NRC Form 366 (9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/88

# LICENSEE EVENT REPORT (LER)

| FACILITY NAME (1) | DOCKET NUMBER (2) | PAGE (3) |
|---|---|---|
| NORTH ANNA POWER STATION, UNIT 1 | 0 5 0 0 0 3 3 8 | 1 OF 0 3 |

TITLE (4)

LOSS OF ENVIRONMENTAL QUALIFICATION OF SI ACCUMULATOR TANK PRESSURE TRANSMITTERS

| 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(S) |
| 0 9 | 1 1 | 8 7 | 8 7 | 0 2 1 | 0 1 | 0 4 | 1 4 | 8 8 | | 0 5 0 0 0 |
| | | | | | | | | | | 0 5 0 0 0 |

| OPERATING MODE (9) | THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11) | | | |
|---|---|---|---|---|
| 5 | 20.402(b) | 20.405(c) | 50.73(a)(2)(iv) | 73.71(b) |
| POWER LEVEL (10): 0 0 0 | 20.405(a)(1)(i) | 50.36(c)(1) | X 50.73(a)(2)(v) | 73.71(c) |
| | 20.405(a)(1)(ii) | 50.36(c)(2) | 50.73(a)(2)(vii) | OTHER (Specify in Abstract below and in Text, NRC Form 366A) |
| | 20.405(a)(1)(iii) | 50.73(a)(2)(i) | 50.73(a)(2)(viii)(A) | |
| | 20.405(a)(1)(iv) | 50.73(a)(2)(ii) | 50.73(a)(2)(viii)(B) | |
| | 20.405(a)(1)(v) | 50.73(a)(2)(iii) | 50.73(a)(2)(x) | |

LICENSEE CONTACT FOR THIS LER (12)

| NAME | TELEPHONE NUMBER |
|---|---|
| | AREA CODE |
| G. E. Kane, Station Manager | 7 0 3 8 9 4 - 5 1 5 1 |

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

| CAUSE | SYSTEM | COMPONENT | MANUFACTURER | REPORTABLE TO NPRDS | | CAUSE | SYSTEM | COMPONENT | MANUFACTURER | REPORTABLE TO NPRDS | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | |
| | | | | | | | | | | | |

| 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 fifteen single-space typewritten lines) (16)


On September 11, 1987 at 0900 hours with Unit 1 in mode 5 (cold shutdown), it was discovered that the environmental seals on the sensor necks of the Safety Injection (SI) Accumulator Tank Pressure Transmitters had been broken during installation in May, 1987. Pursuant to Generic Letter 85-15, this event is reportable under 10CFR50.73(a)(2)(v).

During the installation of one of the six EQ pressure transmitters on the Unit 2 SI Accumulator Tanks on September 11, 1987, the Quality Control (QC) Inspector witnessed the electronics housing being allowed to turn on the sensor neck. It was then discovered that this action voids the environmental seal which is baked on the sensor neck. The construction personnel then told the QC Inspector that the same method of installation had been used in May, 1987, during the Unit 1 refueling outage, causing the Unit 1 transmitters to be environmentally unqualified.

As a corrective action, the Unit 1 transmitters were removed and the sensor necks were [illegible]ed. The construction personnel were trained to be cautious of the neck seal and the proper installation was completed on September 24, 1987. QC personnel have been trained to be aware of possible damage to the neck seal during installation. Engineering and Construction will revise their Design Change Package (DCP) standards to assure that adequate installation instructions are provided in the DCP and relevant cautions are placed directly ahead of the steps to which they apply.


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TEXT (If more space is required, use additional NRC Form 366A's) (17)

1.0 Description of Event

On September 11, 1987 at 0900 hours with Unit 1 in mode 5 (cold shutdown), it was discovered that the environmental seals on the sensor necks of the Safety Injection (SI) Accumulator Tank Pressure Transmitters (EIIS System Identifier BP, Component Identifier PDT, Vendor Identifier R369) had been broken during installation in May, 1987. Pursuant to Generic Letter 85-15, this event is reportable under 10CFR50.73(a)(2)(v).

Environmentally Qualified (EQ), Category 2 pressure transmitters on the Safety Injection (SI) Accumulator Tanks were installed in May, 1987 during the Unit 1 refueling outage. The non - EQ, Category 3 pressure transmitters that were in operation were being replaced to comply with Regulatory Guide 1.97 requirements.

During the installation of one of the six EQ pressure transmitters on the Unit 2 SI Accumulator Tanks on September 11, 1987, the Quality Control (QC) Inspector witnessed the electronics housing being allowed to turn on the sensor neck. The QC Inspector, realizing that the locknut on the sensor neck would have to be retorqued, stopped work to consult the technical manual for the proper torque value. Upon consulting the manual, it was discovered that allowing the electronics housing to turn on the sensor neck voids the environmental seal which is baked on after torquing the locknut. The construction personnel then told the QC Inspector that the same method of installation had been used on Unit 1 during May, 1987, and that movement of the electronics housing on the sensor neck had occurred on some of the pressure transmitters.

2.0 Safety Consequences and Implications

The accumulator pressure transmitters are required to be operable prior to an accident condition to give positive indication of nitrogen overpressure, which ensures complete injection of borated water volume into the RCS. In the event of an accident, and subsequent failure of the pressure transmitters, the accumulator level indicator, as well as associated alarms in the control room, will assure operators that the accumulators had carried out their desired safety function. In addition, there are two pressure transmitters per accumulator to ensure that a backup is provided.

The integrity of the seal on the sensor neck is only necessary for operation of the pressure transmitter during accident conditions. Unit 1 operated from June 30, 1987 to July 15, 1987, a total of 16 days with the seal on the sensor necks in a potentially environmentally unqualified condition. The transmitters were not exposed to any harsh environments including the Unit 1 Steam Generator Tube Rupture (SGTR) that occurred on July 15, 1987. The SGTR did not adversely affect the containment conditions or require injection of the Accumulator Tanks. It is therefore concluded that the pressure indication was accurate during the 16 days of operation.

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TEXT (If more space is required, use additional NRC Form 366A's) (17)

3.0 Cause of Event

The sealant, which provides the environmental barrier, is a liquid compound that is baked on after application to the desired components. The pressure transmitters had been assembled and the sealant applied and baked prior to installation. After the transmitters had been mounted, construction personnel began installing the electrical conduit to the transmitters. During this process the electronics housings were allowed to move on the sensor necks. Since the condition of the neck seal cannot be evaluated visually, and the Design Change Package (DCP) which installed the transmitters did not contain a warning about possible damage to the neck seals, the construction and QC personnel were unaware that the neck seals had been damaged during the Unit 1 installation.

4.0 Corrective Action

As a corrective action, the Unit 1 transmitters were removed and the sensor necks were resealed. The construction personnel were instructed on the proper installation of the conduit assemblies and proper installation of the transmitters was completed on September 24, 1987.

5.0 Actions Taken to Prevent Recurrence

To prevent recurrence of this type of event, QC personnel have been trained to watch for actions which could damage the neck seal during installation. In addition, Engineering and Construction will revise their DCP standards to assure that adequate installation instructions are provided in the DCP and relevant cautions are placed directly ahead of the steps to which they apply.

6.0 Similar Events

No similar events involving North Anna have occurred.

7.0 Additional Information

Four of the six transmitters had been improperly installed on Unit 2 at the time of discovery. These transmitters were subsequently removed. The resealing of the sensor necks was completed on September 25, 1987. The Design Change Package (DCP) under which the Unit 2 transmitters are being installed has not been completed, but is scheduled to be completed prior to the end of the current Unit 2 refueling outage. Since Unit 2 did not operate with the transmitters in a environmentally unqualified condition, this is not a reportable event for Unit 2.

The pressure transmitters involved are Rosemount Alphaline Model 1153 Series D.

10 CFR 50.73

Vepco

VIRGINIA ELECTRIC AND POWER COMPANY
NORTH ANNA POWER STATION
P. O. BOX 402
MINERAL, VIRGINIA 23117

April 14, 1988

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555

Serial No. N-87-032A
NO/MSL: nih
Docket No. 50-338

License No. NPF-4

Dear Sirs:

The Virginia Electric and Power Company hereby submits the following updated Licensee Event Report applicable to North Anna Unit 1. This update includes a clarification of the safety consequences.

Report No. LER 87-021-01

This report has been reviewed by the Station Nuclear Safety and Operating Committee and will be forwarded to Safety Evaluation and Control for their review.

Very Truly Yours,

G. E. Kane
Station Manager

Enclosure

cc: U. S. Nuclear Regulatory Commission
101 Marietta Street, N. W.
Suite 2900
Atlanta, Georgia 30323

Mr. J. L. Caldwell
NRC Senior Resident Inspector
North Anna Power Station

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