

VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261

March 7, 1995

United States Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D. C. 20555

Serial No. 95-108
SPS/ETS R3
Docket Nos. 50-280
50-281
License Nos. DPR-32
DPR-37

Gentlemen,

VIRGINIA ELECTRIC AND POWER COMPANY
SURRY POWER STATION UNITS 1 AND 2
INSERVICE TESTING PROGRAM
REVISION OF RELIEF REQUEST V-26

Our October 11, 1994 submittal provided changes to the third ten-year interval inservice testing program for Surry Units 1 and 2. This submittal included a revision to Relief Request V-26 which deals with test requirements and methodology for the Safety Injection System accumulator discharge check valves.

As a result of further engineering evaluation which is discussed in Attachment 1 to this letter, Virginia Electric and Power Company is deleting the closure test requirement for the accumulator discharge check valves from the IST Program. The revised relief requests for Surry Units 1 and 2 are provided in Attachment 2. The accumulator discharge check valves will be tested in pairs during normal unit heatup operations to confirm seating of the disks as described in UFSAR Section 6.2.2.2.7.

Additional information regarding testing of the safety injection accumulator check valves will be provided as part of our response to Anomaly 14 identified in your Safety Evaluation Report (SER) dated October 20, 1994 for the Surry IST Program. In accordance with the SER, the response to the IST Program Anomalies is scheduled for submittal to your office by November 1995.

If you have any additional questions, please contact us.

Very truly yours,



James P. O'Hanlon
Senior Vice President-Nuclear

Attachments

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PDR ADOCK 05000280
P PDR

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cc: U.S. Nuclear Regulatory Commission
Region II
101 Marietta Street, N.W.
Atlanta, Georgia 30323

Mr. Morris Branch
NRC Senior Resident Inspector
Surry Power Station

Attachment 1

**Basis for Deletion of
Accumulator Discharge Check Valve
Closure Test
Surry Power Station Units 1 and 2**

ACCUMULATOR DISCHARGE CHECK VALVE CLOSURE TEST

During a February 8, 1995 telephone conference call, the NRC Staff and Virginia Electric and Power Company discussed Relief Request V-26. The proposed Relief Request V-26 requests that the accumulator discharge check valves be treated as a pair of valves in series for closure testing instead of being subject to individual testing of the downstream valve. Two issues were discussed. The first issue is the identification of these valves as pressure isolation valves and what constitutes appropriate testing, and the second issue deals with the accident mitigation function(s) of the valves. Our positions on these issues are discussed below.

Testing of Pressure Isolation Valves

The current IST program does not identify the SI accumulator discharge check valves as pressure isolation valves (PIV) nor does it invoke ASME Section XI, OM-10 testing requirements due to a reactor coolant pressure boundary function. The only PIVs included in the IST program are those listed in the Technical Specifications (TS). These six check valves are in the low head safety injection lines to the cold leg paths. These valves were identified during the review for WASH-1400 Event V valve configurations which was conducted in the early 1980s. Surry received a Technical Evaluation Report (TER) dated April 20, 1981 with the conclusion "that the valve configurations of concern have been correctly identified." Because Surry was licensed before 1979, only the Event V PIVs were required to be in the Technical Specifications.

In response to GL 87-06, Virginia Electric and Power Company provided a list of the valves that fit the definition of a PIV provided in GL 87-06. The definition is as follows.

"Pressure isolation valves (PIVs) are defined for each interface as any two valves in series within the reactor coolant pressure boundary which separate the high pressure reactor coolant system (RCS) from an attached low pressure system. These valves are normally closed during power operation. The reactor coolant pressure boundary (RCPB) is defined in 10 CFR 50.2 and generally includes all PIVs."

The accumulator discharge check valves fit the definition and are listed in the response, however, there are no testing requirements assigned to the valves. Virginia Electric and Power Company's response indicates that the integrity of the boundary at the SI accumulator check valves is verified in accordance with the Technical Specifications and ASME hydrostatic testing, but the integrity of each of the individual valves forming the boundary is not verified.

As to the PIVs included in or excluded from the IST program, Surry complies with the guidance given in GL 89-04 and the minutes of public meetings on GL 89-04. Position 4 in GL 89-04 says that the Event V PIVs must be included in the IST Program. Response to question 27 in the minutes indicates that the Event V valves are a subset of the plant PIVs and that the "staff has recently undertaken a program to reevaluate various aspects of PIVs, including testing." Response 28 states that, "The responses to

Generic Letter 87-06 are being used as input for the resolution of Generic Issue 105, 'Interfacing Systems LOCAs at Light Water Reactors, ' under investigation by the NRC Office of Nuclear Regulatory Research." Based on these responses, we had concluded that the issue of testing the non-Event V PIVs would be addressed by the NRC as a generic industry wide issue.

Surry Power Station received a Safety Evaluation Report (SER) dated October 20, 1994, that addresses the subject of PIVs. IST Program Anomaly 14 in Appendix A of the SER indicates that the valves identified in our response to GL 87-06 should be exercised to the closed position. The SER gave Virginia Power one year to respond to the anomalies. Independent of resolution of relief request V-26, the issue of exercising the safety injection accumulator discharge check valves due to their reactor coolant pressure boundary function will be addressed as part of the resolution of Anomaly 14.

Accident Mitigation After the Accumulators Have Discharged

Prior to the October 11, 1994 change, the Surry IST Programs required that only the SI accumulator discharge check valves closest to the reactor coolant system be tested open and closed. The check valves closest to the accumulators received only an open test. When the valve functions were reviewed to determine the ASME Section XI, OM-10 testing scope, we conservatively assumed that the check valves may have a function to close after the accumulators discharged to prevent the diversion of low head safety injection and charging flow to the accumulators.

In a subsequent engineering evaluation, we concluded that the accumulator check valves have no safety function to close after the accumulators have discharged. The engineering evaluation considers large LOCAs and small break LOCAs of various sizes. For LOCAs, the failure of the check valves to shut has no impact on mitigating the consequences of accidents. This evaluation also considered regulatory and license requirements in terms of when Surry Power Station was licensed. No regulatory or license requirements concerning leakage testing or back seat testing were identified consistent with our licensing basis. The only active function of the check valves is to open. The evaluation concludes with the determination "that the SI accumulator discharge check valves have no safety function to close following an accident."

Based on the conclusions of the engineering evaluation, Virginia Electric and Power Company has revised the Surry Units 1 and 2 Inservice Testing Programs to delete the requirement to test SI accumulator discharge check valves 1(2)-SI-109, 130 and 147 to the closed position. Also, reference to closure testing these valves was removed from relief request V-26.

Attachment 2

**Revised IST Program and Relief Request
for Accumulator Discharge Check Valves
Surry Power Station Units 1 and 2**

VIRGINIA POWER COMPANY
 SURRY UNIT 1
 THIRD INSERVICE TESTING INTERVAL
 INSERVICE TESTING PROGRAM - VALVE TABLE

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 REVISION: 00
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VALVE NUMBER	DRAWING NUMBER	SHEET NUMBER	DRWG COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	IWV CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	REL V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VCN-
1-SI-079	11448-CBM-089B	4 OF 4	F-7	CHECK VALVE	6.000	1	AC	PIV	LT	C				
RCS COLD LEG SI ADMISSION CHECK VALVE														
1-SI-082	11448-CBM-089B	4 OF 4	E-7	CHECK VALVE	6.000	1	AC	PIV	CV LT	C O C			4 4	
RCS COLD LEG SI ADMISSION CHECK VALVE														
1-SI-085	11448-CBM-089B	4 OF 4	D-7	CHECK VALVE	6.000	1	AC	PIV	CV LT	C O C			4 4	
RCS COLD LEG SI ADMISSION CHECK VALVE														
1-SI-088	11448-CBM-089B	4 OF 4	D-7	CHECK VALVE	6.000	1	C		CV	C O	27		4 4	
RCS HOT LEG SI ADMISSION CHECK VALVE														
1-SI-091	11448-CBM-089B	4 OF 4	C-7	CHECK VALVE	6.000	1	C		CV	C O	27		4 4	
RCS HOT LEG SI ADMISSION CHECK VALVE														
1-SI-094	11448-CBM-089B	4 OF 4	B-7	CHECK VALVE	6.000	1	C		CV	C O	27		4 4	
RCS HOT LEG SI ADMISSION CHECK VALVE														
1-SI-107	11448-CBM-089B	1 OF 4	B-7	CHECK VALVE	12.000	1	C		- CV	- O	26		3	CN-2
"A" ACCUMULATOR DISCHARGE CHECK VALVE														
1-SI-109	11448-CBM-089B	1 OF 4	B-8	CHECK VALVE	12.000	1	C		- CV	- O	26		3	CN-2
"A" ACCUMULATOR COLD LEG ADMISSION CHECK VALVE														
1-SI-128	11448-CBM-089B	2 OF 4	B-6	CHECK VALVE	12.000	1	C		- CV	- O	26		3	CN-2
"B" ACCUMULATOR DISCHARGE CHECK VALVE														
1-SI-130	11448-CBM-089B	2 OF 4	B-7	CHECK VALVE	12.000	1	C		- CV	- O	26		3	CN-2
"B" ACCUMULATOR COLD LEG ADMISSION CHECK VALVE														

VIRGINIA POWER COMPANY
 SURRY UNIT 1
 THIRD INSERVICE TESTING INTERVAL
 INSERVICE TESTING PROGRAM - VALVE TABLE

PAGE: 51 OF 70
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VALVE NUMBER	DRAWING NUMBER	SHEET NUMBER	DRWG COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISO IWV CAT	VALVE TYPE	TEST TYPE	TEST POS	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VCN-
1-SI-145	11448-CBM-089B	3 OF 4	B-5	CHECK VALVE	12.000	1	C		- CV	- 0	26		3	
----- "C" ACCUMULATOR DISCHARGE CHECK VALVE -----														
1-SI-147	11448-CBM-089B	3 OF 4	B-7	CHECK VALVE	12.000	1	C		- CV	- 0	26		3	
----- "C" ACCUMULATOR COLD LEG ADMISSION CHECK VALVE -----														
1-SI-150	11448-CBM-089A	3 OF 3	F-6	MAN GLOBE	.750	2	AE	CIV	LT	C				
----- BORON INJECTION TANK BYPASS LINE ISOLATION VALVE - TO RCS COLD LEG -----														
1-SI-174	11448-CBM-089A	3 OF 3	D-6	MAN GLOBE	.750	2	AE	CIV	LT	C				
----- HIGH HEAD SAFETY INJECTION TO RCS -----														
1-SI-224	11448-CBM-089B	4 OF 4	F-3	CHECK VALVE	3.000	2	C		CV	0			4	
----- HIGH HEAD SI FROM CHARGING PUMPS TO RCS COLD LEGS, INSIDE CONT CHECK VALVE -----														
1-SI-225	11448-CBM-089B	4 OF 4	E-3	CHECK VALVE	3.000	2	C		CV	0			4	
----- HIGH HEAD SI FROM CHARGING PUMPS TO RCS COLD LEGS, INSIDE CONT CHECK VALVE -----														
1-SI-226	11448-CBM-089B	4 OF 4	C-3	CHECK VALVE	3.000	2	C		CV	0			4	
----- HIGH HEAD SI FROM CHARGING PUMPS TO RCS HOT LEGS, INSIDE CONT CHECK VALVE -----														
1-SI-227	11448-CBM-089B	4 OF 4	C-3	CHECK VALVE	3.000	2	C		CV	0			4	
----- HIGH HEAD SI FROM CHARGING PUMPS TO RCS HOT LEGS, INSIDE CONT CHECK VALVE -----														
1-SI-228	11448-CBM-089B	4 OF 4	B-3	CHECK VALVE	6.000	2	C		CV	0			4	
----- LOW HEAD SI FROM LHSI PUMP TO RCS HOT LEGS, INSIDE CONT CHECK VALVE -----														
1-SI-229	11448-CBM-089B	4 OF 4	B-3	CHECK VALVE	6.000	2	C		CV	0			4	
----- LOW HEAD SI FROM LHSI PUMP TO RCS HOT LEGS, INSIDE CONT CHECK VALVE -----														
1-SI-234	11448-CBM-089B	1 OF 4	F-3	CHECK VALVE	1.000	2	AC	CIV	CV LT	C C			6	
----- NITROGEN SUPPLY TO ACCUMULATORS, INSIDE CONTAINMENT ISOLATION CHECK VALVE -----														
1-SI-235	11448-CBM-089B	4 OF 4	F-7	CHECK VALVE	2.000	1	C		CV	C 0			4 4	

CN-2

CN-2

RELIEF REQUEST V-26

System : Safety Injection

Valve(s): 1-SI-107 1-SI-109
 1-SI-128 1-SI-130
 1-SI-145 1-SI-147

Category: C

Class : 1

Function: Accumulator Discharge Check

OM Part 10 Code Requirements
For Which Relief Is Requested

OM Part 10, Section 4.3.2.4(a) - This section states in part that, "The necessary valve obturator movement shall be demonstrated by exercising the valve and observing that either the obturator travels to the seat on cessation or reversal of flow, or opens to the position required to fulfill its function, as specified in para. 1.1, or both. Observation may be by observing a direct indicator such as a position indicating device, or by other indicator(s) such as changes in system pressure, flow rate, level, temperature, seat leakage testing or other positive means." This section implies that the techniques used to verify obturator movement be applied to every valve on a test frequency that is practical.

Basis For Request

Non-intrusive techniques are used to verify obturator movement for the SI accumulator discharge check valves. These techniques provide a "positive means" for verifying obturator movement, however, due to the burden of applying these techniques in the field, a sampling program will be used as described in the alternate testing section.

Alternate Testing Proposed

During the first refueling outage where non-intrusive techniques are used, all valves in the group will be tested to verify that the techniques verify valve obturator movement. During subsequent refueling outages, flow testing will be performed on all valves in the group, but the non-intrusive techniques need be applied only to one valve in each group, on a rotating basis, unless indications of problems are identified. In this case, all valves in the group will be subjected to the non-intrusive techniques. The test frequency is in accordance with Generic Letter 89-04, Position 2.

CN-2

RELIEF REQUEST V-26 (Cont.)

Valves 1-SI-130 and 147 are in one group and valves 1-SI-107, 109, 128 and 145 are in the other group. Because 1-SI-130 and 147 are downstream from where RHR connects to the SI line, they experience different service conditions than the other valves.

The justification for testing these valves during reactor refuelings is described in Reactor Refueling Justification RRV-3

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VIRGINIA POWER COMPANY
 SURRY UNIT 2
 THIRD INSERVICE TESTING INTERVAL
 INSERVICE TESTING PROGRAM - VALVE TABLE

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VALVE NUMBER	DRAWING NUMBER	SHEET NUMBER	DRWG COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	ISO IWV CAT	VALVE TYPE	TEST TYPE	TEST POS	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VCN-
2-SI-082	11548-CBM-089B	4 OF 4	E-7	CHECK VALVE	6.000	1	AC	PIV	CV LT	0 C			4	
----- RCS COLD LEG SI ADMISSION CHECK VALVE														
2-SI-085	11548-CBM-089B	4 OF 4	D-7	CHECK VALVE	6.000	1	AC	PIV	CV LT	C C			4 4	
----- RCS COLD LEG SI ADMISSION CHECK VALVE														
2-SI-088	11548-CBM-089B	4 OF 4	D-7	CHECK VALVE	6.000	1	C		CV	C O	27		4 4	
----- RCS HOT LEG SI ADMISSION CHECK VALVE														
2-SI-091	11548-CBM-089B	4 OF 4	C-7	CHECK VALVE	6.000	1	C		CV	C O	27		4 4	
----- RCS HOT LEG SI ADMISSION CHECK VALVE														
2-SI-094	11548-CBM-089B	4 OF 4	B-7	CHECK VALVE	6.000	1	C		CV	C O	27		4 4	
----- RCS HOT LEG SI ADMISSION CHECK VALVE														
2-SI-107	11548-CBM-089B	1 OF 4	B-7	CHECK VALVE	12.000	1	C		- CV	- O	26		3	CN-2
----- "A" ACCUMULATOR DISCHARGE CHECK VALVE														
2-SI-109	11548-CBM-089B	1 OF 4	B-8	CHECK VALVE	12.000	1	C		- CV	- O	26		3	CN-2
----- "A" ACCUMULATOR COLD LEG ADMISSION CHECK VALVE														
2-SI-128	11548-CBM-089B	2 OF 4	B-6	CHECK VALVE	12.000	1	C		- CV	- O	26		3	CN-2
----- "B" ACCUMULATOR DISCHARGE CHECK VALVE														
2-SI-130	11548-CBM-089B	2 OF 4	B-7	CHECK VALVE	12.000	1	C		- CV	- O	26		3	CN-2
----- "B" ACCUMULATOR COLD LEG ADMISSION CHECK VALVE														
2-SI-145	11548-CBM-089B	3 OF 4	B-5	CHECK VALVE	12.000	1	C		- CV	- O	26		3	CN-2
----- "C" ACCUMULATOR DISCHARGE CHECK VALVE														

VIRGINIA POWER COMPANY
 SURRY UNIT 2
 THIRD INSERVICE TESTING INTERVAL
 INSERVICE TESTING PROGRAM - VALVE TABLE

PAGE: 49 OF 66
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VALVE NUMBER	DRAWING NUMBER	SHEET NUMBER	DRWG COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	IWV CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VCN-
2-SI-147	11548-CBM-089B	3 OF 4	B-7	CHECK VALVE	12.000	1	C		-	-	26		3	
----- "C" ACCUMULATOR COLD LEG ADMISSION CHECK VALVE -----														
2-SI-150	11548-CBM-089A	3 OF 3	F-6	MAN GLOBE	.750	2	AE	CIV	LT	C				
----- BORON INJECTION TANK-BYPASS LINE-ISOLATION VALVE - TO RCS COLD LEG -----														
2-SI-174	11548-CBM-089A	3 OF 3	D-6	MAN GLOBE	.750	2	AE	CIV	LT	C				
----- HIGH HEAD SAFETY INJECTION TO RCS -----														
2-SI-224	11548-CBM-089B	4 OF 4	F-3	CHECK VALVE	3.000	2	C		CV	0			4	
----- HIGH HEAD SI FROM CHARGING PUMPS TO RCS COLD LEGS, INSIDE CONT CHECK VALVE -----														
2-SI-225	11548-CBM-089B	4 OF 4	E-3	CHECK VALVE	3.000	2	C		CV	0			4	
----- HIGH HEAD SI FROM CHARGING PUMPS TO RCS COLD LEGS, INSIDE CONT CHECK VALVE -----														
2-SI-226	11548-CBM-089B	4 OF 4	C-3	CHECK VALVE	3.000	2	C		CV	0			4	
----- HIGH HEAD SI FROM CHARGING PUMPS TO RCS HOT LEGS, INSIDE CONT CHECK VALVE -----														
2-SI-227	11548-CBM-089B	4 OF 4	C-3	CHECK VALVE	3.000	2	C		CV	0			4	
----- HIGH HEAD SI FROM CHARGING PUMPS TO RCS HOT LEGS, INSIDE CONT CHECK VALVE -----														
2-SI-228	11548-CBM-089B	4 OF 4	B-3	CHECK VALVE	6.000	2	C		CV	0			4	
----- LOW HEAD SI FROM LHSI PUMP TO RCS HOT LEGS, INSIDE CONT CHECK VALVE -----														
2-SI-229	11548-CBM-089B	4 OF 4	B-3	CHECK VALVE	6.000	2	C		CV	0			4	
----- LOW HEAD SI FROM LHSI PUMP TO RCS HOT LEGS, INSIDE CONT CHECK VALVE -----														
2-SI-235	11548-CBM-089B	4 OF 4	F-7	CHECK VALVE	2.000	1	C		CV	C			4	
----- HIGH HEAD SI TO RCS COLD LEG, INSIDE MISSILE BARRIER CHECK VALVE -----														
2-SI-236	11548-CBM-089B	4 OF 4	E-7	CHECK VALVE	2.000	1	C		CV	C			4	
----- HIGH HEAD SI TO RCS COLD LEG, INSIDE MISSILE BARRIER CHECK VALVE -----														
2-SI-237	11548-CBM-089B	4 OF 4	D-7	CHECK VALVE	2.000	1	C		CV	C			4	
----- HIGH HEAD SI TO RCS COLD LEG, INSIDE MISSILE BARRIER CHECK VALVE -----														

CN-2

RELIEF REQUEST V-26

System : Safety Injection

Valve(s): 2-SI-107 2-SI-109
 2-SI-128 2-SI-130
 2-SI-145 2-SI-147

Category: C

Class : 1

Function: Accumulator Discharge Check

OM Part 10 Code Requirements
For Which Relief Is Requested

OM Part 10, Section 4.3.2.4(a) - This section states in part that, "The necessary valve obturator movement shall be demonstrated by exercising the valve and observing that either the obturator travels to the seat on cessation or reversal of flow, or opens to the position required to fulfill its function, as specified in para. 1.1, or both. Observation may be by observing a direct indicator such as a position indicating device, or by other indicator(s) such as changes in system pressure, flow rate, level, temperature, seat leakage testing or other positive means." This section implies that the techniques used to verify obturator movement be applied to every valve on a test frequency that is practical.

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RELIEF REQUEST V-26 (Cont.)

Valves 2-SI-130 and 147 are in one group and valves 2-SI-107, 109, 128 and 145 are in the other group. Because 2-SI-130 and 147 are downstream from where RHR connects to the SI line, they experience different service conditions than the other valves.

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CN-2