REPORT (LER)

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

1. FACILITY NAME:	2. DOCKET NUMBER	3. PAGE
INDIAN POINT 2	05000-247	1 OF 3

4. TITLE: Safety System Functional Failure Due to Inoperable Refueling Water Storage Tank Low-Low Level Alarms

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
9	13	2010	2010-	008 -	00	11	12	2010		05000
									FACILITY NAME	DOCKET NUMBER
										05000

9. OPERATING MODE

1

10. POWER LEVEL

7.1

11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: *(Check all that apply)*

- ☐ 20.2201(b)
- ☐ 20.2201(d)
- ☐ 20.2203(a)(1)
- ☐ 20.2203(a)(2)(i)
- ☐ 20.2203(a)(2)(ii)
- ☐ 20.2203(a)(2)(iii)
- ☐ 20.2203(a)(2)(iv)
- ☐ 20.2203(a)(2)(v)
- ☐ 20.2203(a)(2)(vi)
- ☐ 20.2203(a)(3)(i)
- ☐ 20.2203(a)(3)(ii)
- ☐ 20.2203(a)(4)
- ☐ 50.36(c)(1)(i)(A)
- ☐ 50.36(c)(1)(ii)(A)
- ☐ 50.36(c)(2)
- ☐ 50.46(a)(3)(ii)
- ☐ 50.73(a)(2)(i)(A)
- ☐ 50.73(a)(2)(i)(B)
- ☐ 50.73(a)(2)(i)(C)
- ☐ 50.73(a)(2)(ii)(A)
- ☐ 50.73(a)(2)(ii)(B)
- ☐ 50.73(a)(2)(iii)
- ☐ 50.73(a)(2)(iv)(A)
- ☐ 50.73(a)(2)(v)(A)
- ☐ 50.73(a)(2)(v)(B)
- ☐ 50.73(a)(2)(v)(C)
- ☒ 50.73(a)(2)(v)(D)
- ☐ 50.73(a)(2)(vii)
- ☐ 50.73(a)(2)(viii)(A)
- ☐ 50.73(a)(2)(viii)(B)
- ☐ 50.73(a)(2)(ix)(A)
- ☐ 50.73(a)(2)(x)
- ☐ 73.71(a)(4)
- ☐ 73.71(a)(5)
- ☐ OTHER

Specify in Abstract below or in NRC Form 366A

12. LICENSEE CONTACT FOR THIS LER

FACILITY NAME	TELEPHONE NUMBER *(Include Area Code)*
Vincent Andreozzi, System Engineer Supervisor	(914) 734-6816

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

☐ YES *(If yes, complete 15. EXPECTED SUBMISSION DATE)* ☒ NO

15. EXPECTED SUBMISSION DATE

MONTH	DAY	YEAR

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

On September 13, 2010, during performance of alarm checks, Panels SA-SC did not illuminate. The Refueling Water Storage Tank low-low level alarms, required by Technical Specification 3.5.4, were rendered inoperable as a result of the loss of power. Operations entered procedure AOP-ANNUN-1 for failure of flight or supervisory panel annunciators and replaced a fuse found to be blown. Since the RWST low-low level alarms are required by Technical Specifications, this was considered a safety system functional failure. Overcurrent condition is the direct cause of the fuse blowing. The apparent cause is intermittent grounds in combination with alarm testing resulted in the over current condition. Corrective action requires determining the source of the intermittent grounds. The event had no effect on public health and safety.

LICENSEE EVENT REPORT (LER)

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Indian Point Unit 2	05000-247	2010	- 008	- 00	2 OF 3

NARRATIVE

Note: The Energy Industry Identification System Codes are identified within the brackets {}.

DESCRIPTION OF EVENT

On September 13, 2010, while at a steady 7.1% reactor power, alarm checks were being performed on the main control room annunciator panels by pushing the test button and verifying the alarm can illuminates and the horn sounds. When operations pushed the test button, panels SA-SC {IB} did not illuminate. At 2000 hours Operations declared the Refueling Water Storage Tank (RWST){BP} {TK} inoperable per Technical Specification (TS) 3.5.4 Condition C and entered Procedure AOP-ANNUN-1 "Failure of Flight or Supervisory Panel Annunciators" to diagnose the problem. A ten amp fuse (FU-CCR-SD-4A){FU} had blown on the negative feed in panel SD {EJ}. The fuse was replaced and the alarm test was performed satisfactorily. At 2013 hours the Panels SA-SC were restored to operation and the RWST was declared operable. CR-IP2-2010-5713 was generated for this event.

TS 3.5.4 requires the RWST to be operable in Modes 1, 2, 3, and 4. Condition B is entered with "One of two required channels of the RWST low-low level alarm inoperable" even though the LCO does not explicitly call out that the low-low level alarms {LA}. The loss of the two low-low level alarms is considered a safety system functional failure (SSFF) because the TS 3.5.4 Condition B indicates that two channels are required which is consistent with the custom TS that required two alarm channels to be operable.

When the two channels of the RWST low-low level alarm were declared inoperable, the RWST was declared inoperable in accordance with TS 3.5.4 Condition C, RWST inoperable for reasons other than Condition A or B. This was not considered a SSFF at the time due to the continued availability of the RWST tank and the redundant RWST level indicators required by TS 3.3.3. No eight hour emergency notification was made for a SSFF. Operations concluded there was no SSFF due to the continued availability of the RWST and the availability of the redundant level indicators to initiate recirculation. Condition Report CR-IP2-2010-5913 evaluates this event.

Past occurrences were evaluated. In 1996 and 1997 alarm cans in panels SA-SC were found to have shorts and replaced. The design of the annunciator alarm cans was upgraded from a flexible design to a hardwire design to address a relay contact issue (i.e., relays in the alarm cans aged due to temperature and this caused arcing and grounding that blew the fuses). In 2005 a 10 amp fuse was found blown but the event was not called reportable and no apparent cause was performed. The 1997 event and the current event occurred when coming out of a mini outage where most of the alarms are lit and temperatures are higher. The corrective actions after the 1997 event are believed to have corrected temperature problems. The 24 battery charger, which feeds the SA-SC annunciator panels, has a history of ground alarms which testing has been unsuccessful in fully identifying and eliminating. It was concluded alarm testing and an intermittent ground caused the overcurrent to blow the fuse.

Cause of Event

Over current condition is the direct cause of the fuse blowing. The apparent cause is an over current condition due to intermittent grounds in combination with alarm testing.

Corrective Action

The following corrective actions have been or will be performed under the Corrective Action Program (CAP) to address the causes of this event.

- Replaced the fuse to restore panel SA-SC operability.
- Action to initiate work orders to check circuit 6 for grounds and check the 24 battery charger alarm circuit calibration.
- Action to initiate an engineering change request to replace the fast acting fuse with a time delay fuse.

Event Analysis

The event is reportable under 10CFR50.73(a)(2)(v)(D), "Any event or condition that could have prevented the fulfillment of the safety function of structures or systems that are needed to: "(D) mitigate the consequences of an accident." On September 13, 2010, at 2000 hours, the RWST was declared inoperable when power was lost to the panels SA-SC. The power loss resulted in the loss of two RWST low-low level alarms. TS 3.5.4 Condition B supports that two RWST low-low level alarms are required. The alarms are used to alert the operator to initiate actions to transfer from injection phase to recirculation phase following a LOCA. The RWST Level indicators and sump indicators covered under TS 3.3.3 can be used to confirm RWST level prior to the manual switchover to the cold leg recirculation phase. The condition was originally not considered a SSFF due to an understanding that the RWST level indicators could be used to perform the function and, therefore, no 8-hour non-emergency notification was provided to the NRC under 10CFR50.72(b)(3)(v). Condition report CR-IP2-2010-5913 evaluates the missed call.

Past Similar Events

A review was performed of the past three years of Licensee Event Reports (LERs) for events that reported a SSFF due to the loss of a power supply. No such events were identified and condition reports on such events were not found.

Safety Significance

This event had no effect on the health and safety of the public.

There were no actual safety consequences for the event because there was no accident requiring use of the RWST. There were no significant potential safety consequences of this event because the redundant level indicators required by TS 3.3.3 were available and operations is trained to rely on these indicators for switchover to recirculation.