Entergy

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J. E. Pollock
Site Vice President

NL-10-051

May 14, 2010

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

SUBJECT: Licensee Event Report # 2010-004-00, "Plant Operation Outside Technical Specifications Due to a Leak in the Reactor Coolant Pressure Boundary"
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) 2010-004-00. The attached LER identifies an event where the reactor coolant pressure boundary had a leak during plant operations which is reportable under 10 CFR 50.73(a)(2)(i)(B). This condition was recorded in the Entergy Corrective Action Program as Condition Report CR-IP2-2010-01631.

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. Samuel J Collins, Regional Administrator, NRC Region I
NRC Resident Inspector's Office, Indian Point 2
Mr. Paul Eddy, New York State Public Service Commission
LEREvents@inpo.org

IE22
NRR

NRC FORM 366 (9-2007) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104 EXPIRES: 8/31/2010

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-I0202, (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.

LICENSEE EVENT REPORT (LER)

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

4. TITLE: Plant Operation Outside Technical Specifications Due to a Leak in the Reactor Coolant Pressure Boundary

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
3	18	2010	2010	004	00	5	14	2010		05000
									FACILITY NAME	DOCKET NUMBER
										05000

9. OPERATING MODE

6

10. POWER LEVEL

0%

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

NAME	TELEPHONE NUMBER *(Include Area Code)*
Nelson Azevedo, Supervisor Program and Components	(914) 734-6775

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

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX

14. SUPPLEMENTAL REPORT EXPECTED

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

15. EXPECTED SUBMISSION DATE

MONTH	DAY	YEAR

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

On March 18, 2010, at approximately 11:14 hours, while shutdown for refueling, boron accumulation was noted on the reactor coolant pump No, 1 seal bypass three quarter inch line 76 upstream of valve 256B. Based on the amount of boron, a conclusion was reached on April 5, 2010 that this condition could have existed during plant operation and therefore the plant could have been operating contrary to Technical Specification (TS) TS 3.4.13. The cause of the through wall indication was a five-sixteenths inch rounded weld defect introduced at the time of system construction which propagated through wall as a result of the system loading conditions during plant operations. There was no extent of condition since boric acid inspections of other locations did not identify any other instances of similar through wall defects. Corrective action was taken to repair the indication. There was no significant effect on public health and safety.

FACILITY NAME (1)	DOCKET (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Indian Point Unit 2	05000-247	2010	- 004	- 00	2 OF 3

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

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

DESCRIPTION OF EVENT

On March 18, 2010, at approximately 11:14 hours, while shutdown for refueling, boron accumulation was noted (there was no sign of wetness but rather white, dry boron which indicated that the leak rate was small) in the reactor coolant pressure boundary (RCPB) {AB} on three quarter inch pipe 76 upstream of valve 256B {V}. This check valve is on the 22 Reactor Coolant Pump (RCP) {P} seal {SEAL} bypass line. On April 5, 2010 at approximately 8:42 am the event was independently reviewed and determined to be reportable. Based on the amount of boron, a conclusion was reached that this condition could have existed during plant operation and therefore the plant could have been operating contrary to Technical Specification (TS) TS 3.4.13. This event was recorded in the Indian Point Energy Center corrective action program (CAP) as CR-IP2-2010-01631.

During boric acid walk downs performed during 2R19, boron was identified adjacent to valve 256B. After cleaning was performed, a surface examination was performed on the socket weld attaching the upstream three quarter inch pipe to valve 256B. This surface examination identified a five-sixteenths inch diameter rounded indication which appeared to be the source of the leakage. This indication was repaired and the post repair examination confirmed that the indication had been removed and the repaired area was acceptable.

Since the indication was removed by grinding, a failure analysis was not performed to identify the exact cause of the indication. However, both internal and external operating experience with similar defects strongly suggests that the cause of the through wall indication was a minor weld defect introduced at the time of system construction which propagated through wall as a result of the system loading conditions during plant operations. Literature documents that forging, casting, welding and other material fabrication defects can propagate through the wall of the component and result in leakage after long periods of service. The predominant driver for this propagation is the service induced loads caused by local stress concentrations as well as local pressure and thermal loads caused by local geometry discontinuities.

The original weld defect would not have been repaired at the time of construction if the indication was within the flaw allowable standards and, since the indication was not removed, it can be concluded that it was accepted during the original inspection (there is no documented evidence of the original inspection results). The defect would not have been discovered by inservice inspection since NDE on three quarter inch welds is not required.

The balance of the boric acid walk downs performed on systems which carry borated water during plant operations, identified no other leaks as a result of a through wall flaw in a pipe or in a component.

CAUSE OF EVENT

The cause of the through wall indication was a five-sixteenths inch rounded weld defect introduced at the time of system construction which propagated through wall as a result of the system loading conditions during plant operations.

CORRECTIVE ACTIONS

The following corrective action(s) have been or will be performed under Entergy's Corrective Action Program to address the cause and prevent recurrence:

- The weld defect was repaired.

EVENT ANALYSIS

The event is reportable under 10CFR50.73(a)(2)(i)(B). The licensee shall report any operation or condition which was prohibited by the Technical Specifications (TS). This event meets the reporting criteria because the LCO for TS 3.4.13 allows no RCPB leakage and, based on the amount of boron, a conclusion was reached that this condition had existed during plant operation. There is no accurate means to determine the time period of the leakage but Condition B requires entry into Mode 3 within 6 hours and Mode 5 within 36 hours if there is any leakage so it is assumed there was operation for some period outside TS. Pressure boundary leakage is defined as "LEAKAGE (except primary to secondary LEAKAGE) through a non-isolable fault in an RCS component body, pipe wall, or vessel wall." There is no isolation valve between the RCS and the leak and the line is classified as part of the RCPB.

PAST SIMILAR EVENTS

A review was performed of the past three years for Licensee Event Reports (LERs) reporting a breach of the RCPB and none was 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 significant failure of the RCPB. The leaking through wall defect was a rounded indication (i.e. versus a linear, crack-like indication) which had an insignificant impact on the structural capability of the weld. The fact that the rounded indication had no linear component provides evidence that eventual failure of this weld due to this indication is extremely unlikely. Therefore, there were no significant potential safety consequences of this event.