

LICENSEE EVENT REPORT

CONTROL BLOCK:

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 (PLEASE PRINT OR TYPE ALL REQUIRED INFORMATION)

0	1	V	A	S	P	S	1	2	0	0	-	0	0	0	0	0	-	0	0	3	4	1	1	1	1	4			5																			
8		9							14										25										30										58									
		LICENSEE CODE							LICENSE NUMBER										LICENSE TYPE										CAT																			

CON'T

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REPORT SOURCE

X	6	0	5	0	0	0	2	8	0	7	1	1	1	4	8	0	8	1	1	2	6	8	0	9
60	61	DOCKET NUMBER						68	69	EVENT DATE						74	75	REPORT DATE						80

EVENT DESCRIPTION AND PROBABLE CONSEQUENCES (10)

0 2 Stone and Webster Engineering Company informed VEPCO that because there is no definitive
0 3 Phase Relationship between the off-site source and the EDG Voltages and no time permis-
0 4 sive for collapsing the residual voltage, an out-of-phase transfer might occur when the
0 5 emergency buses are transferred from the off-site source to the EDG. This event is
reportable per T.S. 6.6.2.a.(9). The health and safety of the public were not affected.

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(17)	LER/RO REPORT NUMBER	[8][0]	[]	[0][7][0]	[/]	[0][1]	[T]	[-]	[0]			
		21	22	23	24	26	27	28	29	30	31	32
ACTION TAKEN	FUTURE ACTION	EFFECT ON PLANT	SHUTDOWN METHOD	HOURS	ATTACHMENT SUBMITTED	NPRD-4 FORM SUB.	PRIME COMP. SUPPLIER	COMPONENT MANUFACTURER				
[F](18)[X](19)	[Z](20)	[Z](21)	[0][0][0][0]	[Y](23)	[N](24)	[A](25)	[I][0][0][5](26)					
33	34	35	36	37	40	41	42	43	44	47		

CAUSE DESCRIPTION AND CORRECTIVE ACTIONS (27)

1 0 The cause of this design error has not been determined. A time delay circuit was

1 1 installed on the FDG output breaker to allow a 2.0 second time delay between the open-

1 2 ing of the off-site supply breakers and closing of the EDG breakers. This was accom-

1 3 plished as a temporary modification. A design change will be completed to provide final

1 4 resolution.

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S/G Replacement

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ACTIVITY CONTENT
RELEASED OF RELEASE AMOUNT OF ACTIVITY (35) LOCATION OF RELEASE (36)

1 6 Z (33) Z (34) N/A N/A

PERSONNEL EXPOSURES		NUMBER		TYPE		DESCRIPTION (39)	
1	7	0	0	0	(37) Z	(38)	N/A

PERSONNEL INJURIES		DESCRIPTION (41)	
NUMBER			
1	8	0	0
0	0	0	(40)
		N/A	

7		8		9		11		12		80	
1		9		Z		(42)		N/A			
LOSS OF OR DAMAGE TO FACILITY											
TYPE				DESCRIPTION							

7	8	9	10											80	
			PUBLICITY												
			ISSUED DESCRIPTION (45)												NRC USE ONLY
2	0	N	(44)	N/A											

NRC USE ONLY

NAME OF PREPARER J. L. Wilson

PHONE: (804) 357-3184

ATTACHMENT 1, PAGE 1 OF 2
SURRY POWER STATION, UNIT 1
DOCKET NO: 50-280
REPORT NO: 80-070/01T-0
EVENT DATE: 11-14-80

SUBJECT: EMERGENCY BUS OUT OF PHASE TRANSFER

1. DESCRIPTION OF EVENT:

On November 12, 1980, Stone and Webster Engineering Corporation informed VEPCO that, under certain conditions, an out of phase transfer might occur when the emergency buses are transferred from the off-site power source to the emergency diesel generator after the generators have reached rated speed and voltage because there is no definitive phase relationship between the off-site source and the emergency diesel generator voltages and no time permissive for collapsing the residual voltage. On November 14, 1980, Stone and Webster Corporation confirmed a significant out of phase transfer could occur under the following conditions:

1. A Safety Injection signal is received and the diesels start and run on standby.
2. Off-site power is lost, the emergency buses isolate from the off-site supply and are transferred to the diesel generators.

This event is reportable per Technical Specification 6.6.2.a.(9).

2. PROBABLE CONSEQUENCES:

As built, there was no time permissive to allow for collapsing of residual bus voltages. Therefore, an out of phase transfer might have caused severe motor end-turn forces as well as high torsional stresses that could cause motor rotor, coupling or driven equipment shaft failures. A study of this transfer effect on the low head safety injection motors indicates that the resultant volts per Hertz may not be within the recommended allowable limit for a safe transfer per ANSI C50.41-1977. The scenario described above has a very low probability of occurring and has not been experienced at Surry; therefore the health and safety of the public were not affected.

3. CAUSE:

The cause of this design error has not been determined.

4. IMMEDIATE CORRECTIVE ACTION:

In order to alleviate the possibility of a significant out of phase transfer condition, a time delay circuit was installed on the emergency diesel generator output breakers to allow a 2.0 second time delay between the opening of the off-site supply breakers and closing of the emergency diesel generator breakers. A 1.96 second time delay is sufficient for the residual voltages to dissipate to allowable levels. The installation of the time delay was accomplished as a temporary modification.

ATTACHMENT 1, PAGE 2 OF 2
SURRY POWER STATION, UNIT 1
DOCKET NO: 50-280
REPORT NO: 80-070/01T-0
EVENT DATE: 11-14-80

SUBJECT: EMERGENCY BUS OUT OF PHASE TRANSFER

5. SUBSEQUENT CORRECTIVE ACTION:

A design change will be completed to provide final resolution.

6. GENERIC IMPLICATIONS:

The above corrective action has resolved any generic implications at Surry.