

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Turkey Point Unit 3	DOCKET NUMBER (2) 0   5   0   0   0   2   5   1   0	PAGE (3) 1 OF 02
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TITLE (4)  
Engineered Safety Feature 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							
0	4	2	4	8	4	8	4	0	1	4	0	0	0	N/A		
0	4	2	4	8	4	8	4	0	5	2	4	8	4	N/A		

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)	20.406(e)	<input checked="" type="checkbox"/>	50.73(a)(2)(iv)	73.71(b)					
	20.406(a)(1)(i)	50.38(a)(1)	<input type="checkbox"/>	50.73(a)(2)(v)	73.71(e)					
	20.406(a)(1)(ii)	50.39(a)(2)	<input type="checkbox"/>	50.73(a)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 368A)					
	20.406(a)(1)(iii)	50.73(a)(2)(i)	<input type="checkbox"/>	50.73(a)(2)(viii)(A)						
	20.406(a)(1)(iv)	50.73(a)(2)(ii)	<input type="checkbox"/>	50.73(a)(2)(viii)(B)						
	20.406(a)(1)(v)	50.73(a)(2)(iii)	<input type="checkbox"/>	50.73(a)(2)(ix)						

LICENSEE CONTACT FOR THIS LER (12)

NAME Paul A. Roach, Regulation and Compliance Engineer	TELEPHONE NUMBER 3   0   5   2   4   5   -   2   9   1   0
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COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE)	<input checked="" type="checkbox"/> NO	EXPECTED SUBMISSION DATE (15)
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ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

On April 24, 1984, a reactor trip occurred. The root cause was determined to stem from a personnel error that propagated into the reactor trip. A Turbine Operator (TO) taking the 'A' "standby" (AS) static inverter out of service erroneously opened the output breaker of an adjacent "normal" (3A) static inverter that was in service supplying power to a vital panel. Loss of power to the vital panel resulted in a turbine runback. Upon realizing his error, the TO reclosed the 3A inverter's output breaker. However, due to the current surge associated with instantaneously picking up all of the loads, coupled with an instrument power supply failure in a rack powered by the 3A inverter, a current limiter in the 3A inverter caused its output voltage to go low. A second turbine runback occurred when the 3A inverter's output voltage went low and resulted in a reactor trip. All equipment functioned as designed on initiation of the Engineered Safety Feature Actuation Signal (ESFAS) generated in the Reactor Protection System (RPS). Immediate corrective actions included stabilizing the plant, replacement of the failed instrument power supply, re-energizing the vital panel and satisfactory verification that affected equipment returned to service, and management discussions with the TO on following procedures and understanding the severity of his actions. Additionally, the TO and licensed operators and supervisors on shift were cautioned against taking remedial action before allowing the plant to stabilize, following a plant transient, without full knowledge of what such actions could result in. The health and safety of the public were not affected. Similar occurrences: LER 250-84-003.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)  Turkey Point Unit 3	DOCKET NUMBER (2)  0 5   0   0   0   2   5   0	LER NUMBER (6)			PAGE (3)	
		YEAR 8   4	SEQUENTIAL NUMBER —   0   1   4	REVISION NUMBER —   0   0	OF	

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

On April 24, 1984, at 4:46 p.m., a reactor trip occurred. The root cause was determined to stem from a personnel error that propagated into the reactor trip. A Turbine Operator (TO, non-licensed personnel) taking the 'A' "standby" (AS) static inverter (3Y04) out of service under In-Plant Clearance Order-Nuclear (Number 4-78) erroneously opened the output breaker of the adjacent 3A "normal" static inverter (3Y01). The 3A inverter was in service supplying power to a 120 volt (A/C) vital instrument power bus (panel 3P07) when its output breaker was opened. Loss of power to vital panel 3P07 resulted and de-energized its power supplies to Channel II protection instrumentation. A turbine runback resulted initiated by an "NIS Rod Drop" signal generated in the nuclear instrumentation system (NIS) channel N-42. Upon realizing his error, the TO re-closed the 3A inverter's output breaker, repowering panel 3P07 and its associated loads. However, an instrument power supply failure in a rack (3QR80A) powered indirectly from panel 3P07, coupled with the current surge associated with instantaneously picking up all of the loads fed by the 3A inverter, caused the 3A inverter's current limiter to activate and resulted in low output voltage from the 3A inverter. This caused low voltage on panel 3P07 and its power supplies to Channel II protection instrumentation which resulted in another "NIS Rod Drop" signal. This initiated a second turbine runback which resulted in a reactor trip on Reactor Protection System (RPS) logic "Pressurizer High Pressure" (Channels II and III, 2/3 channel logic).

The operations staff responded to the first 30% turbine runback satisfactorily. Loss of the 3A inverter and vital panel 3P07 was recognized and the runback limited for an actual load reduction from 705 to 600 megawatts. The unit was stabilizing with reactor coolant system (RCS) pressure and temperature, while still high, returning to normal at the reduced load. The onset of the second 30% turbine runback (note that the unit is only designed to accommodate a 50% load rejection) coupled with above normal RCS pressure and temperature caused RCS pressure to reach the setpoint of 2370 psig for a reactor trip on "Pressurizer High Pressure". Additionally, the power operated relief valves (PCV-3-455C and PCV-3-456) were unavailable to assist in mitigating the transient due to their associated block valves (MOV-3-536 and MOV-3-535, respectively) being closed.

The AS inverter was being taken out of service under Clearance No. 4-78 to perform preventive maintenance activities. The clearance provided instructions to the TO to "ensure the AS inverter not in service" essentially as a prerequisite to removing it from service. Additionally, guidance was provided to remove the AS inverter from service per Step 8.3 of Operating Procedure (OP) 9700.1, Instrument AC Power Supply - Operation of Normal and Spare Inverters and steps delineated in the clearance that followed exactly the sequence of operation given in the OP for removal of an inverter from service. Furthermore, new large size placards were in place that label the inverters using 1" lettering and black-on-white color schemes, installed during recent human factors upgrade modifications.

The 3A inverter is the normal power supply to vital panel 3P07. The AS inverter functions as the alternate power supply to either vital panels 3P07 or 4P07 (i.e., the standby to the 3A and 4A (4Y01) inverters). Panel 3P07 supplies power to rack 3QR80A through sub-panel 22 (3P22), breaker 1. The instrument power supply failure in rack 3QR80A, suspected to have been caused by the electrical transient it underwent, caused breaker 1 in 3P22 to trip. This caused loss of Train A auxiliary feedwater flow control and indication, Train A condensate storage tank level indication, and the Train A subcooled margin monitor in Train A of the qualified safety parameter display system (i.e., instrumentation lost due to the instrument power supply failure in Rack 3QR80A). The failed instrument power supply was replaced with one from Unit 4, rack 4QR80B, and breaker 1 in 3P22 closed and Train A equipment restored to normal without problem.

Following satisfactory resolution of the problems discussed above, and having identified no other problems on completion of the post-trip review, the unit was returned to service. Full power operation was achieved on April 25, 1984, at 2:20 a.m.



May 24, 1984

PNS-LI-84-189

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

Gentlemen:

Re: Reportable Event 84-14  
Turkey Point Unit 3  
Date of Event: April 24, 1984  
Engineered Safety Feature Actuation - Reactor Trip

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

Very truly yours,

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

JWW/PLP:vr

Attachment

cc: J.P. O'Reilly, Region II, USNRC  
Harold F. Reis, Esquire  
File 933.1

*FE22*  
*1/1*