NRC Form 366
(9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/85

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
SURRY POWER STATION, UNIT NO. 1	0 5 0 0 0 2 8 0	1 OF 0 3

TITLE (4)

IODINE SPIKE

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 6	1 3	8 4	8 4	— 0 1 4	— 0 0					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)			
N		20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)
POWER LEVEL (10)		20.405(a)(1)(i)	50.36(c)(1)	50.73(a)(2)(v)	73.71(c)
0 0 0		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)	" 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
J. L. WILSON, 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)	√ NO				

ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single space typewritten lines) (16)

On June 13, 1984, at 1800 hours following a unit trip from 100% power, the specific activity sample of the reactor coolant showed a peak dose equivalent I-131 level of 1.99 microcuries/cc. This exceeds the dose equivalent I-131 limit of $\leq$ 1.0 microcuries/cc specified in Tech. Specs. 3.1.D.2 and is being reported in accordance with the Special Reporting requirements outlined in T.S. 3.1.D.4.

NRC Form 366A (9-83)

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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

Description of the Event

On June 13, 1984, at 1800 hours following a unit trip from 100%, the Specific Activity Sample of the reactor coolant showed a peak dose equivalent I-131 level of 1.99 microcuries/cc. This exceeds the dose equivalent I-131 limit of $\leq$ 1.0 microcuries/cc specified in Tech. Spec. 3.1.D.2 and is being reported in accordance with the Special reporting requirements outlined in Tech. Spec. 3.1.D.4.

Probable Consequences and Status of Redundant Equipment

The limitations on the specific activity of the primary coolant ensure that the resulting 2 hour doses at the site boundary will not exceed an appropriately small fraction of 10 CFR 100 limits following a postulated steam generator tube rupture. 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 FSAR for a tube rupture and 1% failed fuel. Therefore, the health and safety of the public were not affected.

Cause

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

Immediate Corrective Action

The immediate corrective action was to implement the actions required by Tech. Spec. Table 4.1-2B. Specifically, the level of the dose equivalent I-131 was monitored at least once every 4 hours until the level returned to less than 1.0 microcuries/cc.

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SUPPLEMENTAL INFORMATION

The supplemental information required by T.S.3.1.D.4 "Special Report" is included as follows:

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

   June 11, 1984 - 24 hours at 100%
   June 12, 1984 - 24 hours at 100%
   June 13, 1984 @ 1800 hours - Unit at 0% following trip.

2. Fuel burnup by core region - as of June 13, 1984.

Fuel Batch	: S2/6B:	30509 MWD/MTU
	6C:	34219 MWD/MTU
	4C:	33534 MWD/MTU
	7A:	32208 MWD/MTU
	7B:	39035 MWD/MTU
	8A:	28359 MWD/MTU
	8B:	29050 MWD/MTU
	9:	10991 MWD/MTU
Cycle 7 Burnup	:	8216 MWD/MTU

3. Prior to the reactor shutdown, the unit had established a normal letdown rate of 106 gpm.

4. No De-gassing operations were performed.

5. Duration of I-131 Spike:

   June 13, 1984 @ 0015 - Routine Sample - .103 microcuries/cc.
   June 13, 1984 @ 1800 - Post Trip Sample - 1.99 microcuries/cc.
   2000 - Post Trip Sample - 1.78 microcuries/cc.
   2200 - Post Trip Sample - 1.58 microcuries/cc.
   June 14, 1984 @ 0005 - Post Trip Sample - 1.22 microcuries/cc.
   0200 - Post Trip Sample - .997 microcuries/cc.

   Duration approximately 8 hours.