

Virginia Electric and Power Company
Surry Power Station
P. O. Box 315
Surry, Virginia 23883

July 12, 1994

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

Serial No.: 94-407
SPS:VAS
Docket No.: 50-280
License No.: DPR-32

Dear Sirs:

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

REPORT NUMBER

50-280/94-007-00

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,



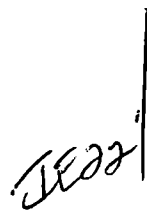
M. R. Kansler
Station Manager

Enclosure

cc: Regional Administrator
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30323

M. W. Branch
NRC Senior Resident Inspector
Surry Power Station

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PDR ADCK 05000280
S PDR



LICENSEE EVENT REPORT (LER)

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

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), 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 5

TITLE (4)

Process Vent High Range Accident Monitor Inoperable Greater Than Seven Days

EVENT DATE (5)			LER NUMBER (6)			REPORT NUMBER (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
06	14	94	94	-- 007	-- 00	07	12	94	FACILITY NAME	DOCKET NUMBER 05000
									FACILITY NAME	DOCKET NUMBER 05000

OPERATING MODE (9)	N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5: (Check one or more) (11)								
POWER LEVEL (10)	100	20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)	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	20.405(a)(1)(iii)	50.73(a)(2)(i)	50.73(a)(2)(viii)(A)	(Specify in Abstract below and in Text, NRC Form 366A)	
		20.405(a)(1)(iv)	50.73(a)(2)(ii)	50.73(a)(2)(viii)(B)		20.405(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(x)	Special Rpt	

LICENSEE CONTACT FOR THIS LER (12)

NAME	M. R. Kansler, Station Manager	TELEPHONE NUMBER (Include Area Code)	(804) 357-3184
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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 (15)	MONTH	DAY	YEAR
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ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

The Kaman Process Vent Radiation Monitors were declared inoperable on June 14, 1994, at 1425 hours when the Equipment Failure light began to come on intermittently and Annunciator RM-A-C-4, Effluent Rad Mon Trbl, locked in. This failure occurred on the Normal Range Radiation Monitor (1-GW-RM-130-1) and also rendered the Mid and High Range Radiation Monitor Channels (1-GW-RM-130-2) inoperable. The inoperability of 1-GW-RM-130-2 is contrary to Technical Specification (TS) Table 3.7-6, item 11, which requires both channels of the 1-GW-RM-130-2 to be operable. As required by the TS Limiting Condition of Operation (LCO), the alternate monitoring method was placed in service. An investigation into the problem with the 1-GW-RM-130-1 indicates the problem is moisture entrapment in the charcoal cartridge. A seven day LCO was started on 1-GW-RM-130-2. This LCO expired on June 21, 1994, at 1425 hours. Therefore, this Special Report is being submitted, pursuant to TS Table 3.7-6 and Section 6.2, since 1-GW-RM-130-2 was inoperable for a period in excess of seven days.

During accident conditions, the sampling flow path in 1-GW-RM-130-1 is rerouted around the low range iodine filter and gaseous monitor. The current moisture problems being encountered will have insignificant impact on 1-GW-RM-130-2 during the sampling periods designed for the system in case of an accident. Therefore, the health and safety of the public are not affected.

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

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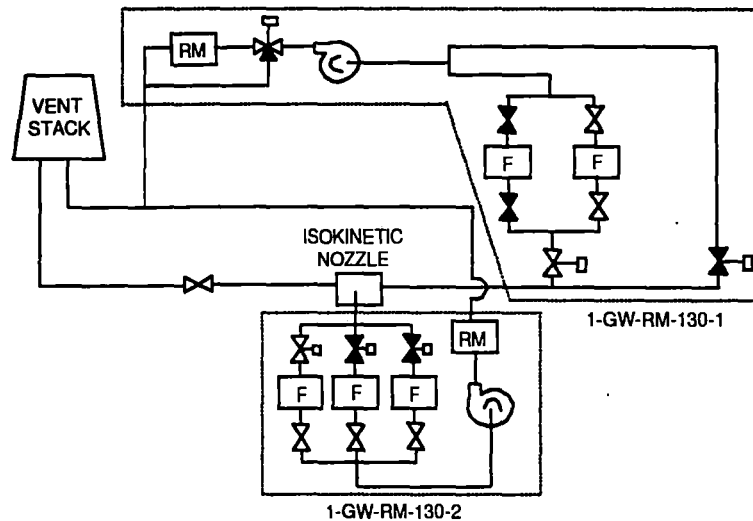
FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (5)			PAGE (3)
Surry Power Station, Unit 1	05000 - 280	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2 OF 5
		94	- 007	- 00	

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

1.0 DESCRIPTION OF THE EVENT

The Kaman Process Vent Radiation Monitors (1-GW-RM-130-1/2) {EIIS-IL, MON} were declared inoperable on June 14, 1994, at 1425 hours when the monitor's Equipment Failure light began to come on intermittently and Annunciator RM-A-C-4, Effluent Rad Mon Trbl, locked in. This failure occurred on the Normal Range Radiation Monitor (1-GW-RM-130-1) and also rendered the Mid and High Range Radiation Monitor Channels (1-GW-RM-130-2) inoperable.

The inoperability of 1-GW-RM-130-2 is contrary to Technical Specification (TS) Table 3.7-6, item 11, which requires both channels of the 1-GW-RM-130-2 to be operable. The Nuclear Research Company High Range Radiation Monitor (1-GW-RM-122) {EIIS-IL, MON} was placed in service as the alternate monitoring method required pursuant to TS Table 3.7-6, item 11, note 1a. A seven day LCO was started on 1-GW-RM-130-2 pursuant to TS Table 3.7-6, item 11, note 1b. TS Table 3.7-6, item 11, note 1c requires submittal of a special report if the monitor is inoperable greater than seven days.



An investigation into the problem with the 1-GW-RM-130-1 indicated the problem was moisture entrapment in the iodine filter cartridge {EIIS-IL, FLT}. This moisture entrapment is due to condensation of moisture in the sample line which forms during the hot, humid days of summer. The condensation is formed from the high humidity of the gas in the sample lines against the cool air conditioned environment in the cable

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spreading area where the Kaman radiation monitor skids are located. This moisture was also evident in the skid sample lines, the flow meter, the gas chamber, and the pump. The moisture collection in the iodine filter cartridge impacts both the iodine collection capacity of the filter as well as the pressure differential across the filter. These changes in the pressure across the filter result in varying sample flow rates. The 1-GW-RM-130-1 pump is required to provide isokinetic flow for 1-GW-RM-130-2.

The seven day LCO expired on June 21, 1994, at 1425 hours. Therefore, this Special Report is being submitted, pursuant to TS Table 3.7-6, item 11, note 1c and Section 6.2, since 1-GW-RM-130-2 was inoperable for a period in excess of seven days.

2.0 SAFETY CONSEQUENCES AND IMPLICATIONS

The process vent was continuously monitored by the Victoreen Monitor (1-GW-RM-101/102) (EIIIS-IL, MON). When 1-GW-RM-130-2 was declared inoperable, the alternate monitoring method, 1-GW-RM-122, was initiated to ensure any potential accident range radioactive release from the process vent would be monitored.

During accident conditions, the sampling flow path in 1-GW-RM-130-1 is rerouted around the low range iodine filter and gaseous monitor. Since the low range monitor filter is bypassed during accident conditions, 1-GW-RM-130-2 is not normally affected by moisture problems in the low range filter. The sample flow through 1-GW-RM-130-2 is reduced from two standard cubic feet per minute (56640 cubic centimeters (cc)) to 1000 cc for a time duration dependent upon the activity of the sample as controlled by procedure. The average time period for the cartridge to be replaced during the accident would be approximately fifteen minutes. As a result, the accumulation of moisture in the system during accident conditions is greatly reduced.

Because of the potential for the moisture problem to affect the sample pump during normal operations, the monitor is considered inoperable pending installation of the heat tracing modification described below. Interim measures established to periodically replace the filters and drain moisture from the flow path should ensure that moisture problems will have insignificant impact on 1-GW-RM-130-2, and the monitor should be available during accident conditions.

Based on the implementation of the alternate monitoring method and the availability of 1-GW-RM-130-2, the health and safety of the public are not affected.

3.0 CAUSE

The Kaman Process Vent Radiation Monitors has a history of moisture entrapment in the system. The moisture entrapment is due to condensation of moisture in the sample line which forms during the hot, humid days of summer. The condensation is formed from

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the high humidity of gas in the sample lines in combination with the uninsulated sample line piping in the cool air-conditioned environment in the cable spreading area where the Kaman radiation monitor skids are located. The effects of the environmental conditions in the past have been controlled by periodic replacement of the iodine filter cartridges and sample path draining which allowed the system to be maintained operable. This summer has been excessively hot and humid for a longer period than experienced in the past. As a result of this extended period of high humidity, the iodine filter cartridge replacement and sample path draining have not been effective in maintaining the monitor operable during normal plant operations.

4.0 IMMEDIATE CORRECTIVE ACTION(S)

Annunciator Response Procedure 0-RM-A-C-4 was performed and the preplanned alternate method of monitoring the process vent was established.

5.0 ADDITIONAL CORRECTIVE ACTION(S)

Interim measures have been established to minimize moisture in the sample lines to ensure the availability of 1-GW-RM-130-2. The iodine filter cartridges for 1-GW-RM-130-1 are periodically replaced as required, and the monitor's sample path is drained to control and monitor moisture build-up in the system. This maintains the 1-GW-RM-130-1 pump functional to provide flow directly to 1-GW-RM-130-2 in an accident condition.

6.0 ACTIONS TO PREVENT RECURRENCE

Several measures have been completed to alleviate the moisture buildup in the 1-GW-RM-130-1. Design Change Package (DCP) 93-024 was completed to relocate the gaseous waste relief header and DCP 93-057 installed drain valves in the relief header low points.

Heat tracing of the inlet and outlet gas sample lines is being installed by DCP 92-060. The heat tracing will maintain the skid sample line temperatures above the dew point of the gaseous sample to ensure that condensation will not form. Upon completion of the heat tracing and testing, it is expected that 1-GW-RM-130-2 will be returned to service by August 15, 1994.

7.0 SIMILAR EVENTS

Special Report S1-93-011: "Radiation Monitors Inoperable Due to Detector Ground Reference". Spikes were noted on the recorder for the Gaseous Vents System Ventilation Vent Radiation Monitors. Spikes were caused primarily by electrical cross-talk resulting from ground reference for the 1-VG-RM-131-1 and 1-VG-RM-131-2 detectors. To correct the condition, the system's signal ground was referenced and a

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capacitor was added to 1-VG-GM-131-1 to provide an alternating current pathway for noise induced on the signal ground line.

Special Report S1-88-042: "Process Ventilation's System Hi Range Monitors out of Service Due to Failed Circuit Board". Process Vent high range effluent monitors were declared inoperable due to a failed flow control circuit board.

Special Report S1-86-011: "Inoperable Hi Range Radiation Monitors". Kaman Instrumentation accident Monitoring Hi Range Radiation Monitors were declared inoperable. The monitors were declared inoperable following completion of a test recommended by the vendor to determine range capability. A software modification to the monitors was prepared by the vendor to return to service.

8.0 MANUFACTURER/MODEL NUMBER

Amalgamated Services Incorporated (Kaman Science)
Model: HRN, HRH