



APR 25 2008

10 CFR § 50.73
L-2008-084

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D. C. 20555-00001

Re: Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
Reportable Event: 2008-001-00
Date of Event: February 26, 2008
Human Error Causes Grid Disturbance Resulting in a Dual Unit Trip

The attached Licensee Event Report 05000250/2008-001-00 is being submitted pursuant to the requirements of 10 CFR 50.73(a)(2)(iv)(A) to provide notification of the subject event.

If there are any questions, please call Ms. Olga Hanek at 305-246-6607.

Very truly yours,

A large, handwritten signature in black ink, appearing to read "W. Jefferson, Jr.", is written over the typed name.

William Jefferson, Jr.
Vice President
Turkey Point Nuclear Plant

Attachment

cc: Regional Administrator, USNRC, Region II
Senior Resident Inspector, USNRC, Turkey Point Nuclear Plant

JE22
NRR

NRC FORM 366 (9-2007)		U.S. NUCLEAR REGULATORY COMMISSION			APPROVED BY OMB: NO. 3150-0104		EXPIRES: 08/31/2010				
LICENSEE EVENT REPORT (LER)							Estimated burden per response to comply with this mandatory collection request: 50 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records and FOIA/Privacy Service Branch (T-5 F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.				
1. FACILITY NAME <p style="text-align:center;">Turkey Point Unit 3</p>				2. DOCKET NUMBER <p style="text-align:center;">05000250</p>		3. PAGE <p style="text-align:center;">1 of 4</p>					
4. TITLE <p style="text-align:center;">Human Error Causes Grid Disturbance Resulting in a Dual Unit Trip</p>											
5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED		
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER	
2	26	2008	2008 - 001 - 00			4	25	2008	Turkey Point Unit 4	05000251	
9. OPERATING MODE <p style="text-align:center;">1</p>			11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR§: (Check all that apply)								
10. POWER LEVEL <p style="text-align:center;">100</p>			<input type="checkbox"/> 20.2201(b)		<input type="checkbox"/> 20.2203(a)(3)(i)		<input type="checkbox"/> 50.73(a)(2)(i)(C)		<input type="checkbox"/> 50.73(a)(2)(vii)		
			<input type="checkbox"/> 20.2201(d)		<input type="checkbox"/> 20.2203(a)(3)(ii)		<input type="checkbox"/> 50.73(a)(2)(ii)(A)		<input type="checkbox"/> 50.73(a)(2)(viii)(A)		
			<input type="checkbox"/> 20.2203(a)(1)		<input type="checkbox"/> 20.2203(a)(4)		<input type="checkbox"/> 50.73(a)(2)(ii)(B)		<input type="checkbox"/> 50.73(a)(2)(viii)(B)		
			<input type="checkbox"/> 20.2203(a)(2)(i)		<input type="checkbox"/> 50.36(c)(1)(i)(A)		<input type="checkbox"/> 50.73(a)(2)(iii)		<input type="checkbox"/> 50.73(a)(2)(ix)(A)		
			<input type="checkbox"/> 20.2203(a)(2)(ii)		<input type="checkbox"/> 50.36(c)(1)(ii)(A)		<input checked="" type="checkbox"/> 50.73(a)(2)(iv)(A)		<input type="checkbox"/> 50.73(a)(2)(x)		
			<input type="checkbox"/> 20.2203(a)(2)(iii)		<input type="checkbox"/> 50.36(c)(2)		<input type="checkbox"/> 50.73(a)(2)(v)(A)		<input type="checkbox"/> 73.71(a)(4)		
			<input type="checkbox"/> 20.2203(a)(2)(iv)		<input type="checkbox"/> 50.46(a)(3)(ii)		<input type="checkbox"/> 50.73(a)(2)(v)(B)		<input type="checkbox"/> 73.71(a)(5)		
			<input type="checkbox"/> 20.2203(a)(2)(v)		<input type="checkbox"/> 50.73(a)(2)(i)(A)		<input type="checkbox"/> 50.73(a)(2)(v)(C)		<input type="checkbox"/> OTHER		
			<input type="checkbox"/> 20.2203(a)(2)(vi)		<input type="checkbox"/> 50.73(a)(2)(i)(B)		<input type="checkbox"/> 50.73(a)(2)(v)(D)		Specify in Abstract below or in NRC Form 366A		
12. LICENSEE CONTACT FOR THIS LER											
NAME <p style="text-align:center;">Paul F. Czaya</p>							TELEPHONE NUMBER (Include Area Code) <p style="text-align:center;">305-246-7150</p>				
13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT											
CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX		
14. SUPPLEMENTAL REPORT EXPECTED						15. EXPECTED SUBMISSION DATE			MONTH	DAY	YEAR
<input type="checkbox"/> YES (If yes, complete 15. EXPECTED SUBMISSION DATE)						<input checked="" type="checkbox"/> NO			-	-	-
ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)											
<p>On February 26, 2008 at approximately 1309 hours, a momentary grid voltage disturbance occurred that caused a reactor trip of both Turkey Point Units 3 and 4 when both channels of safety-related 4 KV bus undervoltage relays for each unit actuated after a one second time delay. In addition, at approximately 1620, while shutting down the Unit 4 4A steam generator feed pump after transferring to standby feedwater, auxiliary feedwater (AFW) automatically actuated due to a red flag semaphore still present on the 4B SGFP control switch since the switch had not been taken to the stop position. This AFW actuation was inadvertent. The grid voltage disturbance occurred due to human error when a Protection and Control field engineer disabled both levels of local protection at an electrical substation which then failed to actuate when a fault occurred during equipment troubleshooting. The inadvertent AFW actuation occurred due to inadequate procedural guidance. Since plant response to the grid disturbance was as designed and AFW was not required to mitigate any plant condition at that time, the safety significance of the plant trips and inadvertent AFW actuation are minimal. Corrective actions relating to the grid disturbance include a new procedure setting requirements related to disabling protection. Corrective action for the inadvertent AFW actuation entails future procedure changes to ensure the control switches for various components powered by the 4C 4 KV bus are placed in the appropriate position after a loss of power and to verify the control board switches are green flagged.</p>											

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TEXT CONTINUATION

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Turkey Point Unit 3	05000250	2008	- 001	- 00	2 of 4

NARRATIVE

DESCRIPTION OF THE EVENT

On February 26, 2008 at approximately 1309 hours, a momentary grid voltage disturbance occurred that caused a reactor [EIIS: AC, RCT] trip of both Turkey Point Units 3 and 4 from 100% power. Each reactor tripped when both channels of safety-related 4 KV bus [EIIS: EA, SWGR, BU] (3A, 3B for Unit 3 and 4A, 4B for Unit 4) undervoltage relays [EIIS: JC, RLY, 27] actuated after a one second time delay. Protection against a momentary grid disturbance is a feature of Turkey Point's electrical system; however, the duration of the condition exceeded the time delay resulting in the actuation of the 4 KV bus undervoltage relays.

Concurrently, the Unit 4 4C 4 KV bus de-energized due to actuation of its undervoltage relays. The Unit 4 4B steam generator feed pump (SGFP) [EIIS: SJ, P] tripped on the loss of power from the 4C 4 KV bus. Auxiliary feedwater (AFW) pumps [EIIS: BA, P] automatically started on both units when steam generator narrow range levels dropped below 10%, as expected.

Operator action occurred appropriately and as directed by Emergency Operating Procedures (EOP). Operators verified the reactor and turbine [EIIS: TA, TRB] trips [EIIS: IT], and that safety injection signals had not occurred nor were required.

Except for the 4C 4 KV bus, offsite electrical power remained available to implement the EOP mitigation strategy. The 4C 4 KV bus was reenergized approximately one hour after the Unit 4 reactor trip.

According to procedure, operators verified equipment status. Safeguards equipment responded as expected to mitigate the event. Operators did not have to manually start equipment. The emergency diesel generators [EIIS: EK, DG] did not auto start since the momentary voltage drop ended during the time switchyard breakers [EIIS: EA, BKR] repositioned to place the startup transformers [EIIS: EB, XFMR] in service. The safety-related 4 KV buses remained energized. The reactor coolant pumps [EIIS: AB, P] remained in service. Operators stabilized both units in Mode 3.

At approximately 1620, while shutting down the Unit 4 4A SGFP after transferring to standby feedwater, AFW automatically actuated due to a red flag semaphore [EIIS: BA, XI] still present on the 4B SGFP control switch [EIIS: SJ, P, HS] since the switch had not been taken to the stop position. This condition existed due to the prior loss of the 4C 4 KV bus. The loss of the 4C 4 KV bus caused a loss of the 4B SGFP. When the bus was restored, the semaphore for the 4B SGFP was still red. Manual action is required to green flag this semaphore. When the 4A SGFP switch was taken to stop, AFW actuation logic was satisfied by the 4B SGFP switch contacts associated with the semaphore red flag. This AFW actuation was inadvertent.

The reactor trips, initial AFW actuations and inadvertent AFW actuation on Unit 4 were reported to the NRC Operations Center in accordance with 10 CFR 50.72(b)(2)(iv)(B) and 10 CFR 50.72(b)(3)(iv)(A), respectively. The Event Notification number is 44009. Condition Reports 2008-6703, 2008-6689, 2008-6900, 2008-6697 and 2008-6680, among others, were initiated in response to the plant trips and inadvertent AFW initiation.

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NARRATIVE

CAUSE OF THE EVENT

The grid voltage disturbance occurred due to human error when a Protection and Control (P&C) field engineer disabled both levels of local protection at an electrical substation which then failed to actuate when a fault occurred during equipment troubleshooting. The inadvertent AFW actuation occurred due to inadequate procedural guidance.

ANALYSIS OF THE EVENT

Grid Disturbance

On February 26, 2008, a Protection and Control (P&C) field engineer was diagnosing a switch that had malfunctioned at FPL's Flagami substation in west Miami. At approximately 1309 during the diagnostic process, a fault occurred. The engineer had disabled both levels of local protection, contrary to FPL's standard procedures and established practices. When the switch was operated, an arc developed which, aided by windy weather, evolved into a three phase fault. Because both levels of local protection were disabled, the fault was cleared remotely resulting in delayed clearing (1.7 seconds).

Inadvertent AFW Actuation

Human performance and procedure reviews were conducted. None of the procedures prompted looking at the semaphore flag for the shutdown 4B SGFP. The operator was using all required human performance tools and obtained a peer check. A brief was conducted with the field operators but not the other control room operators.

The causal factor for this event was primarily written communication. The procedures do not contain any steps, precautions, limitations, or notes that would direct or suggest matching the semaphore. The only line of defense in this case was operator knowledge and awareness. However, a brief including other experienced staff may have recognized the hazard. Therefore, inadequate communication is a secondary causal factor.

Reportability

10 CFR 50.73(a)(2)(iv)(A) requires a written report of valid actuations of the reactor protection system and a pressurized water reactor's auxiliary or emergency feedwater system. Since reactor trips, and expected and inadvertent actuations of the AFW system occurred during the response to the reactor trips, these events are being reported herein.

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ANALYSIS OF SAFETY SIGNIFICANCE

The plant response to the grid voltage disturbance was as designed with only one minor complication, the loss of the 4C 4 KV bus. Offsite power remained available to the safety buses and the reactor coolant pumps did not trip. At the time of the inadvertent AFW actuation on Unit 4, the standby feed pumps had been put in service. AFW was not required to mitigate any plant condition at that time. Therefore, the safety significance of the plant trips and AFW actuation are minimal.

CORRECTIVE ACTIONS

Grid Disturbance

- Corrective actions include: A procedure requiring approved plans for disabling any relay protection, independent verification, more stringent requirements in switching procedures, and training for P&C field engineers and dispatchers on the new procedures.

Inadvertent AFW Actuation

- Applicable procedures will be revised to ensure the control switches for various components powered by the 4C 4 KV bus are placed in the appropriate position after a loss of power and to verify the control board switches are green flagged.

ADDITIONAL INFORMATION

EIIS Codes are shown in the format [EIIS SYSTEM: IEEE system identifier, component function identifier, second component function identifier (if appropriate)].

FAILED COMPONENTS IDENTIFIED: None

PREVIOUS SIMILAR EVENTS: None