

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Turkey Point Unit 3										DOCKET NUMBER (2) 0 5 0 0 0 2 5 0										PAGE (3) 1 OF 1																			
TITLE (4) Reactor Protection System Actuation - Reactor Trip																																							
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)															
																		N/A						0 5 0 0 0															
0 8		0 1		8 5		8 5		0 2 3		0 0		0 9		0 3		8 5		N/A						0 5 0 0 0															
OPERATING MODE (9)						THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)																																	
POWER LEVEL (10) 1 3 0						20.402(b)						20.406(c)						<input checked="" type="checkbox"/> 50.73(a)(2)(iv)						73.71(b)															
						20.406(a)(1)(i)						50.36(e)(1)						50.73(a)(2)(v)						73.71(e)															
						20.406(a)(1)(ii)						50.36(e)(2)						50.73(a)(2)(vii)						OTHER (Specify in Abstract below and in Text, NRC Form 366A)															
						20.406(a)(1)(iii)						50.73(a)(2)(i)						50.73(a)(2)(viii)(A)																					
						20.406(a)(1)(iv)						50.73(a)(2)(ii)						50.73(a)(2)(viii)(B)																					
20.406(a)(1)(v)						50.73(a)(2)(iii)						50.73(a)(2)(ix)																											
LICENSEE CONTACT FOR THIS LER (12)																																							
NAME																				TELEPHONE NUMBER																			
Randall D. Hart, Licensing Engineer																				3 1 0 5 2 1 4 5 1 - 1 2 9 1 1 0																			
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)																																							
CAUSE		SYSTEM		COMPONENT		MANUFACTURER		REPORTABLE TO NRC				CAUSE		SYSTEM		COMPONENT		MANUFACTURER		REPORTABLE TO NRC																			
X		E/F		F/U		E 3 5 3		Y				X		E/F		3 1 6 1		E 3 1 5 3		Y																			
X		E/F		9 1 0 1		E 3 5 3		Y				X		E/F		9 1 0 1		E 3 1 5 3		Y																			
SUPPLEMENTAL REPORT EXPECTED (14)																				EXPECTED SUBMISSION DATE (15)										MONTH DAY YEAR									
<input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)																				<input checked="" type="checkbox"/> NO																			
ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)																																							
<p>Event: On August 1, 1985, Unit 3 experienced a reactor trip from 30% reactor power followed by a safety injection (SI) system actuation. The BS inverter that was in service supplying power to the 120 volt vital instrument panel 3P08, tripped. The loss of 3P08 caused the "A" steam generator (SG) level control channel III to fail low. This gave a demand signal to the "A" SG main feedwater control valve to go fully open. This resulted in the "A" SG level increasing until it reached the Hi-Hi level setpoint (80%) which tripped the turbine and both SG feedwater pumps. The reactor tripped as a result of the turbine trip. The loss of power to steam flow protection channel III in panel 3P08 completed half the logic for SI and when Tavg for loop A decreased to below the setpoint of 543 degrees Fahrenheit, the logic for SI was completed. This resulted in containment phase "A" isolation and closure of the main steam isolation valves. The SI pumps started, however, no SI flow was delivered to the reactor coolant system.</p> <p>Power to 3P08 was restored using a constant voltage transformer (CVT) in accordance with plant procedures. The unit was stabilized in a hot standby condition, and safeguards equipment were procedurally returned to their normal operating status.</p> <p>Cause of Event: The reason for the BS inverter trip was due to the failure of the oscillator and logic power supply module.</p> <p>Corrective Actions:</p> <ol style="list-style-type: none">The voltage regulator and synchronizer, dwell angle control and oscillator and logic power supply modules were replaced. Fuse F6 was found blown and replaced.On August 2, 1985, power to panel 3P08 was transferred from the CVT to the BS inverter.The eight 120 volt vital instrument buses are now being powered by new replacement inverters. <p>The health and safety of the public were not affected. Similar occurrences: LERs 250-84-003, 250-84-014, 250-84-026, 250-85-018, 251-84-011, 251-84-021, 251-84-012, 251-85-013, 251-85-017 and 251-85-019.</p>																																							
NRC Form 366 (9-83)										B509090269 B50903 PDR ADOCK 05000250 S PDR										U.S.GPO: 1984-0-484-481/1875																			

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
Turkey Point Unit 3	0 5 0 0 0 2 5 0	8 5	— 0 2 3	— 0 0	0 2	OF	0 2

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

Event:

On August 1, 1985, Unit 3 experienced a reactor trip from 30% reactor power at 7:29 p.m. due to the loss of the BS inverter that was in service supplying power to 120 volt vital instrument panel 3P08. The loss of 3P08 caused the "A" steam generator (SG) level control channel III to fail low. This gave a demand signal to the "A" SG main feedwater control valve to go fully open. This resulted in the "A" SG level increasing until it reached the Hi-Hi level setpoint (80%) which tripped the turbine and both SG feedwater pumps. The reactor tripped when the reactor protection system logic of turbine trip was completed. The tripping of both SG feedwater pumps resulted in a feedwater isolation signal and an automatic start of the auxiliary feedwater (AFW) pumps.

At 7:29 p.m., a safety injection (SI) signal occurred. The loss of power to one steam flow protection channel III in panel 3P08 completed half the logic for SI and when Tavg for loop A decreased to below the setpoint of 543 degrees Fahrenheit, the logic for SI was completed. This resulted in containment phase "A" isolation and closure of the main steam isolation valves. The SI pumps started, however, no SI flow was delivered to the reactor coolant system.

At 8:06 p.m., power to 3P08 was restored using a constant voltage transformer (CVT) in accordance with plant procedures. The unit was stabilized in a hot standby condition, and safeguards equipment were procedurally returned to their normal operating status.

Off-normal operating procedure 3-ONOP-003.8, "Loss of 120 V Vital Instrument Panel 3P08", cautions that the "A" SG level controller should go to auto lockup (with no control of feedwater flow to the "A" SG available) and that the "B" SG level controller should remain in automatic. This is contrary to what the operators experienced during the event in that the "A" SG level controller remained in automatic and the "B" SG level controller was in auto lockup. Since the "A" SG level controller was in automatic, the low SG level signal from the failed level control channel caused the controller to fully open the "A" SG feedwater control valve. This is contrary to the procedural guidance provided to the operators and resulted in their not being able to complete the necessary corrective actions prior to the unit trip. Subsequent investigations revealed that the power leads feeding these level controllers were reversed. These investigations could not determine when the leads had been reversed. The leads were returned to their proper locations.

Cause of Event:

The reason for the BS inverter trip was due to the failure of the oscillator and logic power supply module.

Analysis of Event:

A post-trip review was performed to assess the proper operation of safety-related equipment. The post-trip review established that the transient behavior of pertinent plant parameters for the reactor coolant system (RCS) and SGs responded as expected for a reactor trip of this kind except for the reversed leads described above. Specifically, the RCS pressures and temperatures were determined to be following an expected pattern based on the conditions leading up to the transient. Based on the above, the health and safety of the public were not affected.

Corrective Actions:

- 1) The voltage regulator and synchronizer, dwell angle control and oscillator and logic power supply modules were replaced. Fuse F6 was found blown and replaced.
- 2) At 7:10 a.m. on August 2, 1985, power to panel 3P08 was transferred from the CVT to the BS inverter.
- 3) The eight 120 volt vital instrument buses are now being powered by new replacement inverters. Additionally, constant voltage transformers have been installed as alternate power supplies for each of the eight (8) normal vital inverters. Each replacement inverter has a static transfer switch that will automatically transfer the load to the alternate power supply upon loss of a normal inverter.



SEP 3 1985

L-85-343

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

Gentlemen:

Re: Reportable Event 85-23
Turkey Point Unit 3
Date of Event: August 1, 1985
Reactor Protection System Actuation-Reactor Trip

The attached Licensee Event Report is being submitted pursuant to the requirements of 10 CFR to provide notification of the subject event.

Very truly yours,

J.W. Williams, Jr.
J.W. Williams, Jr.
Group Vice President
Nuclear Energy

JWW/PLP:mls

Attachment

cc: Dr. J. Nelson Grace
Region II, USNRC
Harold F. Reis, Esquire
File 933.1
PNS 306/1

*1E22
1/1*