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NL-14-022

March 10, 2014

U.S. Nuclear Regulatory Commission
Document Control Desk
11545 Rockville Pike, TWFN-2 F1
Rockville, MD 20852-2738

SUBJECT: Licensee Event Report # 2014-002-00, "Technical Specification (TS) Prohibited Condition Due to an Inoperable Essential Service Water (SW) Header as a Result of Socket Weld Leak in Code Class 3 SW Piping"
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) 2014-002-00. The attached LER identifies an event where there was a Technical Specification (TS) Prohibited Condition due to an inoperable essential Service Water (SW) header as a result of discovering a socket weld leak in Code Class 3 SW Piping, 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-IP3-2012-02193.

There are no new commitments identified in this letter. Should you have any questions regarding this submittal, please contact Mr. Robert Walpole, Manager, Regulatory Assurance at (914) 254-6710.

Sincerely,

JAV/cbr

cc: Mr. William Dean, Regional Administrator, NRC Region I
NRC Resident Inspector's Office
Ms. Bridget Frymire, New York State Public Service Commission

IE22
NRR

NRC FORM 366 (01-2014) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104 EXPIRES: 1/31/2017

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 3	05000-286	1 OF 4

4. TITLE: Technical Specification (TS) Prohibited Condition Due to an Inoperable Essential Service Water (SW) Header as a Result of a Socket Weld Leak in Code Class 3 SW Piping

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
07	16	2012	2014-	002 -	00	03	10	2014		05000
									FACILITY NAME	DOCKET NUMBER
										05000

9. OPERATING MODE

1

10. POWER LEVEL

100%

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, Code Engineer, System Engineering	(914) 254-6612

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
A	BI	PSP	W079	Y					

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 July 16, 2012, during operator rounds, a Service Water (SW) leak was discovered on a socket weld elbow of a three quarter inch diameter sample pipe connected to the 31 Component Cooling Water (CCW) Heat Exchanger (Hx) SW discharge pipe upstream of sample valve SWN-49-1. The leak was too small to quantify. The leak is on a component classified as ASME Section XI Code Class 3. The weld leak was evaluated and determined not applicable to acceptance under Code Case N-513-3. The condition was determined to have no impact on SW cooling safety function. The affected SW header was declared inoperable and Technical Specification (TS) 3.7.9 (SW System) entered until the applicable CCW loop for the 31 CCW Hx was isolated. TS 3.7.8 (CCW System) was entered for one CCW loop inoperable. At the time this condition was identified the condition was not recognized as being reportable. The apparent cause was crevice corrosion due to exposure of unlined carbon steel to brackish SW (chloride) environment in low flow or stagnant vent/drain piping. The corrective action was a complete replacement of the affected piping assembly during the TS allowed outage time (AOT). The event had no significant effect on public health and safety.

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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 July 16, 2012, at 22:28 hours, during operator rounds, a Service Water (SW) {BI} leak was discovered on a socket weld elbow {PSF} of a three quarter inch diameter sample pipe {PSP} connected to the 31 Component Cooling Water (CCW) {CC} Heat Exchanger (Hx) {HX} SW discharge pipe upstream of sample valve SWN-49-1. The leak was too small to quantify. The only equipment downstream of the leaking elbow are valve SWN-49-1 and its in-line sample valve SWN-637. The leak is on a component classified as ASME Section XI Code Class 3. The condition was recorded in the Indian Point Energy Center (IPEC) Corrective Action Program (CAP) as Condition Report CR-IP3-2012-02193. Operations initiated a special log for the leak and an operability evaluation was requested from engineering. The weld leak was evaluated for compliance with the requirements of Code Case N-513-3 and SW operability. Engineering concluded the affected ¾ inch SW pipe was inoperable because the defect is located on the socket weld which is a condition that is not applicable to acceptance under Code Case N-513-3. Since the leak was in a socket weld, NDE (specifically UT) could not be used to initially characterize the flaw due to socket weld configuration and resulting inherent NDE technique limitations. The flaw would not have an impact on SW safety function as the flaw is too small and is downstream of the Hx and therefore would not have affected cooling capability of the HX. At the time this condition was not recognized as being reportable for an inoperable condition during past operation. The affected SW header was declared inoperable and Technical Specification (TS) 3.7.9 (SW System) entered on July 17, 2012, at 15:32 hours. Also, on July 17, 2012, at 15:32 hours, the 31 CCW HX was removed from service for repair and the 31 CCW Hx tube side isolated and Technical Specification (TS) 3.7.8 (CCW System) was entered for one loop CCW inoperable.

The SW System (SWS) is designed to supply cooling water from the Hudson River to various heat loads in both the primary and secondary portions of the plant. The design ensures a continuous flow of cooling water to those systems and components necessary for plant safety during normal operation and under abnormal or accident conditions. The SWS consists of two separate, 100% capacity, safety related cooling water headers. Each header is supplied by 3 pumps each having its own strainers, with SWS heat loads designated as either essential or non-essential. The essential SWS heat loads are those which must be supplied with cooling water immediately in the event of a Loss of Cooling Accident (LOCA) and/or Loss of Offsite Power (LOOP). The essential SWS heat loads can be cooled by any two of the three SW pumps on the essential header. Either of the two SWS headers can be aligned to supply the essential heat loads or the non-essential SWS heat loads.

The CCW System (CCWS) is a closed loop cooling system that provides cooling water for systems and components important to safety. The CCWS transfers its heat load to the SWS via heat exchangers. The SWS is a once through cooling system that transfers its heat load to the ultimate heat sink (Hudson River). The CCWS consists of three pumps and two heat exchangers. These components are divided into two independent, full capacity cooling loops with each loop consisting of one pump and one heat exchanger.

An extent of condition (EOC) review identified system operating history with recurring problems with leaks developing in stagnant vent and drain connection piping and valves. Procedure 3-PT-R185B (Primary Auxiliary Building SW Piping and Valve Flush) was developed specifically to address this problem.

The purpose of the procedure is to verify each connection can be used as intended and to minimize the potential for accelerated piping component corrosion, degradation, and failure. Procedure 3-PT-R185B is performed on a two year frequency and is the main line of defense for preventing future leaks in small bore carbon steel piping socket welds. Because Code Case N-513-3 could not be used, the Code Case requirements to perform an augmented examination of five additional susceptible locations (EOC) do not apply.

Cause of Event

The apparent cause was crevice corrosion due to exposure of unlined carbon steel to brackish SW (chloride) environment in low flow or stagnant vent/drain piping.

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:

- Complete replacement of the affected piping assembly (completed July 18, 2012).

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 plant's TS. This condition meets the reporting criteria because the essential SW header was declared inoperable as a result of discovering a leak in the socket weld of SW vent line for the 31 CCW HX. The leak is on a component classified as ASME Section XI Code Class 3 for the SW system. TS 3.7.9 LCO requires three pumps and required flow path for the essential header to be operable. The LCO requires associated piping, valves and instrumentation and controls required to perform the safety related function to be operable. The socket weld leak is a condition that is not applicable to acceptance under Code Case N-513-3. During previous operation for an unknown period of time the subject piping contained through wall leaks. This previously unrecognized condition required TS 3.7.9 entry and corrective actions to return the piping header to operable. Failure to comply with the TS LCO and perform required actions is a TS prohibited condition. TS 3.7.9 was exited on July 18, 2013 at 01:23 hours. At the time this condition was not recognized as being reportable for an inoperable condition during past operation. There was no safety system functional failure reportable under 10 CFR 50.73(a)(2)(v). A designated essential header was available and the leaks would not have prevented the SW cooling function for affected heat loads. As a result of an extent of condition review under CR-IP2-2013-05090 the reportable condition was identified.

Past Similar Events

A review was performed of the past three years of Licensee Event Reports (LERs) for events reporting a TS violation due to inoperable SW piping caused by leaks and one LER was identified. This LER is a result of an extent of condition review. LER-2013-004 reported pin hole leaks in Code Class 3 SW piping elbows for series 300 stainless steel. The pin hole leaks were due to pitting corrosion. The cause of the event reported in LER-2013-004 was not the same as this event as the piping material was different (carbon steel vs stainless steel) and the cause was failure to follow procedure EN-DC-336 (Plant Health Committee).

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

In November 2013, the NRC performed a Problem Identification and Resolution (PI&R) inspection at Indian Point. In that inspection, the NRC identified that a past service water leak in 2008 was not reported to the NRC as a License Event Report in 2008. Entergy received a non-cited violation (NCV) for this issue. Entergy included a discussion of the 2008 SW leak in the November 12, 2013 LER. This 2008 Unit 2 SW leak was not in the same location as the SW system leaks discussed in LER-2013-004. The plant did not enter TS 3.0.3 as the piping was isolated for ultrasonic examination prior to determining the pipe was inoperable. The condition was recorded as "no reportability determination required" therefore, past reportability was not assessed and no LER was submitted. The condition in 2008 would not now require an LER as the past reporting criteria of three years has been exceeded. CR-IP2-2013-04346 recorded this finding

As a result of the NCV, Entergy wrote a condition report and performed an extent of condition review. During the extent of condition review, Entergy identified the condition which is the subject of this LER.

On November 12, 2013, Entergy submitted LER-2013-004 for a Unit 2 Technical Specification prohibited condition due to an inoperable SW header as a result of the discovery on September 11, 2013, of pin hole leaks in Code Class 3 SW piping/elbows that supported three radiation monitors. As part of an extent of condition review, the NRC identified prior SW system leaks in radiation monitor piping in the SW pipe chase that was recorded in CR-IP2-2008-04268 on September 17, 2008. This 2008 Unit 2 SW leak was not in the same location as the SW system leaks discussed in LER-2013-004. The plant did not enter TS 3.0.3 as the piping was isolated for ultrasonic examination prior to determining the pipe was inoperable.

Safety Significance

This event had no significant effect on the health and safety of the public. There were no actual safety consequences for the event because there were no accidents or events during the degraded condition.

There were no significant potential safety consequences of this event. The leakage from the affected SW piping assembly was within the capability of the SW system to provide adequate SW flow to SW loads. The degraded piping was on the discharge of the heat loads therefore any failure would not prevent the SW cooling function. Any catastrophic failure of the degraded piping as a result of a transient, accident or event could result in potential flooding. The leaking elbow was located above the Boric Acid Batch Tank berm. Any leakage would likely be to the berm whose contents would be directed to the liquid waste collection system. In addition, a SW leak in the PAB area outside the berm would drain to the PAB sump. Any flooding condition could be identified and mitigated as the PAB sump has a high level alarm that actuates an alarm on the PAB sump alarm panel in the unit 2 NPO office and at the Waste Disposal Panel (Flood 15 foot Elevation, Flood 68 foot Elevation). Alarm Response Procedure ARP-014 (PAB Flooding) requires operator acknowledgement of the alarm, notification of the Control Room and initiation of action to eliminate the cause of the flooding. Procedure 2-ARP-004 (Waste Disposal Panel) also includes actions to respond to WDP PAB Sump Pump Hi level alarm. The ARP actions include isolation of any source of flooding. The affected SW piping assemble is located between isolation valves which would allow operators to isolate the leak once alerted. In addition to PAB Sump level alarms, periodic operator rounds (Nuclear Rounds) include Waste Disposal Alarm Panel tested/verification thereby providing another means to identify SW piping leakage.