

**Virginia Electric And Power Company  
Surry Power Station  
5570 Hog Island Road  
Surry, Virginia 23883**

December 19, 2001

U. S. Nuclear Regulatory Commission  
Attention: Document Control Desk  
Washington, D. C. 20555-0001

Serial No.: 01-672  
SPS:JSA R2'  
Docket No.: 50-280  
License No.: DPR-32

Dear Sirs:

Pursuant to 10CFR50.73, Virginia Electric and Power Company hereby submits the following Licensee Event Report applicable to Surry Power Station Units 1.

Report No. 50-280/2001-003-00

This report has been reviewed by the Station Nuclear Safety and Operating Committee and will be forwarded to the Management Safety Review Committee for its review.

Very truly yours,

*Thomas B. Sowers for*  
Richard H. Blount  
Site Vice President  
Surry Power Station

Enclosure

Commitments contained in this letter: None.

IE22

cc: United States Nuclear Regulatory Commission  
Region II  
Sam Nunn Atlanta Federal Center  
61 Forsyth Street, SW, Suite 23 T85  
Atlanta, Georgia 30303-8931

Mr. R. A. Musser  
NRC Senior Resident Inspector  
Surry Power Station

NRC FORM 366  
(7-2001)U.S. NUCLEAR REGULATORY  
COMMISSION**LICENSEE EVENT REPORT (LER)**

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

APPROVED BY OMB NO. 3150-0104

EXPIRES 7-31-2004

Estimated burden per response to comply with this mandatory information 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 Management Branch (T-6 E6), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to bjs1@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NE08-10202 (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose 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.

FACILITY NAME (1)

SURREY POWER STATION, Unit 1

DOCKET NUMBER (2)

05000 - 280

PAGE (3)

1 OF 3

TITLE (4)

NRC Bulletin 2001-01 Inspection of Surrey Unit 1 Reactor Pressure Vessel Head

EVENT DATE (5)

LER NUMBER (6)

REPORT DATE (7)

OTHER FACILITIES INVOLVED (8)

| MONTH | DAY | YEAR | YEAR | SEQUENTIAL<br>NUMBER | REVISION<br>NUMBER | MONTH | DAY | YEAR | FACILITY NAME | DOCUMENT NUMBER |
|-------|-----|------|------|----------------------|--------------------|-------|-----|------|---------------|-----------------|
| 10    | 28  | 01   | 01   | -- 03 --             | 00                 | 12    | 19  | 01   |               | 05000-          |
|       |     |      |      |                      |                    |       |     |      |               | 05000-          |

OPERATING  
MODE (9)

NA

POWER  
LEVEL (10)

0.2

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply) (11)

|                    |                      |                      |  |
|--------------------|----------------------|----------------------|--|
| 20.2201(b)         | 20.2203(a)(3)(ii)    | 50.73(a)(2)(ii)(B)   | 50.73(a)(2)(ix)(A)                               |
| 20.2201(d)         | 20.2203(a)(4)        | 50.73(a)(2)(iii)     | 50.73(a)(2)(x)                                   |
| 20.2203(a)(1)      | 50.36(c)(1)(i)(A)    | 50.73(a)(2)(iv)(A)   | 73.71(a)(4)                                      |
| 20.2203(a)(2)(i)   | 50.36(c)(1)(ii)(A)   | 50.73(a)(2)(v)(A)    | 73.71(a)(5)                                      |
| 20.2203(a)(2)(ii)  | 50.36(c)(2)          | 50.73(a)(2)(v)(B)    | OTHER  |
| 20.2203(a)(2)(iii) | 50.46(a)(3)(ii)      | 50.73(a)(2)(v)(C)    | Specify in Abstract below or<br>in NRC Form 368A |
| 20.2203(a)(2)(iv)  | 50.73(a)(2)(i)(A)    | 50.73(a)(2)(v)(D)    |  |
| 20.2203(a)(2)(v)   | X 50.73(a)(2)(i)(B)  | 50.73(a)(2)(vii)     |  |
| 20.2203(a)(2)(vi)  | 50.73(a)(2)(i)(C)    | 50.73(a)(2)(vii)(A)  |  |
| 20.2203(a)(3)(i)   | X 50.73(a)(2)(ii)(A) | 50.73(a)(2)(viii)(B) |  |

LICENSEE CONTACT FOR THIS LER (12)

NAME

Richard H. Blount, 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<br>TO EPIX | CAUSE | SYSTEM | COMPONENT | MANUFACTURER | REPORTABLE<br>TO EPIX |
|-------|--------|-----------|--------------|-----------------------|-------|--------|-----------|--------------|-----------------------|
| B     | AB     | NZL       | W120         | Yes                   |       |        |           |              |                       |
|       |        |           |              |                       |       |        |           |              |                       |

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE).

X NO

EXPECTED  
SUBMISSION  
DATE (15)

MONTH DAY YEAR

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

With Unit 1 at Refueling Shutdown conditions, a "bare head" visual inspection of the reactor pressure vessel (RPV) head was performed as requested by NRC Bulletin 2001-01. Liquid penetrant examinations revealed surface indications in the J-groove weld of two control rod drive mechanism (CRDM) penetrations (Nos. 27 and 40). Based on the nature of these indications, it was determined that repairs were required. On October 28, 2001, a non-emergency 8-hour notification was made to the NRC in accordance with 10CFR50.72(b)(3)(ii)(A) and 10CFR50.73(a)(2)(ii)(A) reporting apparent through-wall indications on these two penetrations. Subsequent examinations revealed unacceptable indications on four additional penetrations (Nos. 18, 47, 65, and 69) that also required repair. On November 2, 2001, two addenda to the initial 8-hour notification were made reporting these four additional penetrations. The six penetrations were modified and repaired, and Unit 1 was returned to power operation. This event is reportable pursuant to 10CFR50.73(a)(2)(i)(B) and 10CFR50.73(a)(2)(ii)(A).

NRC FORM 366A  
(7-2001)

U.S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION

| FACILITY NAME (1)<br><b>SURRY POWER STATION</b> | DOCKET<br>05000 - 280<br>05000 - 281 | LER NUMBER (8) |                                   |                          | PAGE (3)<br>2 OF 3 |
|---|--------------------------------------|----------------|-----------------------------------|--------------------------|--------------------|
|   |                                      | YEAR<br>2001   | SEQUENTIAL<br>NUMBER<br>-- 003 -- | REVISION<br>NUMBER<br>00 |                    |

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

**1.0 DESCRIPTION OF THE EVENT**

With Unit 1 at Refueling Shutdown conditions for a scheduled refueling outage, a "bare head" visual inspection of the Reactor Pressure Vessel (RPV) [EIS-RCT] head commenced on October 20, 2001. This inspection was performed as requested by NRC Bulletin 2001-01. As a result of the visual inspection, two control rod drive mechanism (CRDM) [EIS-AA] penetrations (Nos. 27 and 40) required additional examination. Ultrasonic test (UT) examination of these penetrations revealed no indications in the penetration tube material. Supplemental liquid penetrant examinations were performed and revealed surface indications in the J-groove weld material. Based on the nature of these indications, it was determined that repairs were required. On October 28, 2001, a non-emergency 8-hour notification was made to the NRC in accordance with 10CFR50.72(b)(3)(ii)(A) and 10CFR50.73(a)(2)(ii)(A) reporting apparent through-wall indications on these two penetrations.

Further examination of four additional penetrations (Nos. 18, 47, 65, and 69) was also required. UT examination revealed no indications in these penetration tubes. However, liquid penetrant examination of the penetration welds on these four penetrations revealed indications. Excavation of the indications was performed to determine the nature of the indications. While the flaws were not confirmed as through-wall indications, they were not acceptable under ASME Section XI, IWB-3600 and required repair. On November 2, 2001, two addenda to the initial non-emergency 8-hour notification were made to the NRC reporting the unacceptable indications on the four additional penetrations.

Technical Specification 3.1.4.C prohibits a non-isolable fault in a Reactor Coolant System component body, pipe wall, vessel wall, or pipe weld. This report is being submitted in accordance with 10CFR50.73(a)(2)(i)(B) for a condition prohibited by Technical Specifications, as well as 10CFR50.73(a)(2)(ii)(A) for a principal safety barrier being seriously degraded.

**2.0 SIGNIFICANT SAFETY CONSEQUENCES AND IMPLICATIONS**

Reactor Coolant System (RCS) [EIS-AB] leakage is evaluated daily. Prior to shut down of Unit 1 for the scheduled refueling outage, the RCS unidentified leakage had been relatively consistent at values significantly less than the unidentified leakage limits specified in Technical Specification 3.1.C.2. In addition, based on the results of the penetration examinations and the nature of the indications, catastrophic failure of a CRDM penetration is considered unlikely. If catastrophic failure of a CRDM penetration were to occur, it would be bounded by current accident analysis. Therefore, the health and safety of the public were not affected.

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

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

**3.0 CAUSE**

The apparent cause of the six penetration weld indications is believed to be Primary Water Stress Corrosion Cracking (PWSCC). Cracking due to PWSCC in pressurized water reactor (PWR) nozzles and other RPV head penetrations is not a new issue and has been identified since the late 1980s. NRC Bulletin 2001-01, dated August 3, 2001, documents cracked and leaking RPV head penetrations at four PWRs. The Bulletin directs addressees to inspect RPV head penetrations, repair as required, and provide a response to the NRC.

**4.0 IMMEDIATE CORRECTIVE ACTION(S)**

The six penetrations were modified and repaired, and Unit 1 was returned to power operation. Discussion of the Unit 1 RPV head inspection, penetration examinations, and required repairs will be provided in the response to NRC Bulletin 2001-01.

**5.0 ADDITIONAL CORRECTIVE ACTIONS**

None.

**6.0 ACTIONS TO PREVENT RECURRENCE**

Further corrective actions will be provided in our response to NRC Bulletin 2001-01.

**7.0 SIMILAR EVENTS**

LER 50-280/1998-006-00, "Unisolable Through-Wall Leak of RCP Thermowell". During the removal of a Reactor Coolant Pump (RCP) Motor for maintenance, the RCP lower radial bearing Resistance Temperature Detector (RTD) connection revealed a through-wall leak of the thermowell. Technical Specification 3.1.C.4 prohibits a non-isolable fault in a RCS component body, pipe wall, vessel wall, or pipe weld. Prior to Unit operation, the defect was repaired in accordance with appropriate codes and standards.

**8.0 MANUFACTURER/MODEL NUMBER** - Westinghouse/SB-167 Alloy 600 nozzles

**9.0 ADDITIONAL INFORMATION**

Surry Unit 2 was shut down to perform an inspection as requested by NRC Bulletin 2001-01. No repairs were required on Unit 2.