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ACCESSION NBR: 9302020448 DOC. DATE: 93/01/29 NOTARIZED: NO DOCKET #
FACIL: 50-250 Turkey Point Plant, Unit 3, Florida Power and Light Co 05000250
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RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 93-003-00: on 930116, discovered that manual discharge valves of both trains of containment spray sys isolated while in Mode 4. Caused by communication errors. Night order issued re proper procedure use. W/930129 ltr.

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JAN 29 1993

L-93-023
10 CFR 50.73

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

Gentlemen:

Re: Turkey Point Unit 3
Docket No. 50-250
Reportable Event: 93-003-00
Both Trains of Containment Spray Pump Manual Discharge
Valves Isolated Due to Personnel Error

The attached Licensee Event Report 250/93-003-00 is being provided in accordance with 10 CFR 50.73 (a) (2) (vii).

If there are any questions, please contact us.

Very truly yours,

T. F. Plunkett by X. L. P. [Signature]
T. F. Plunkett
Vice President
Turkey Point Nuclear

TFP/CLM/jk

enclosure

cc: Stewart D. Ebnetter, Regional Administrator, Region II,
USNRC
Ross C. Butcher, Senior Resident Inspector, USNRC, Turkey
Point Plant

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LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) TURKEY POINT UNIT 3										DOCKET NUMBER (2) 05000250		PAGE (3) 1 OF 5		
TITLE (4) BOTH TRAINS OF CONTAINMENT SPRAY PUMP MANUAL DISCHARGE VALVES ISOLATED DUE TO PERSONNEL ERROR.														
EVENT DATE (5)			LER NUMBER(6)			RPT DATE (7)			OTHER FACILITIES INVOLVED (8)					
MON	DAY	YR	YR	SEQ #	R#	MON	DAY	YR	FACILITY NAMES			DOCKET # (5)		
01	16	93	93	003	00	01	29	93						
OPERATING MODE (9)		4	<u>10 CFR 50.73(a)(2)(vii)</u>											
POWER LEVEL (10)		000												
LICENSEE CONTACT FOR THIS LER (12)														
J. E. Knorr, Regulation and Compliance Specialist										TELEPHONE NUMBER				
										305-246-6757				
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)														
CAUSE	SYSTEM	COMPONENT	MANUFACTURER		NPRDS?	CAUSE	SYSTEM	COMPONENT	MANUFACTURER		NPRDS?			
SUPPLEMENTAL REPORT EXPECTED (14) NO <input checked="" type="checkbox"/> YES <input type="checkbox"/>										EXPECTED SUBMISSION DATE (15)		MONTH	DAY	YEAR
(if yes, complete EXPECTED SUBMISSION DATE)														
ABSTRACT (16)														
<p>During the review of operator logs on the afternoon shift of January 16, 1993, Operations personnel discovered that the manual discharge valves of both trains of the containment spray system had been isolated early that morning while in Mode 4. Containment spray pumps must remain operable in Modes 1 through 4 in accordance with Technical Specification 3.6.2.1. When the isolation was discovered the plant had already been cooled down to Mode 5.</p> <p>Communication errors were identified as the root cause of the isolation. A contributing cause was a procedure attachment designed for multiple mode use.</p> <p>Corrective actions include detailed discussions with personnel responsible for valve manipulation and procedure revisions.</p>														

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I. DESCRIPTION OF THE EVENT

At approximately 2145, Eastern Standard Time, on January 16, 1993, Turkey Point Unit 3 was in Mode 5. While reviewing logs completed earlier that day, an Assistant Nuclear Plant Supervisor discovered that the manual discharge valves for the containment spray pumps had been isolated at approximately 0530 that morning, rendering both trains of the containment spray system inoperable. The supervisor realized that the plant had been in Mode 4 at the time. Technical Specification 3.6.2.1, requires both containment spray pumps to be operable in Modes 1 through 4. Otherwise, action statement b. requires the plant to be cooled down to Mode 5 within 30 hours. The plant reached Mode 5 at 1815 on January 16, 1993, approximately 13 hours after the closure of the manual discharge valves. Therefore, the plant was operated in accordance with its Technical Specification requirements. This event is considered reportable in accordance with 10 CFR 50.73(a)(2)(vi)(D). A single cause (operator error) resulted in the isolation of two trains of containment spray.

II. CAUSE OF THE EVENT

The licensed Reactor Control Operator (RCO) controlling the evolution of cooling down Unit 3 made two highlighted copies of an attachment for general operating procedure 3-GOP-305, Hot Standby To Cold Shutdown. The highlighted areas of the procedure attachment included valve isolations to be accomplished during the cooldown process from Mode 3 to Mode 5. The highlighted attachments were given to the non-licensed Turbine Operator and Nuclear Operator responsible for the actual manipulation of valves in the plant. The RCO intended to discuss each step in detail with the Turbine Operator and Nuclear Operator as the cooldown progressed. While the plant was being cooled down from 380 °F to 350 °F, the communications between the RCO and the field personnel were not conducted in a formal manner. This lack of formal communications resulted in the containment spray pump discharge valves being isolated prematurely while in mode 4.

III. ANALYSIS OF THE EVENT

1. Licensing and Design Basis Requirements

The containment spray system is part of the Turkey Point engineered safety features system. The purpose of the containment spray system is to spray cool water into the containment atmosphere in the event of a loss-of-coolant accident and thereby assure that the containment pressure and temperature limits are not exceeded. The Turkey Point Final Safety Analysis Report (FSAR) accident analyses assume that in Mode 1 the most limiting single failure results in one operable containment spray pump and two operable containment emergency coolers. For the purpose of maintaining containment integrity, the emergency containment coolers are considered fully redundant to the containment spray system. For the purposes of environmental qualification equipment in containment, at least one containment spray pump and two emergency containment coolers are assumed available to reduce the

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containment temperature within the time limits of the environmental qualification curve, following a design basis loss-of-coolant accident.

The containment spray system is described in Technical Specification 3/4.6.2.1. The Technical Specifications require that two independent spray systems (trains) be operable in Modes 1, 2, 3, and 4. The bases for the Technical Specifications state that operability of the containment spray system ensures that containment depressurization capability will be available in the event of a loss-of-coolant accident.

2. Analysis of the Effects on Safety.

Containment atmosphere condition response to a loss-of-coolant accident with the plant in a condition other than Mode 1 is not explicitly analyzed in the FSAR. The original licensing basis for Turkey Point assumes that an accident in a mode other than Mode 1 would be bounded by an event in Mode 1 at full power. Shutdown accidents have been studied (Modes 3 and below) and the studies have shown that the largest credible break would be a six inch pipe break attached to the reactor coolant system cold leg.

The loss-of-coolant accident analysis of containment integrity, performed in Mode 1 at full power, assumes a double ended pipe break. This analysis bounds the six inch break discussed above. For the Mode 1 full power event, the containment temperature and pressure peaks are turned by the action of the containment heat sinks prior to the containment spray pumps starting and loading. Therefore the containment spray pump function is to reduce the temperature and pressure in containment and to remove decay heat. In Mode 4, when the containment spray system was isolated, the reactor coolant system and the balance of plant temperatures and pressures were reduced from those in Mode 1 and 100% power. The effect of having the containment spray system isolated with the primary system at or about 350 °F was bounded by the accident analysis and would not represent a challenge to the integrity of containment or the environmental qualification of equipment in containment. Assuming the most limiting single failure, two emergency containment coolers would be available and sufficient to remove the reduced decay heat from a plant that had been shutdown for ten hours.

The FSAR analysis of a main steam line break also bounds the conditions present when the containment spray pumps were isolated. The analysis assumed conditions significantly in excess of the conditions found in this event (i.e. steam generator level 81%, steam pressure 116 psig, and temperature 350 °F).

3. Probabilistic Assessment

In this event, the containment spray system was isolated for approximately 13 hours. A conservative estimate of the potential increase in the loss of containment integrity from an overpressurization event as a result of the isolation of containment spray is calculated as 0.8% of the total annual frequency from all

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accident events. The generic industry frequency for containment failure is 1×10^{-5} /year. As a result, the total contribution of scenarios involving an accident event coincident with actual isolation of containment spray does not represent a significant contribution to the overall failure probability of the Turkey Point containment.

4. Conclusion

The isolation of the containment spray pumps with Unit 3 in Mode 4 would not have resulted in any containment design parameter being exceeded in the event of a design basis accident. The energy available for release under these conditions is substantially less than would be available for the limiting cases analyzed in the FSAR. Due to the reduced energy and decay heat, the emergency containment coolers by themselves would be adequate to remove the decay heat and reduce containment pressure and temperature. Accordingly, were an accident to have occurred, the non-availability of the containment spray pumps would not have affected the health and safety of plant personnel or the general public.

IV. CORRECTIVE ACTIONS

1. The Turkey Point Plant General Manager met with each Operations shift and discussed the event, the need for more formal communications in all tasks (such as the repeat back concept) and the other corrective actions listed in this Licensee Event Report.
2. Senior members of the operations management were placed on shift to monitor the conduct of operations during the shutdown and the subsequent startup.
3. A night order about communications and proper procedure use has been issued.
4. An on the spot change (revision) to general operating procedure 3-GOP-305 was issued providing for mode dependent attachments. Revisions to the comparable Unit 4 procedure were also completed.
5. The Reactor Control Operator has been reprimanded in accordance with Florida Power & Light Nuclear Division Policy.
6. The concept of an equipment status board for the control room is being evaluated. An equipment status briefing by the assistant nuclear plant supervisor is also being evaluated. These measures should provide updated information as to when equipment is removed from service and assure turnover of that information from shift to shift. These evaluations will be completed prior to April 15, 1993. An appropriate corrective action to meet the intent of adequate knowledge transfer from shift to shift will be implemented. The action taken may be different from that listed in this paragraph.

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7. A revision to operations support procedure 0-OSP-201.2, SNPO Daily Logs, has been completed. This change requires the personnel filling out the log to include a note explaining why a piece of equipment is out of service and why it is acceptable for that plant condition.
8. The training programs for the Nuclear Plant Operators and Turbine Operators will be enhanced to provide more information as to the major systems required to be operable for various operating Modes of the plant.
9. A training brief will be issued to appropriate plant personnel on the importance of formal communications.
10. Administrative procedure 0-ADM-205, Administrative Control of Valves, Locks and Switches, has been revised. The revision requires the Nuclear Plant Supervisor and/or the Assistant Nuclear Plant Supervisor to evaluate procedure and mode requirements prior to issuing a key for safety related equipment and components.
11. A human performance evaluation has been performed on this event. Corrective actions identified by this evaluation are included in the above corrective actions.
12. Florida Power & Light Company quality assurance personnel have been requested to include adequate communications as an additional performance criterion in their plant monitoring program.

V. ADDITIONAL INFORMATION

One Licensee Event Report (LER 250/92-005) was issued in 1992 concerning two of three main steam isolation valves being declared inoperable due to isolation of the backup nitrogen supply to the air operator by a turbine operator.

