

LICENSEE EVENT REPORT (LER)

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

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS MANDATORY INFORMATION COLLECTION REQUEST: 50.0 HRS. REPORTED LESSONS LEARNED ARE INCORPORATED INTO THE LICENSING PROCESS AND FED BACK TO INDUSTRY. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (r-8 f33), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)

SURRY POWER STATION , Unit 1

DOCKET NUMBER (2)

05000 - 280

PAGE (3)

1 OF 3

TITLE (4)

Nonisolable Leak of Reactor Coolant Pump Seal Injection Line Weld

| 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 | DOCUMENT NUMBER | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 05 | 09 | 98 | 1998 | -- 009 -- | 00 | 06 | 03 | 98 | FACILITY NAME | 05000- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)</p> <table border="1"> <tr> <td rowspan="5"> OPERATING MODE (9) NA POWER LEVEL (10) 100 % </td> <td>20.2201(b)</td> <td>20.2203(a)(2)(v)</td> <td>X</td> <td>50.73(a)(2)(i)</td> <td>50.73(a)(2)(viii)</td> </tr> <tr> <td>20.2203(a)(1)</td> <td>20.2203(a)(3)(i)</td> <td></td> <td>50.73(a)(2)(ii)</td> <td>50.73(a)(2)(x)</td> </tr> <tr> <td>20.2203(a)(2)(i)</td> <td>20.2203(a)(3)(ii)</td> <td></td> <td>50.73(a)(2)(iii)</td> <td>73.71</td> </tr> <tr> <td>20.2203(a)(2)(ii)</td> <td>20.2203(a)(4)</td> <td></td> <td>50.73(a)(2)(iv)</td> <td>OTHER</td> </tr> <tr> <td>20.2203(a)(2)(iii)</td> <td>50.36(c)(1)</td> <td></td> <td>50.73(a)(2)(v)</td> <td>Specify in Abstract below</td> </tr> <tr> <td></td> <td>20.2203(a)(2)(iv)</td> <td>50.36(c)(2)</td> <td></td> <td>50.73(a)(2)(vii)</td> <td>or in NRC Form 368A</td> </tr> </table> | | | | | | | | | | | OPERATING MODE (9) NA POWER LEVEL (10) 100 % | 20.2201(b) | 20.2203(a)(2)(v) | X | 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) | | 50.73(a)(2)(v) | Specify in Abstract below | | 20.2203(a)(2)(iv) | 50.36(c)(2) | | 50.73(a)(2)(vii) | or in NRC Form 368A |
| OPERATING MODE (9) NA POWER LEVEL (10) 100 % | 20.2201(b) | 20.2203(a)(2)(v) | X | 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) | | 50.73(a)(2)(v) | Specify in Abstract below | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 20.2203(a)(2)(iv) | 50.36(c)(2) | | 50.73(a)(2)(vii) | or in NRC Form 368A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

LICENSEE CONTACT FOR THIS LER (12)

NAME

D. A. Christian, Site Vice President

TELEPHONE NUMBER (Include Area Code)

(757) 365-2000

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)

| | | | | | | |
|--|---|----|---------------------------------|--------------|------------|-------------|
| YES (If yes, complete EXPECTED SUBMISSION DATE). | X | NO | EXPECTED SUBMISSION DATE | MONTH | DAY | YEAR |
|--|---|----|---------------------------------|--------------|------------|-------------|

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

On May 9, 1998, with Unit 1 at 100% power, an increase was noted in Reactor Coolant System (RCS) leakage. Operations personnel entered the containment to investigate and discovered a leak in the area of the 1½" seal injection line to the "C" Reactor Coolant Pump (RCP) at the pump thermal barrier. A subsequent containment entry confirmed that a weld or pipe through-wall non-isolable leak existed at the seal injection line of the RCP. The unit was placed at cold shutdown as required by TS 3.1.C.4. On May 9, 1998, a Notice of Unusual Event was declared and, at 2316, the NRC was notified in accordance with 10CFR50.72(a)(1)(i) and 10CFR50.72(b)(1)(i)(A). The seal injection line was repaired and the unit was prepared for start-up and the unit was returned to service on May 25, 1998. A Root Cause Evaluation (RCE) was initiated to verify the cause of the leaking "C" RCP seal injection weld. The cause has preliminarily been determined to be from a pre-existing indication at the toe of the weld. The most probable cause for the weld failure was a lack of fusion or thermal fatigue coupled with vibration stress due to a loose rod hanger. This event is reportable pursuant to 10CFR50.73(a)(2)(i)(B).

**LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION**

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| FACILITY NAME (1) Surry Power Station, Unit 1 | DOCKET 05000 - 280 | LER NUMBER (6) | | | PAGE (3) 2 OF 3 |
| | | YEAR 1998 | SEQUENTIAL NUMBER -- 009 -- | REVISION NUMBER 00 | |

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

1.0 DESCRIPTION OF THE EVENT

On May 9, 1998, with Unit 1 at 100% power, an increase was noted in Reactor Coolant System (RCS) leakage. The leakage was within Technical Specification (TS) limits and monitoring revealed that the leakage rate had increased only slightly. Operations personnel entered the containment to investigate and discovered a leak in the area of the 1½" seal injection line to the "C" Reactor Coolant Pump (RCP) [EIS-AB-P] at the pump thermal barrier. A unit ramp down to 50% power was commenced to reduce dose in the area of the leak so that a second containment entry could be made to further examine the leak. The second containment entry confirmed that a weld or pipe through-wall non-isolable leak existed at the seal injection line of the RCP. As a result, the unit was placed at cold shutdown as required by TS 3.1.C.4. On May 9, 1998, a Notice of Unusual Event was declared and, at 2316, the NRC was notified in accordance with 10CFR50.72(a)(1)(i) and 10CFR50.72(b)(1)(i)(A). The seal injection line was repaired and the unit was returned to service on May 25, 1998. This event is reportable pursuant to 10CFR50.73(a)(2)(I)(B) as a condition prohibited by Technical Specifications.

2.0 SIGNIFICANT SAFETY CONSEQUENCES AND IMPLICATIONS

RCS leakage is quantified daily including unidentified leakage. The leakage from the seal injection line to the RCP thermal barrier was detected by the daily leakage evaluation and was confirmed by visual inspection. The leak rate was less than the unidentified leakage limits specified in TS 3.1.C.2. A catastrophic failure of the weld is unlikely, but if it were to occur, the resultant loss of RCS inventory would be bounded by existing accident analyses. Therefore, the health and safety of the public were not affected.

3.0 CAUSE

A Root Cause Evaluation was initiated to verify the cause of the leaking "C" RCP seal injection weld. The cause has preliminarily been determined to be from a pre-existing indication at the toe of the weld. The most probable cause for the weld failure was a lack of fusion or thermal fatigue coupled with vibration stress due to a loose rod hanger [EIS-AB-H].

4.0 IMMEDIATE CORRECTIVE ACTION(S)

The RCP seal injection line was removed from the RCP thermal barrier. The failed weld was excavated and a new line was welded in place in accordance with approved procedures.

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

5.0 ADDITIONAL CORRECTIVE ACTIONS

The rod hanger for "C" RCP seal injection line was adjusted.

6.0 ACTIONS TO PREVENT RECURRENCE

The corresponding welds for "A" and "B" RCP seal injection lines were nondestructively tested with no indications noted. The associated pipe supports were inspected to ensure proper installation. No deficiencies were identified.

The piping and support configurations for the Unit 2 RCP seal injection lines were evaluated by Engineering. Due to hanger differences between the two units, the evaluation concluded that a similar event on Unit 2 is not likely. However, the Unit 2 piping and supports will be inspected during the next refueling outage to verify proper installation and adjustment.

Approved RCE recommendations that are needed to prevent a recurrence of this event will be implemented.

7.0 SIMILAR EVENTS

S-1-93-010-00, "Operation with a Non-isolable Leak on a "B" Steam Generator Channel Head Drain Line."

S-1-95-007-01, "Operation with Non-isolable Leak in Pressurize Instrumentation Nozzles."

S-1-98-006-00, "Unisolable Through Wall Leak of RCP Thermowell."

8.0 MANUFACTURER / MODEL NUMBER

NA

9.0 ADDITIONAL INFORMATION

Unit 2 was operating at 100% and was not affected by this event.