

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 (1-6 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 4 |
|--|--|---|---------------------------|

TITLE (4)
Intake Canal Level Probes Inoperable Due to Marine Growth

| 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 |
| 10 | 14 | 97 | 97 | -- 009 -- | 00 | 11 | 12 | 97 | Surry Power Station, Unit 2 | 05000-281 |
| | | | | | | | | | FACILITY NAME | DOCUMENT NUMBER |
| | | | | | | | | | | 05000- |

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|--------------------------------|----------------------------------|--|-------------------|-------------------------------------|------------------|--|--|--|--|--|
| OPERATING MODE (9) N | POWER LEVEL (10) 100 % | THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11) | | | | | | | | |
| | | 20.2201(b) | 20.2203(a)(2)(v) | <input checked="" type="checkbox"/> | 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 or in NRC Form 366A | | | | |
| | | 20.2203(a)(2)(iv) | 50.36(c)(2) | <input checked="" type="checkbox"/> | 50.73(a)(2)(vii) | | | | | |

LICENSEE CONTACT FOR THIS LER (12)

| | |
|---|---|
| NAME D. A. Christian, Station Manager | 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 |
|-------|--------|-----------|--------------|---------------------|-------|--------|-----------|--------------|---------------------|
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|--|--|--------------------------|-----------|--------------------------|-------|-----|------|
| SUPPLEMENTAL REPORT EXPECTED (14) | | | | EXPECTED SUBMISSION DATE | MONTH | DAY | YEAR |
| <input checked="" type="checkbox"/> | YES (If yes, complete EXPECTED SUBMISSION DATE). | <input type="checkbox"/> | NO | | | | |

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

On October 14, 1997, Unit 1 was operating at 100% power with Unit 2 at Refueling Shutdown. Intake canal level instrument Channel III was declared inoperable at 10:17 to allow testing of intake canal level probe 2-CW-LE-202. The as-found response time of 2-CW-LE-202 was greater than the acceptance limit. The probe was cleaned by divers, tested satisfactorily, and Channel III was returned to operable status. Channel IV was declared inoperable at 17:13 to allow canal level probe 2-CW-LE-203 to be tested. The as-found response time of 2-CW-LE-203 was also greater than the acceptance limit. The probe was cleaned by divers, tested satisfactorily, and Channel IV was returned to operable status. Based on the conclusion that the 2-CW-LE-202 and 2-CW-LE-203 testing failures resulted from a common cause (i.e., marine biofouling), Channels I and II were declared inoperable and a Limiting Condition for Operation (LCO) was entered in accordance with Technical Specification (TS) 3.0.1. Intake canal level probes 1-CW-LE-102 and 1-CW-LE-103 were cleaned by divers, tested satisfactorily, and Channels I and II were returned to operable status. The TS 3.0.1 LCO was exited at 20:10. A Category 1 Root Cause Evaluation (RCE) is being performed to determine the causes of this event and to recommend corrective actions. This report is being submitted pursuant to 10 CFR 50.73(a)(2)(i)(B) and 10 CFR 50.73(a)(2)(vii)(D).

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| FACILITY NAME (1) Surry Power Station Unit 1 | DOCKET 05000 - 280 | LER NUMBER (6) | | | PAGE (3) 2 OF 4 |
| | | YEAR 97 | 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 October 14, 1997, Unit 1 was operating at 100% power with Unit 2 at Refueling Shutdown (RSD), when low intake canal level instrument Channel III [EIS-JE,CHA] was declared inoperable, at 10:17, to allow testing of intake canal level probe 2-CW-LE-202 [EIS-KE,LE]. The scheduled periodic test was performed in accordance with 2-IPT-CC-CW-L-202, "Intake Canal Level Probe 2-CW-LS-202 Time Response Test and Channel Calibration." The as-found response time of 2-CW-LE-202 was greater than the acceptance limit (66 seconds). The probe was inspected and cleaned by divers, who removed some marine growth. 2-CW-LE-202 was subsequently tested satisfactorily and Channel III was returned to operable status at 12:26.

Recognizing that biofouling represents a potential common failure mechanism, a decision was made to promptly test intake canal level probe 2-CW-LE-203. Management also decided to declare low intake canal level instrument Channels I and II inoperable, if the results of 2-CW-LE-203 testing were unsatisfactory. As a further conservative measure, an operator was stationed at the high level intake structure [EIS-NN] to monitor intake canal level.

Low intake canal level instrument Channel IV was declared inoperable at 17:13 to allow 2-CW-LE-203 to be tested. The as-found response time of 2-CW-LE-203 was also greater than the acceptance limit. The probe was inspected and cleaned by divers, who removed some marine growth. 2-CW-LE-203 was subsequently tested satisfactorily and Channel IV was returned to operable status at 17:49.

Based on the conclusion that the 2-CW-LE-202 and 2-CW-LE-203 testing failures resulted from a common cause (i.e., marine biofouling), low intake canal level instrument Channels I and II were declared inoperable at 17:26. A Limiting Condition for Operation (LCO), requiring Unit 1 to be placed in Hot Shutdown (HSD) within six hours, was entered in accordance with Technical Specification (TS) 3.0.1.

Intake canal level probes 1-CW-LE-103 and 1-CW-LE-102 were subsequently tested. The as-found response time for both of these probes was greater than the acceptance limit. After being inspected and cleaned by divers, 1-CW-LE-103 and 1-CW-LE-102 were tested satisfactorily. Low intake canal level Channel II was returned to operable status at 19:46 and the TS 3.0.1 LCO was exited at 20:10 when Channel I was placed in "trip." Channel I was returned to operable status on October 15, 1997, at 03:30.

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

1.0 DESCRIPTION OF THE EVENT (Continued)

The NRC was notified pursuant to 10 CFR 50.72(b)(2)(iii) on October 14, 1997, at 20:41. This report is being submitted pursuant to 10 CFR 50.73(a)(2)(i)(B) because the inoperable canal level probes represent a condition prohibited by TS 3.7. This report is also being submitted pursuant to 10 CFR 50.73(a)(2)(vii)(D) since a single cause resulted in four independent channels becoming inoperable in a single system designed to mitigate the consequences of an accident.

2.0 SIGNIFICANT SAFETY CONSEQUENCES AND IMPLICATIONS

The non-essential service water (SW) automatic isolation function [EIS-JE,KG] ensures adequate intake canal inventory can be maintained by the emergency service water pumps [EIS-BI,P] following a design basis loss of coolant accident (LOCA) with a coincident loss of offsite power (LOOP). This function is designed to actuate when any three of the four intake canal level probes senses a canal level that is less than 23.5 feet.

To determine the potential impact of this event on the non-essential SW automatic isolation function, Engineering analyzed the results of the canal level probe testing. The analysis concluded that the as-found response time for three of the four probes, although delayed, would have been sufficient to support the design basis canal inventory requirements.

During this event, a LOCA/LOOP did not occur and the intake canal level remained above 23.5 feet. As a conservative measure, an operator was stationed at the high level intake structure, following the testing of Channel III, to monitor intake canal level.

In summary, this event resulted in no safety consequences or significant implications and the health and safety of the public were not affected at any time.

3.0 CAUSE

A Category 1 Root Cause Evaluation (RCE) is being performed to determine the causes of this event and to recommend corrective actions. Following the completion of the RCE, a supplement to this Licensee Event Report will be submitted which will discuss the causes of this event.

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4.0 IMMEDIATE CORRECTIVE ACTION(S)

Following initial testing, 2-CW-LE-202 was inspected and cleaned by divers. The probe was subsequently tested satisfactorily and instrument Channel III was returned to operable status at 12:26.

A Deviation Report was submitted to document the deviating condition and to initiate corrective actions.

As a conservative measure, an operator was stationed at the high level intake structure at 14:45 to monitor intake canal level until the intake canal level instrument channels could be verified to satisfy TS requirements.

Following initial testing, 2-CW-LE-203 was inspected and cleaned by divers. The probe was subsequently tested satisfactorily and instrument Channel IV was returned to operable status at 17:49.

Based on the conclusion that the 2-CW-LE-202 and 2-CW-LE-203 testing failures resulted from a common cause (i.e., marine biofouling), low intake canal level Channels I and II were declared inoperable at 17:26. An LCO, requiring Unit 1 to be placed in HSD within six hours, was entered in accordance with TS 3.0.1.

1-CW-LE-103 and 1-CW-LE-102 were cleaned by divers and subsequently tested satisfactorily. Low intake canal level Channel II was returned to operable status at 19:46 and the TS 3.0.1 LCO was exited at 20:10 when Channel I was placed in "trip." Channel I was returned to operable status on October 15, 1997, at 03:30.

5.0 ADDITIONAL CORRECTIVE ACTIONS

An interdepartmental RCE Team investigation was initiated by station management to determine the causes of this event.

6.0 ACTIONS TO PREVENT RECURRENCE

Following the completion of the RCE, a supplement to this Licensee Event Report will be submitted which will discuss the actions to prevent the recurrence of a similar event.

7.0 SIMILAR EVENTS

LER 50-280/50-281/95-006-00, "Emergency Service Water Pumps 1-SW-P-1A and 1-SW-P-1C Inoperable Due to Marine Growth"