**Entergy Nuclear Northeast**
Entergy Nuclear Operations, Inc.
Indian Point Energy Center
295 Broadway, Suite 1
P.O. Box 249
Buchanan, NY 10511-0249

December 21, 2001

Re: Indian Point Unit No. 2
Docket No. 50-247
LER 2001-006-00
NL-01-143

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

Dear Sir:

The attached Licensee Event Report 2001-006-00 is hereby submitted in accordance with the requirements of 10 CFR 50.73.

Sincerely,

Fred Dacimo
Vice President - Operations
Indian Point 2

Attachment

cc: Mr. Hubert J. Miller
Regional Administrator - Region I
U.S. Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, PA 19406

Mr. Patrick D. Milano, Senior Project Manager
Project Directorate I
Division of Licensing Project Management
U.S. Nuclear Regulatory Commission
Mail Stop O-8-C2
Washington, DC 20555

Senior Resident Inspector
U.S. Nuclear Regulatory Commission
PO Box 38
Buchanan, NY 10511

IE22

NRC FORM 366 U.S. NUCLEAR REGULATORY COMMISSION
(6-1998)

# LICENSEE EVENT REPORT (LER)

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

APPROVED BY OMB NO. 3150-0104 EXPIRES 06/30/2001



| FACILITY NAME (1) | DOCKET NUMBER (2) | PAGE (3) |
|---|---|---|
| Indian Point, Unit 2 | 05000247 | 1 OF 4 |

TITLE (4) Pipe Erosion Results In Service Water System Leakage In Containment

| EVENT DATE (5) | | | LER NUMBER (6) | | | REPORT DATE (7) | | | OTHER FACILITIES INVOLVED (8) | |
|---|---|---|---|---|---|---|---|---|---|---|
| MONTH | DAY | YEAR | YEAR | SEQUENTIAL NUMBER | REVISION NUMBER | MONTH | DAY | YEAR | FACILITY NAME | DOCKET NUMBER |
| | | | | | | | | | | 05000 |
| 10 | 29 | 2001 | 2001 | -006- | 00 | 12 | 21 | 2001 | FACILITY NAME | DOCKET NUMBER |
| | | | | | | | | | | 05000 |

| OPERATING MODE (9) | N |
|---|---|
| POWER LEVEL (10) | 000 |

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)

| | | | | | |
|---|---|---|---|---|---|
| | 20.2201(b) | | 20.2203(a)(2)(v) | | 50.73(a)(2)(i) | | 50.73(a)(2)(viii) |
| | 20.2203(a)(1) | | 20.2203(a)(3)(i) | | 50.73(a)(2)(ii) | | 50.73(a)(2)(x) |
| | 20.2203(a)(2)(i) | | 20.2203(a)(3)(ii) | | 50.73(a)(2)(iii) | | 73.71 |
| | 20.2203(a)(2)(ii) | | 20.2203(a)(4) | | 50.73(a)(2)(iv) | | OTHER - |
| | 20.2203(a)(2)(iii) | | 50.36(c)(1) | X | 50.73(a)(2)(v) | | Specify in Abstract below or in NRC Form 366A |
| | 20.2203(a)(2)(iv) | | 50.36(c)(2) | | 50.73(a)(2)(vii) | | |

LICENSEE CONTACT FOR THIS LER (12)

| NAME | TELEPHONE NUMBER (Include Area Code) |
|---|---|
| Richard Louie, Licensing Engineer | (914) 734-5678 |

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

| CAUSE | SYSTEM | COMPONENT | MANUFACTURER | REPORTABLE TO EPIX | CAUSE | SYSTEM | COMPONENT | MANUFACTURER | REPORTABLE TO EPIX |
|---|---|---|---|---|---|---|---|---|---|
| B | BI | PSX | | N | | | | | |
| | | | | | | | | | |

| SUPPLEMENTAL REPORT EXPECTED (14) | | | EXPECTED SUBMISSION DATE (15) | 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) (16)

On October 29, 2001 during a scheduled mid-cycle maintenance outage, with the plant at cold shutdown conditions, a Service Water (EIIS:BI) leak was observed inside containment located on the motor cooler outlet discharge piping from Fan Cooler (EISS:CLR) Unit No. 22. The source of the leakage was a hole (approximately 1/8 to 3/16 inch diameter) near a pipe-to-elbow weld on a two inch diameter, copper nickel Alloy 706 service water pipe, upstream of the containment penetration. No indication of leakage was detected prior to plant shutdown. At the time of discovery, this condition did not adversely impact Technical Specification requirements for containment integrity. The leak was corrected by the replacement of the elbow fitting in accordance with American Society of Mechanical Engineers (ASME) Section XI requirements prior to the plant's return to service from the outage. The root cause for this condition was excessive wear/erosion of the copper nickel material due to high, localized fluid flow rate (eddy currents) induced by the root pass weld extending into the flow path. Subsequent inspection of similarly susceptible service water piping was performed. They were found to be free of any measurable wall loss.

| FACILITY NAME (1) | DOCKET NUMBER (2) | LER NUMBER (6) | | | PAGE (3) |
|---|---|---|---|---|---|
| | | YEAR | SEQUENTIAL NUMBER | REVISION NUMBER | |
| Indian Point, Unit 2 | 05000247 | 2001 | -006- | 00 | 2 OF 4 |

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

PLANT AND SYSTEM IDENTIFICATION

Westinghouse 4-Loop Pressurized Water Reactor

EVENT IDENTIFICATION

Pipe Erosion Results In Service Water System Leakage In Containment

EVENT DATE

October 29, 2001

REFERENCES

Condition Reporting System Number(s): 200110417

PAST SIMILAR EVENTS

LER 95-14-00, and 91-12-00

EVENT DESCRIPTION

On October 29, 2001 during a scheduled mid-cycle maintenance outage, with the plant at cold shutdown conditions, a Service Water (EIIS:BI) leak was observed inside containment located on the motor cooler outlet discharge piping from Fan Cooler (EISS:CLR) Unit No. 22. The source of the leakage was a hole (approximately 1/8 to 3/16 inch diameter) near a pipe-to-elbow weld on a two inch diameter, copper nickel Alloy 706 service water pipe, upstream of the containment penetration. No indication of leakage was detected prior to plant shutdown. At the time of discovery, this condition did not adversely impact Technical Specification requirements for containment integrity. The leak was corrected by the replacement of the elbow fitting in accordance with American Society of Mechanical Engineers (ASME) Section XI requirements prior to the plant's return to service from the outage. The root cause for this condition was excessive wear/erosion of the copper nickel material due to high, localized fluid flow rate. Subsequent visual examination of the affected elbow fitting revealed that the root pass weld extended into the flow path. Inspections of similarly susceptible service water piping were performed. They were found to be free of any measurable wall loss.

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

EVENT ANALYSIS

The root cause for this condition has been attributed to excessive wear/erosion of the copper nickel material due to high, localized fluid flow rate. This was verified by subsequent visual examination of the affected elbow fitting. The excessive wear/erosion is attributed to localized eddy currents caused by the root pass weld extending into the flow path.

There were no structures, systems, or components that were inoperable immediately prior to the discovery of this condition that contributed to the event. All equipment functioned as designed prior to the discovery of this condition. This condition did not involve any personnel injury, radiation exposure, offsite dose release, or damage to equipment important to safety.

EVENT SAFETY SIGNIFICANCE

Because the containment fan cooler units are utilized for accident mitigation purposes, service water flow is not isolated following a design basis accident. All service water piping, to and from each of the five (5) containment fan cooler units is considered to be an extension of the containment boundary. Consequently, defects discovered within this piping may adversely affect containment integrity, and the ability to control the accidental release of radioactive materials. Based upon a 1/8 to 3/16 inch diameter hole, the estimated leakage rate would have exceeded the integrated leakage rate acceptance criteria (less than 1.0 La, where La is equal to 0.1 w/o per day of containment steam air atmosphere at 47 psig and 271F) identified in Technical Specification 4.4.A.2. However, at the time of its discovery, the plant was at cold shutdown conditions and Technical Specification requirements established for ensuring containment integrity were not necessary. An assessment of the UFSAR Chapter 14 Large Break LOCA design basis accident radiological consequences, and the additional dose from this leak was performed. Preliminary results indicate that the total effective dose equivalent (TEDE) limits of 10 CFR 50.67 would not have been exceeded. Therefore this condition has been determined to be of minimal safety significance. Should this conclusion be amended by the final assessment results, a supplement to this report will be provided. NRC notification pursuant to 10 CFR 50.72(b)(3)(v) was not required. Furthermore, the size (approximately 1/8 to 3/16 inch diameter) and physical location (fan cooler motor outlet discharge line) of the hole would not have affected the heat removal capability of Fan Cooler Unit No. 22. It has also been determined that this condition had no adverse affect on the structural integrity of the piping.

| FACILITY NAME (1) | DOCKET NUMBER (2) | LER NUMBER (6) | | | PAGE (3) |
|---|---|---|---|---|---|
| | | YEAR | SEQUENTIAL NUMBER | REVISION NUMB | |
| Indian Point, Unit 2 | 05000247 | 2001 | -006 | 00 | 4 OF 4 |

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

CORRECTIVE ACTION

A like-in-kind replacement elbow was installed prior to the plant's return to service from the mid-cycle outage. Subsequent inspection of similarly susceptible service water piping was performed. They were found to be free of any measurable wall loss. No further corrective actions were deemed necessary.

PREVIOUS OCCURRENCES

A review of previous occurrences that involved the same underlying concern or reason as this event was performed. Two events were identified, and reported to the NRC in the following LERs:

LER 95-14-00: This LER reported that on May 18, 1995, during normal containment rounds, operations identified a leak of approximately 0.00026 gallons per minute on the weld for Fan Cooler Unit No. 22 service water discharge flow transmitter instrument line.

LER 91-012-00: This LER reported that on July 22, 1991, a pinhole leak was detected in the two inch service water system piping supplying cooling water to the motor of Fan Cooler Unit No. 23. Additionally it was reported that on August 1, 1991, a leak was observed on the return line from Fan Cooler Unit No. 24