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)
Surry Power Station, Unit 1	0 5 0 0 0 2 8 0	1 OF 0 3

TITLE (4)

Iodine Spike Due To Defective Fuel Element

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 NAMES	DOCKET NUMBER(S)
										0 5 0 0 0
1 1	2 6	8 7	8 7	0 3 4	0 0	1 2	2 2	8 7		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)			
N		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)	50.73(a)(2)(v)	73.71(c)
		20.405(a)(1)(ii)	50.36(c)(2)	50.73(a)(2)(vii)	X 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)	"Special Report"
		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
D. L. Benson, Station Manager	8 0 4 — 3 5 7 - 3 1 8 4

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 November 26, 1987, at 0415 hours, following a Unit 1 shutdown for repairs to Steam Generator 'C' secondary manway, the specific activity sample of the reactor coolant showed a dose equivalent I-131 of 1.19 microcuries/cc. This exceeds the dose equivalent I-131 Technical Specification of less than 1.0 microcuries/cc specified in Section 3.1.d.2 and is being reported in accordance with the special reporting requirements outlined in Technical Specification 3.1.d.4.

The iodine spike was caused by a known, but not specifically located, fuel element defect in the reactor core. Post shutdown conditions enhanced the release of fission products, specifically I-131. This caused an increase in reactor coolant specific activity. The immediate corrective action was to implement the actions required by Technical Specification Table 4.1.2B. Specifically, the level of dose-equivalent I-131 was monitored at least every four hours until the level returned to less than 1 microcuries/cc.

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NRC Form 366A
(9-83)

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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

1.0 Description of the Event

On November 26, 1987, at 0415 hours, following a Unit 1 shutdown for repairs to the secondary manway on 'C' Steam Generator, the specific activity sample of the reactor coolant showed a dose-equivalent I-131 level of 1.19 microcuries/cc. This exceeds the dose equivalent I-131 limit of 1.00 microcuries/cc specified in Technical Specification 3.1.d.2 and is being reported in accordance with the special requirements outlined in Technical Specification 3.1.d.4.

2.0 Safety Consequences and Implications

The limitations on the specific activity of the reactor coolant ensures that the resulting two hour dose at the site boundary will not exceed a small fraction of the 10CFR100 limits following a postulated Steam Generator Tube Rupture (SGTR). Since the dose-equivalent I-131 peak was below the Technical Specification upper limit of 10 microcuries/cc, the reactor coolant gross activity was below the value analyzed in the UFSAR for a SGTR with 1% failed fuel. Therefore, the health and safety of the public were not affected.

3.0 Cause

The iodine spike was caused by a known, but not specifically located, fuel element defect in the reactor core. Post shutdown conditions enhanced the release of fission products, specifically I-131. This caused an increase in reactor coolant specific activity.

4.0 Immediate Corrective Actions

The immediate corrective action was to implement the actions required by Technical Specification Table 4.1.2B. Specifically, the level of dose-equivalent I-131 was monitored at least every four hours until the level returned to less than 1 microcuries/cc.

★U.S.GPO:1988-0-624-538/455

NRC Form 366A (9-83)

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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

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

Supplemental Information:

The following supplemental information required by Technical Specification 3.1.d.4 "Special Report" is included:

1. Reactor Power History 48 hours prior to the event:

   November 23, 1987 @ 2000 hours 100% power.
   November 24, 1987 @ 0800 hours 100% power.
   November 24, 1987 @ 2000 hours 97% power.
   November 25, 1987 @ 1405 hours 100% power.
   November 25, 1987 @ 2001 hours - started 150 mw/hr rampdown from 100% for repairs to 'C' Steam Generator Secondary Manway.

   November 26, 1987 @ 0135 hours - Reactor Shutdown.

2. Fuel burnup by core region as of November 26, 1987.

Fuel Batch	Burnup
S2/8A	35147 MWD/MTU
S1/8B	30665 MWD/MTU
S1/9A	33641 MWD/MTU
S1/9B	34137 MWD/MTU
S2/9B	33746 MWD/MTU
S2/10A	31204 MWD/MTU
S1/11A	14544 MWD/MTU
S1/11B	14116 MWD/MTU
Cycle 9 Burnup:	12024 MWD/MTU

3. Prior to the reactor shutdown, the unit had normal letdown rate of 105 gpm.

4. No degassing operations were performed prior to the event.

5. Duration of I-131 Spike:

November 26, 1987 @ 0105-Routine Sample: .0365 microcuries/cc
November 26, 1987 @ 0415-Post Shutdown Sample: 1.19 microcuries/cc
November 26, 1987 @ 0750-Post Shutdown Sample: 1.02 microcuries/cc
November 26, 1987 @ 1120-Post Shutdown Sample: 0.82 microcuries/cc

Event Duration: Approximately 10 hours.

*U.S.GPO:1986-0-624-538/466

VIRGINIA ELECTRIC AND POWER COMPANY
Surry Power Station
P. O. Box 315
Surry, Virginia 23883

December 22, 1987

U.S. Nuclear Regulatory Commission
Document Control Desk
016 Phillips Building
Washington, D.C. 20555

Serial No.: 87-039
Docket No.: 50-280
Licensee No.: DPR-32

Gentlemen:

Pursuant to Surry Power Station Technical Specifications, Virginia Electric and Power Company hereby submits the following Special Report for Surry Unit 1.

REPORT NUMBER

87-034-00

This report has been reviewed by the Station Nuclear Safety and Operating Committee and will be reviewed by Safety Evaluation and Control.

Very truly yours,

David L Benson

David L. Benson
Station Manager

Enclosure

cc: Dr. J. Nelson Grace
Regional Administrator
Suite 2900
101 Marietta Street, NW
Atlanta, Georgia 30323

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