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Site Vice President

NL-10-032

April 30, 2010

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

SUBJECT: Licensee Event Report # 2010-001-00, "SSFF and TS Violation for an Inoperable RCS Wide Range Temperature Cold Leg Instrument TE-413B Credited for TS 3.3.4 Remote Shutdown"  
Indian Point Unit No. 3  
Docket No. 50-286  
DPR-64

Dear Sir or Madam:

Pursuant to 10 CFR 50.73(a)(1), Entergy Nuclear Operations Inc. (ENO) hereby provides Licensee Event Report (LER) 2010-001-00. The attached LER identifies an event where a remote shutdown instrument was found to be inoperable, which is reportable under 10 CFR 50.73(a)(2)(i)(B) as operation outside the Technical Specifications and 10 CFR 50.73(a)(2)(v)(A) as a safety system functional failure. This condition was recorded in the Entergy Corrective Action Program as Condition Report CR-IP3-2009-04823.

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 3  
Mr. Paul Eddy, New York State Public Service Commission  
LEREvents@inpo.org

# LICENSEE EVENT REPORT (LER)

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-10202, (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.

<b>1. FACILITY NAME:</b> INDIAN POINT UNIT 3	<b>2. DOCKET NUMBER</b> 05000-286	<b>3. PAGE</b> 1 OF 4
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**4. TITLE:** SSFF and TS Violation for an Inoperable RCS Wide Range Temperature Cold Leg Instrument TE-413B Credited for TS 3.3.4 Remote Shutdown

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	2	2010	2010	001	00	4	30	2010	FACILITY NAME	DOCKET NUMBER
										05000
										05000

<b>9. OPERATING MODE</b>  1	<b>11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §:</b> (Check all that apply)			
<b>10. POWER LEVEL</b>  100%	<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.73(a)(2)(i)(C)	<input type="checkbox"/> 50.73(a)(2)(vii)
	<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)
	<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.73(a)(2)(ii)(B)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)
	<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 50.36(c)(1)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)(A)
	<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 50.36(c)(1)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(iv)(A)	<input type="checkbox"/> 50.73(a)(2)(x)
	<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.36(c)(2)	<input checked="" type="checkbox"/> 50.73(a)(2)(v)(A)	<input type="checkbox"/> 73.71(a)(4)
	<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.46(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(v)(B)	<input type="checkbox"/> 73.71(a)(5)
	<input type="checkbox"/> 20.2203(a)(2)(v)	<input type="checkbox"/> 50.73(a)(2)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(C)	<input type="checkbox"/> OTHER
	<input type="checkbox"/> 20.2203(a)(2)(vi)	<input checked="" type="checkbox"/> 50.73(a)(2)(i)(B)	<input type="checkbox"/> 50.73(a)(2)(v)(D)	
	Specify in Abstract below or in NRC Form 366A			

**12. LICENSEE CONTACT FOR THIS LER**

<b>NAME</b> Tat Chan, System Engineering Supervisor	<b>TELEPHONE NUMBER (Include Area Code)</b> (914) 734-6817
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**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

<b>14. SUPPLEMENTAL REPORT EXPECTED</b> <input type="checkbox"/> YES (If yes, complete 15. EXPECTED SUBMISSION DATE) <input checked="" type="checkbox"/> NO	<b>15. EXPECTED SUBMISSION DATE</b>
	MONTH    DAY    YEAR

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

On March 2, 2010, at approximately 19:18 hours, an engineering evaluation determined that there were instances of past performance that may have affected the operability of the Reactor Coolant System 31 wide range cold leg temperature loop T-413B required by Technical Specification (TS) 3.3.4, Remote Shutdown. The review concluded that the remote cabinet electro switch instrumentation switch used to transfer the circuit from the Control Room to the remote shutdown cabinet had evidence of high resistance on the contacts. This is a resistance measuring circuit and changes in resistance can affect the accuracy of the instrument. This was evaluated and a conclusion was reached that the plant had been in a condition outside TS and that constituted a safety system functional failure due to repeat surveillance failures. The cause was transfer switch high resistance. This was not identified due to poor change management and lack of proper program implementation. Completed corrective actions were a surveillance to demonstrate the current operability of the instrument successfully performed on March 2, 2010 when past inoperability was identified, revised the calibration procedure to provide adequate steps for performing R/I calibrations and proper as found criteria, and the current set point drift review process now provides a more timely review of as found calibration results for potential impacts on set point drift. Scheduled corrective action is to revise the calibration procedure to ensure CR and remote shutdown indications are consistent. This condition had no significant effect on public health and safety.

LICENSEE EVENT REPORT (LER)

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**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 2, 2010, at approximately 19:18 hours, while at 100% steady state reactor power, an engineering evaluation of past operability determined that there were instances of past performance that may have affected the operability of the Reactor Coolant System {AB}{RCS} 31 wide range cold leg temperature loop T-413B {IM}. This component is required by Technical Specification (TS) 3.3.4, Remote Shutdown. The event was recorded in the Indian Point Energy Center corrective action program (CAP) as CR-IP3-2009-04823.

The RCS wide range cold leg temperature instrument {TE} TE-413B is located in the remote panel POE {PL} and satisfies the remote shutdown panel function. Surveillance test 3-PC-OL01B, "RCS Wide Range Temperature Appendix "R" Instruments Calibration and Transfer Switch Check" satisfies the channel calibration requirements of TS Surveillance Requirement (SR) 3.3.4.3 and the results were reviewed by engineering to evaluate the past performance of the temperature loop. The as found condition of the components failed the acceptance criteria repeatedly. Specifically, the failure appeared to be the R/I converter located in the remote panel POE which affects the remote instrumentation TE-413B (tagged as POE-PS2) required by TS 3.3.4. There were also functional test failures evidenced during performance of 3PT-R152, "Operability Test of Safe Shutdown Instrumentation" performed after 3-PC-OL01B. These were not monitored under the drift monitoring program and a failure would cause an adjustment of the R/I by work order. The temperature instrument PS2 was added to the drift monitoring program in 2001 and failures occurred as follows:

- 2001, PS2 (TI-413B) fails 3PT-R152 with erroneously high as found reading (remote was 650°F and control room was 537°F).
- 2003, PS2 fails 3-PC-OL01B as found acceptance criteria (Approximately -15% shift for all values).
- 2003, PS2 fails 3PT-R152 with erroneously high as found reading (remote was 660°F and control room was 537°F).
- 2005, PS2 fails 3-PC-OL01B as found acceptance criteria (top of span value low by <4.1mV).
- 2007, PS2 fails 3-PC-OL01B as found acceptance criteria (Approximately -15% shift for all values).
- 2007, PS2 fails 3PT-R152 with erroneously high as found reading (remote was 670°F and control room was 537°F).
- 2009, PS2 fails 3-PC-OL01B as found acceptance criteria (Approximately +16% shift for all values).

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The test results in 2003, 2007 and 2009 for PS2 have demonstrated an adverse trend and it must be assumed that the instrumentation was outside the TS values at some time during the period between tests.

As a result of the failure in 2009 an evaluation was performed to determine the cause. The primary cause is not due to the R/I, but due to increased resistance in the electro switch {HS} contacts {CNTR} directing signals to the R/I. The remote cabinet has POE-SW1 and POE-SW2 (electro switch instrumentation switch) used to transfer the circuit from the Control Room to the remote shutdown cabinet. Multiple contacts are used in transferring the function of the resistance temperature detector (RTD) (there is a four wire RTD connection circuit). These are resistance measuring circuits with the potential for changes to affect indication accuracy. Changes in transfer switch contact resistance have been observed with switch operation and indicate poor contact or switch function. The data indicates it is possible during the calibration to obtain false as-found data as a result of this increased contact resistance. Failing to compensate for this high switch resistance, could result in the as-left calibration values remaining outside the acceptance criteria. This could render the TE-413B remote shutdown function inoperable until the next calibration (2-year test). Adequate steps in the calibration procedure associated with performing R/I calibrations and proper as found criteria would have identified the problem during the test.

The extent of condition evaluation determined that the problem has been limited to the remote shutdown panel cold leg indication PS2.

The failure to identify this adverse trend can be related to change management and a lack of commitment to implement the drift monitoring program. Indian Point 3 had a drift monitoring program (DMP) in place in 2001. That program required two consecutive failures or two failures within five calibrations to initiate action. There were failures to enter data or incomplete data entry into the program. The program also suffered from lack of adequate staffing and changes in departmental oversight responsibility. The DMP that existed was eliminated in early 2009 and responsibility for that monitoring function was transferred to a third engineering group and incorporated into the maintenance rule trending program. The adverse trend was identified as a result of this last change.

Cause of Event

The direct cause of this failure is transfer switch high resistance contacts which were not detected during testing due to inadequate steps in the calibration procedure associated with R/I calibrations and proper as found criteria. The failure to identify the adverse trend was poor change management and a lack of commitment to implement the drift monitoring program.

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

**Corrective Actions**

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

- Performed a surveillance to demonstrate the current operability of the instrument on March 2, 2010 when past inoperability was identified.
- Procedure 3-PC-OL01B was revised to provide adequate steps for performing R/I calibrations, switch contact resistance checks, and proper as found criteria.
- The current set point drift review process provides a timely review of as found calibration results for potential impacts on set point drift.
- Procedure 3-PC-OL01B will be revised to ensure CR and remote shutdown indications are consistent.

**Event Analysis**

The event is reportable under 10 CFR 50.73(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 TS 3.3.4 limits the loss of the remote shutdown function to 30 days before shutdown is required. The exact period of time the cold leg temperature loop was out of service could not be determined but it would have exceeded that period. This event is reportable under 10 CFR 50.73(a)(2)(v)(A). The licensee shall report any event or condition that could have prevented the fulfillment of the safety function of structures or systems to shutdown the reactor. The cold leg monitor for the remote shutdown function is limited to the 31 loop and there are no redundant instruments.

**Past Similar Events**

A review was performed of the past three years for Licensee Event Reports (LERs) reporting a safety system functional failure. LER-2009-009 identified the loss of a neutron flux detector but determined the cause was lack of recurring preventative maintenance. LER-2008-002 identified the loss of 31 pressurizer backup heater transformer but determined the cause was due to insulation breakdown.

**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 shutdown using the remote shutdown panel. There were no significant potential safety consequences of this event because the remote shutdown instrument is not credited for any accident response in the plant accident analysis.