

# ACCELERATED DISTRIBUTION DEMONSTRATION SYSTEM

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ACCESSION NER:9106190421      DOC.DATE: 91/06/13      NOTARIZED: NO      DOCKET #  
 FACIL:50-281 Surry Power Station, Unit 2, Virginia Electric & Powe      05000281  
 AUTH.NAME      AUTHOR AFFILIATION  
 KANSLER,M.R.      Virginia Power (Virginia Electric & Power Co.)  
 RECIP.NAME      RECIPIENT AFFILIATION

SUBJECT: LER 91-004-00:on 910514,inadvertent overfilling of refueling  
 water storage tank occurred.Cause unknown.Architect/Engineer  
 consulted to review tank design.W/910613 ltr.

DISTRIBUTION CODE: IE22T      COPIES RECEIVED:LTR 1 ENCL 1      SIZE: 4  
 TITLE: 50.73/50.9 Licensee Event Report (LER), Incident Rpt, etc.

NOTES:1cy NMSS/IMSB/PM. 05000281 /

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	AEOD/ROAB/DSP	2 2	NRR/DET/ECMB 9H	1 1
	NRR/DET/EMEB 7E	1 1	NRR/DLPQ/LHFB10	1 1
	NRR/DLPQ/LPEB10	1 1	NRR/DOEA/OEAB	1 1
	NRR/DREP/PRPB11	2 2	NRR/DST/SELB 8D	1 1
	NRR/DST/SICB8H3	1 1	NRR/DST/SPLB8D1	1 1
	NRR/DST/SRXB 8E	1 1	<del>REG FILE 02</del>	1 1
	RES/DSIR/EIB	1 1	RGN2 FILE 01	1 1
EXTERNAL:	EG&G BRYCE, J.H	3 3	L ST LOBBY WARD	1 1
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Virginia Electric and Power Company  
Surry Power Station  
P.O. Box 315  
Surry, Virginia 23883

June 13, 1991

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

Serial No.: 91-339  
Docket No.: 50-281  
License No.: DPR-37

Gentlemen:

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

REPORT NUMBER

91-004-00

This report has been reviewed by the Station Nuclear Safety and Operating Committee and will be reviewed by the Corporate Management Safety Review Committee.

Very truly yours,



M. R. Kansler  
Station Manager

Enclosure

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

*JE22* 11

LICENSEE EVENT REPORT (LER)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH 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.

FACILITY NAME (1) Surry Power Station, Unit 2	DOCKET NUMBER (2) 0   5   0   0   0   2   8   1	PAGE (3) 1   1   OF   0   3
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TITLE (4) Inadvertent Overfilling of Refueling Water Storage Tank

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	1	1	9	1	0	6	1			0   5   0   0   0
											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) 1   0   0	20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)						
	20.405(a)(1)(i)	50.38(c)(1)	50.73(a)(2)(v)	73.71(c)						
	20.405(a)(1)(ii)	50.38(c)(2)	50.73(a)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 306A)						
	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 M. R. Kansler, Station Manager	TELEPHONE NUMBER
	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	MANUFACTURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS

SUPPLEMENTAL REPORT EXPECTED (14)

<input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE) <input checked="" type="checkbox"/> NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR

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

On May 14, 1991, with Unit 1 at 100% power and Unit 2 at Cold Shutdown, during a technical review of an inadvertent overfilling of the Unit 2 Refueling Water Storage Tank (RWST), the as-built configurations of both Units' RWSTs were reevaluated. The reevaluation determined that the positioning of the Unit 2 RWST overflow line would permit the tank to be filled in excess of the Technical Specification capacity limit. Through consultation with the Architect/Engineer, it was determined that no structural limits were exceeded. Therefore, the health and safety of the public were unaffected. This event is reportable pursuant to 10CFR50.73(a)(2)(i)(B).

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

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FACILITY NAME (1)  Surry Power Station, Unit 2	DOCKET NUMBER (2)  0   5   0   0   0   2   8   1	LER NUMBER (6)			PAGE (3)		
		YEAR 9   1	SEQUENTIAL NUMBER —   0   0   4	REVISION NUMBER —   0   0	0   2	OF	0   3

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

**1.0 DESCRIPTION OF THE EVENT**

On May 14, 1991, with Unit 1 at 100% power and Unit 2 at Cold Shutdown, during a technical review of an instance of an inadvertent overfilling of the Unit 2 Refueling Water Storage Tank (RWST) (E1IS-CS-TK), the as-built configurations of both Units' RWSTs were reevaluated. The reevaluation determined that the location of the Unit 2 RWST overflow line would permit the tank to be filled to a volume of approximately 399,000 gallons prior to overflowing to the Safeguards Building valve pit. This volume is in excess of the maximum capacity of 398,000 gallons allowed by Technical Specification 3.4.A.3. The Unit 1 RWST's maximum capacity (as limited by its overflow piping) was found to be within the Technical Specification limit.

**2.0 SIGNIFICANT SAFETY CONSEQUENCES AND IMPLICATIONS**

The Architect/Engineer who designed the RWST was contacted, and it was verified that no structural limits had been exceeded with the overflow line as currently configured. Therefore, the health and safety of the public were not affected.

The basis for this finding is discussed more fully in Section 4.0 below.

**3.0 CAUSE OF THE EVENT**

The Design Change which added the overflow lines to the RWSTs specified a location which would limit the tank capacities to approximately 398,000 gallons. Thus, even if a tank were to be inadvertently overfilled, the maximum capacity specified in the Technical Specifications could not be exceeded. In the case of Unit 2, for unknown reasons, the overflow piping was installed at a slightly higher elevation in the tank, thus increasing its maximum achievable capacity.

**4.0 IMMEDIATE CORRECTIVE ACTION(S)**

Upon discovering the discrepancy between the as-designed and as-built configurations, the Architect/Engineer (A/E) was consulted in order to review the tank's design. The A/E's review indicated that when the RWST volumes were increased because of an earlier concern over available net positive suction head, an extensive analysis had been performed to determine the seismic adequacy of the tank with the increase in minimum volume. The analysis included both a linear finite element analysis of the tank embedment lugs or "chairs" and a non-linear finite element buckling analysis of the region around the the inlet pipes as the limiting elements of the tank design. The analysis had concluded that the tank design was adequate. However, it had been recommended that the embedment bolt

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		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
		9 1	0 0 4	0 0	0 3	OF	0 3

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

"chair" supports be modified to bring the stress level within a more acceptable range during a design basis event. These modifications were implemented.

Based on the A/E's analysis and the embedment bolt "chair" modifications, it has been determined that the tank's present configuration is adequate to meet the structural requirements for the overflow event.

**5.0 ADDITIONAL CORRECTIVE ACTION(S)**

Since it has been verified that no structural concerns exist for the small increase in achievable tank capacity in Unit 2, a Technical Specification change request will be submitted to delete the reference to maximum capacity for the RWSTs.

**6.0 ACTIONS TO PREVENT RECURRENCE**

Although there is no structural concern and the overflow is piped to a controlled sump, overflowing of the tank is an undesirable occurrence. Control Room operating shift personnel closely monitor the tank level indications. Four wide range instruments and one narrow range instrument are installed for each unit, and readings are logged twice per shift. In addition, high level alarms are provided to alert the operators of an abnormal condition.

**7.0 SIMILAR EVENTS**

None.

**8.0 ADDITIONAL INFORMATION**

None.