10CFR50.73

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

April 19, 1993

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

Serial No.: 93-240
SPS:JDK
Docket Nos.: 50-280
50-281
License Nos.: DPR-32
DPR-37

Dear Sirs:

Pursuant to Surry Power Station Technical Specifications, Virginia Electric and Power Company hereby submits the following Licensee Event Report applicable to Surry Power Station Units 1 and 2.

REPORT NUMBER

50-280/50-281/93-005-00

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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NRC FORM 366 (6-89)

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104
EXPIRES: 4/30/92

ESTIMATED BURDEN PER RESPONSE TO COMPLY WTH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

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 4

TITLE (4) Two Main Control Room/Emergency Switchgear Room Chillers Inoperable Due to Personnel Error

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 3	2 5	9 3	9 3	— 0 0 5	— 0 0	0 4	1 9	9 3	Surry Unit 2	0 5 0 0 0 2 8 1
										0 5 0 0 0

OPERATING MODE (9)	N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)					
POWER LEVEL (10)	0 6 0	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)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)		
		20.405(a)(1)(iii)	X 50.73(a)(2)(i) (B)	50.73(a)(2)(viii)(A)			
		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)			

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
M. R. Kansler, Station Manager	AREA CODE 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	MANUFAC-TURER	REPORTABLE TO NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	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 March 25, 1993, at 0242 hours, Unit 1 was at 60% power and Unit 2 was in Refueling Shutdown. Main Control Room/Emergency Switchgear Room (MCR/ESGR) Chiller 1-VS-E-4C was declared inoperable following a loss of Freon when the chiller's relief valve lifted. The chiller was secured immediately and a seven day action statement was entered per Technical Specification (TS) 3.23.C.1.a at 0157 hours to restore the chiller to operable status. After securing the "C" MCR Chiller for maintenance, the 1-VS-E-4B chiller was started. The Freon relief valve for the "B" Chiller also lifted and the chiller was secured and declared inoperable at 0242 hours. A six hour action statement to Hot Shutdown (HSD) on Unit 1 was entered in accordance with TS 3.0.1. Inoperability of two Main Control Room(MCR)/Emergency Switchgear Room (ESGR) Chillers was due to cognitive personnel error involving a failure to open the strainer backwash valve because of confusion over valve position indication.

The third chiller remained in operation and room temperatures did not increase. Past experience with a complete loss of MCR and ESGR air conditioning has shown that temperatures have not increased as rapidly as indicated in the design calculations. It is therefore concluded that no safety consequences resulted from the event. An upgrade to the chiller system is in progress adding additional chillers to increase capacity and operational flexibility.

1.0 DESCRIPTION OF THE EVENT

On March 25,1993, Unit 1 was at 60% power due to a main feedwater pump being out of service, Unit 2 was in Refueling Shutdown and two Main Control Room Chillers, 1-VS-E-4A [EIIS-VI-CHU] on the "A" header and swing chiller 1-VS-E-4B on the "C" header were operating. Preventative maintenance was scheduled for 1-VS-E-4A . To accomplish this, 1-VS-E-4B, the "B" swing chiller, needed to be placed on the "A" header. Chiller 1-VS-E-4B was shut down to remove it from the "C" header so 1-VS-E-4C could supply its header and 1-VS-E-4B would then be aligned to supply the "A" header. When 1-VS-E-4C started, the Freon relief valve [EIIS-VI-RV] lifted causing a Freon release. Chiller 1-VS-E-4C was secured immediately, declared inoperable and a seven day action statement was entered per TS 3.23.C.1.a at 0157 hours to restore 1-VS-E-4C to operable status. By procedure, two chillers are normally in operation. Therefore, the operations staff initiated a restart of 1-VS-E-4B. When 1-VS-E-4B was started, its Freon relief valve also lifted. Chiller 1-VS-E-4B was secured and declared inoperable at 0242 hours. A six hour action statement to HSD on Unit 1 was entered in accordance with TS 3.0.1.

TS 3.23.C.1.a requires MCR/ESGR Chillers "A" "B" and "C" to be operable when either unit is above Cold Shutdown. TS 3.23.C.1.a permits one chiller to be inoperable for a maximum of seven days, but does not permit two or three chillers to be inoperable. With both "C" and "B" chillers inoperable, a condition not addressed by TS 3.23.C.1 existed. Consequently, at 0242 hours, an action statement requiring Unit 1 to be placed in HSD within six hours was entered in accordance with TS 3.0.1.

Freon was added to 1-VS-E-4B and the chiller was returned to service. The six hour action statement was exited at 0621 hours.

This report is being made pursuant to 10CFR50.73(a)(2)(i)(B) as the station operated in a condition not allowed by the TS.

2.0 SIGNIFICANT SAFETY CONSEQUENCES AND IMPLICATIONS

Chillers "A", "B", and "C" are part of the MCR/ESGR Air Conditioning System. This is a shared system designed to maintain the Unit 1 and Unit 2 MCR and ESGR areas at or below design temperatures during normal operations and design basis accident conditions. Two chillers are required

to operate in order to remove design post-accident heat loads, assuming worst case ambient air temperature and service water temperature.

During this event, one chiller remained operable. Based on design calculations, having only one operable chiller created the possibility that design temperatures could have been exceeded in the MCR and ESGRs in an accident situation. However, this condition existed for only a brief period of time. Furthermore, past experience with a complete loss of MCR and ESGR air conditioning has shown that temperatures have not increased as rapidly as indicated in the design calculations. It is therefore concluded that no safety consequences resulted from the event.

3.0 CAUSE OF THE EVENT

The event was caused by a closed backwash strainer valve (2-SW-337, 1-SW-327) [EIIS-BI-ISV] in the service water system for each chiller. This event was attributable to a cognitive personnel error when a non-licensed operator failed to properly open the strainer backwash valve. Due to structural restrictions from seismic restraints, verification of valve position indication for these quick throw ball valves is confusing because the direction of handle operation does not follow the normal convention for this type of valve.

With the MCR switch ON and the local control switch OFF, the temperature control PCVs (1-SW-PCV-100C, 1-SW-PCV-100B)[EIIS-BI-TCV] fail to the full recirculation position. Normally, an open strainer backwash valve allows the removal of heat generated during a chiller start. The volume of water to cool the chillers with the strainer backwash valve closed is very small (44 gallons). Heat added to the system by the service water pump causes a temperature rise of approximately 1/2° F per minute. When the compressor started with the backwash valve closed, the temperature rise increased to approximately 50° F per minute. With the increase in temperature, a corresponding increase in condenser pressure occurred. Due to initial conditions, the Freon relief valve lifted approximately three minutes after compressor start for 1-VS-E-4C and approximately two minutes after compressor start for 1-VS-E-4B.

4.0 IMMEDIATE CORRECTIVE ACTION(S)

The Freon lost from the relief valve lifting on "B" Chiller was replaced, the Chiller started and 0-MPM-0210-01 "Control Room Chillers 1-VS-E-4A, B,

and C Performance Check" was performed to prove operability. The six hour action statement was exited at 0621 hours.

5.0 ADDITIONAL CORRECTIVE ACTION(S)

The Freon lost from the relief valve lifting on "C" Chiller was replaced and the chiller returned to fully operable status. The TS 3.23.C.1.a seven day action statement was exited at 1500 hours on March 25, 1993.

Enhancements of valve position indication for the backwash valves have been implemented.

6.0 ACTIONS TO PREVENT RECURRENCE

This event will be discussed in Non Licensed Operator Continuing Training to ensure the operators are aware of proper valve position indication.

Procedure 0-OP-VS-006 will be revised to provide appropriate guidance for valve position indication

An upgrade of the MCR/ESGR Air Conditioning System is in progress. The upgrade will include the installation of two additional 50% capacity chillers. These additional chillers will increase operational flexibility and improve the capability to withstand single failures.

7.0 SIMILAR EVENTS

LER S1-88-046, "Operating MCR/ESGR Chiller Turned Off Due to Personnel Error".

8.0 ADDITIONAL INFORMATION

None.