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L-2004-261
10 CFR § 50.73

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

Re: Turkey Point Unit 3
Docket No. 50-250
Reportable Event: 2004-002-00
Date of Event: September 25, 2004
As-Found Cycle 20 Main Steam Safety Valve
Setpoints Outside Technical Specification Limits

The attached Licensee Event Report 250/2004-002-00 is being submitted pursuant to the requirements of 10 CFR § 50.73(a)(2)(i)(B) to provide notification of the subject event.

Very truly yours,

Terry Jones

Terry O. Jones
Vice President
Turkey Point Nuclear Plant

OIH

Attachment

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

IE22

NRC FORM 366 (7-2001) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104 EXPIRES 7-31-2004

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

1. FACILITY NAME	2. DOCKET NUMBER	3. PAGE
Turkey Point Unit 3	05000250	Page 1 of 4

4. TITLE

As-Found Cycle 20 Main Steam Safety Valve Setpoint Outside Technical Specification Limits

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
09	25	2004	2004	- 002 -	00	11	19	2004	FACILITY NAME	DOCKET NUMBER

9. OPERATING MODE	1
10. POWER LEVEL	50

11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more)

	20.2201(b)		20.2203(a)(3)(ii)		50.73(a)(2)(ii)(B)		50.73(a)(2)(ix)(A)
	20.2201(d)		20.2203(a)(4)		50.73(a)(2)(iii)		50.73(a)(2)(x)
	20.2203(a)(1)		50.36(c)(1)(i)(A)		50.73(a)(2)(iv)(A)		73.71(a)(4)
	20.2203(a)(2)(i)		50.36(c)(1)(ii)(A)		50.73(a)(2)(v)(A)		73.71(a)(5)
	20.2203(a)(2)(ii)		50.36(c)(2)		50.73(a)(2)(v)(B)		OTHER
	20.2203(a)(2)(iii)		50.46(a)(3)(ii)		50.73(a)(2)(v)(C)		Specify in Abstract below or in NRC Form 366A
	20.2203(a)(2)(iv)		50.73(a)(2)(i)(A)		50.73(a)(2)(v)(D)		
	20.2203(a)(2)(v)	X	50.73(a)(2)(i)(B)		50.73(a)(2)(vii)		
	20.2203(a)(2)(vi)		50.73(a)(2)(i)(C)		50.73(a)(2)(viii)(A)		
	20.2203(a)(3)(i)		50.73(a)(2)(ii)(A)		50.73(a)(2)(viii)(B)		

12. LICENSEE CONTACT FOR THIS LER

NAME	TELEPHONE NUMBER (Include Area Code)
Olga Hanek	(305) 246 - 6607

13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX
B	SB	RV	C710	YES		-	-	-	-	-

14. SUPPLEMENTAL REPORT EXPECTED			15. EXPECTED SUBMISSION DATE	MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE).	X	NO				

16. ABSTRACT *(Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)*

On September 25, 2004, Turkey Point Unit 3 was in Mode 1 and holding at approximately 50 percent reactor power while performing Technical Specification surveillance testing of the Main Steam Safety Valves setpoints, just prior to the Unit 3 Cycle 21 Refueling Outage. The Unit 3 "B" Steam Generator (SG) MSSV, RV-3-1405, as-found lift pressure was 1136.1 psig, which was greater than the TS allowable setpoint pressure of ±3% of 1085 psig (1052.5 psig - 1117.5 psig). RV-3-1405 was declared inoperable and the plant entered TS action statement 3.7.1.1.b. Reactor power was at 50%, which was below the 53% reactor power required per TS 3.7.1.1.b. The valve was subsequently adjusted and retested twice to within +/-1% of its required setpoint.

The cause of the event was a slow build-up of corrosion between the ground ends of the spring and the spring washers. During the planned Unit 3 refueling shutdown which commenced on September 27, 2004, the valve was disassembled, and repaired.

Operation of the facility with the Main Steam Safety Valves as-found settings was within analytical bounds; therefore, this event had no impact on the health and safety of the public.

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
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TEXT *(If more space is required, use additional copies of NRC Form 366A)* (17)

Description of the Event

On September 25, 2004, Turkey Point Unit 3 was in Mode 1 and holding at approximately 50 percent reactor power for testing of the Main Steam Safety Valves (MSSVs) [SB:RV] during the downpower for the Turkey Point Unit 3 Cycle 21 refueling outage.

As-found set pressure of the Unit 3 "B" steam generator MSSV RV-3-1405 was 1136.1 psig, which was 4.71% above the Technical Specification (TS) allowable setpoint pressure of ±3% of 1085 psig (1052.5 psig - 1117.5 psig). At 10:15 AM, MSSV RV-3-1405 was declared Out of Service (OOS) and the unit entered the Action Statement for TS 3.7.1.1.b, which requires either valve restoration to operable status or a unit reduction in power to </=53% within 4 hours. Since the unit was at approximately 50% power level, no reactivity changes were required in order to comply with TS 3.7.1.1.b.

RV-3-1405 was subsequently tested at 1119.1 psig, 3.14% above the TS allowable setpoint. The valve was subsequently adjusted and retested twice to within +/-1% of its required setpoint. Although the valve had been adjusted and tested within 1% of the required setpoint pressure, based on the requirements of ASME OM, Part 1, Section 1.3.3.1(e)(2), the valve was not returned to service until the cause was determined and corrected. At 22:30 on September 25, 2004, MSSV RV-3-1405 was declared operable and the plant exited TS action statement 3.7.1.1.b.

As a result of the RV-3-1405 failed test, the Inservice Testing (IST) program required test expansion over the testing requirement for this Unit 3 outage. This requirement was met with the expanded test scope of RV-3-1400 and RV-3-1401. All other MSSVs tested were within the ±3% range of the required setpoint pressure.

Reportability

The MSSV RV-3-1405 as-found degraded condition is reportable under the requirements of 10CFR 50.73(a)(2)(i)(B) as a condition prohibited by Technical Specifications. The Limiting Condition for Operation (LCO) 3.7.1.1 is the controlling Technical Specification for MSSV surveillance testing at Turkey Point. This specification requires that in Modes 1 through 3 "all main steam line Code safety valves associated with each steam generator shall be OPERABLE with lift settings as specified in Table 3.7.2." Table 3.7.2 requires the lift setting for valve RV-3-1405 to be 1085 psig ± 3%. Therefore, since the as-found condition for RV-3-1405 did not comply with the value in the Technical Specifications Table 3.7.2, the condition is reportable per 50.73(a)(2)(i)(B) requirements.

Cause of the Event

Based on the inspection of valve internals, the cause of the high as-found lift setpoint for RV-3-1405 was determined to be from a slow build-up of corrosion between the ground ends of the spring and the spring washers. Specifically the spring, spring washer, and thrust bearing were identified with excessive corrosion. The corrosion between the spring and spring washer increased the compression of the spring and therefore raised its set pressure above the maximum allowable setpoint.

The corrosion identified is attributed to the interaction of the steel components in the valve with the corrosive external environment (i.e. salt laden air, rain, etc.). Protection of these components from these external influences is provided by applying a protective grease coating to prevent interaction with the external influences. However, the protective coating in use when RV-3-1405 was last overhauled (September 21, 1995) was "Never-Seez (G44)." Per vendor literature, this product (Never Seez Nickel Nuclear Grade) is not specifically intended as a corrosion resistor. The Never Seez provided some corrosion resistance by simply coating the metal surfaces and preventing interaction with external influences, however its long term durability in

this role is not certain. Therefore, in 2000, the use of Never Seez was discontinued and the use of Texaco Mutifak EP2 Grease was implemented. Texaco Mutifak EP2 Grease is a general lubricating grease designed to protect metal surfaces from corrosion. The use of Never Seez as a corrosion inhibitor is considered a contributing cause to the event, and the change to Texaco Mutifak EP2 in 2000 is considered an adequate corrective action.

RV-3-1405 valve was overhauled during the Unit 3 Cycle 21 refueling outage. A review of maintenance records indicate that, with one exception, all other Unit 3 MSSVs have been overhauled after 2000 when the use of Texaco Grease was implemented. One valve, RV-3-1407 was overhauled prior to the corrosion inhibitor change, however, it was successfully tested during the Cycle 20 refueling outage. A walkdown of RV-3-1407 exhibited minor corrosion (mainly discoloration) as compared to the corrosion observed on RV-3-1405. Based on the successful test during the Cycle 20 refueling outage and the observed condition, RV-3-1407 is determined to be acceptable for operation and is scheduled to be overhauled during the next refueling outage.

Analysis of Safety Significance

Four safety valves are installed on each of the unit's three main steam lines. The safety valves protect the steam generator and main steam piping from overpressure conditions and serve as a heat sink for the reactor coolant system if the main condenser is unavailable and the atmosphere steam dump valves cannot relieve pressure during a reactor trip or a secondary transient.

A review of the Turkey Point Safety Analyses was performed to assess the impact of MSSV RV-3-1405 as-found condition on Cycle 20 operation. The analyses in which the MSSVs are modeled include:

- Rod Withdrawal From Power (RWFP)
- Feedwater System Malfunction
- Increase in Steam Flow
- Loss of Flow
- Locked Rotor
- Loss of External Electrical Load (LOL)/Turbine Trip
- Loss of Normal Feedwater (LONF) With/Without Loss of Non-Emergency AC Power
- Small Break LOCA

The review indicated that only the events that are susceptible to overpressure conditions may be impacted by the as-found condition of MSSV RV-3-1405. These include:

- Loss of External Electrical Load (LOL)/Turbine Trip (Limiting Event)
- Rod Withdrawal From Power (RWFP)
- Loss of Normal Feedwater (LONF) With/Without Loss of Non-Emergency AC Power

The overpressure design criteria to which these transients have to comply, require that the peak pressures reached during the event (for both the Reactor Coolant System (RCS) and the Main Steam System (MSS)) do not exceed 110 percent of the design pressures (2485 psig RCS and 1085 psig MSS). This translates into the following design basis criteria: 2733.5 psig for the RCS and 1193.5 psig for the MSS.

The limiting over pressurization design basis event is the Loss of Load or LOL. The safety significance of the out of tolerance RV-3-1405 has been evaluated with respect to the consequences of this event.

The LOL design basis analysis takes credit of the MSSVs to mitigate the consequences of the over pressurization of the RCS and the secondary side steamlines. The analysis assumes that every one of the 12 MSSVs opens at 3% above the nominal value allowed by Technical Specifications (TS 3.7.1.1). During Cycle 21 outage, only 1 of the 5 valves tested was found to be out of tolerance, RV-3-1405. A review and assessment of the as-found condition of RV-3-1405 and the other tested valves has concluded that the current as-found RV-3-1405 condition is bounded by the analysis assumption of all 12 MSSVs opening at 3% above the nominal setpoint. In addition, if all the untested MSSVs were conservatively assumed to open at 3% above the nominal setpoint, the overall average opening setpoint of all 12 valves and the average opening setpoint for the 3 Bank I valves (RV-3-1400, RV-3-1405 and RV-3-1410) would be below the safety analysis value of 3% above nominal. Therefore, even with the most conservative scenario, the overall MSSV response is bounded by the LOL safety analysis.

Based on the above discussion it is concluded that the overpressure design basis criteria for the LOL event would not have been exceeded during Cycle 20 as a result of the as-found RV-3-1405 opening setpoint.

Analysis of the three pressurization safety analyses events resulted in no challenges to the design bases of these events and it is concluded that the as-found MSSVs performance test data did not result in any past operability concerns for Unit 3's Cycle 20 operation. Thus, this event had no impact on the health and safety of the public.

Corrective Actions

1. RV-3-1405 was adjusted to an as-left set pressure within +/- 1% of 1085 psig.
2. RV-3-1405 was disassembled, inspected and repaired to correct the conditions leading to unacceptable as-found testing.
3. RV-3-1407 is scheduled to be overhauled during the next refueling outage.

Additional Information

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

Similar Events

Turkey Point Unit 3, Docket No. 50-250, Reportable Event: 2003-004-00, dated February 27, 2003, "As-Found Cycle 19 Main Steam Safety Valve Setpoints Outside Technical Specification Limits", Letter L-2003-087, dated April 25, 2003. The cause of this event was attributed to micro-bonding of the nozzle and disc for some valves and a spring washer dimensional tolerance discrepancy for one valve.

Turkey Point Unit 4, Docket No. 50-251, Reportable Event: 2003-002-00 dated October 2, 2003, "As-Found Cycle 20 Main Steam Safety Valve Setpoint Outside Technical Specification Limits," Letter L-2003-295, dated December 3, 2003. The cause of this event was attributed to micro-bonding of the nozzle and disc.