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10 CFR § 50.73
L-2009-155
July 2, 2009

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D. C. 20555-0001

Re: Turkey Point Unit 3
Docket No. 50-250
Reportable Event: 2009-002-00
Date of Event: May 4, 2009
Main Steam Isolation Valve (MSIV) Drain Line Leak Causes Technical Specification
Required Shutdown; Failure to Perform PMT Causes Inoperable MSIV

The attached Licensee Event Report 05000250/2009-002-00 is being submitted pursuant to the requirements of 10 CFR 50.73(a)(2)(i)(A), 10 CFR 50.73(a)(2)(i)(B), 10 CFR 50.73(a)(2)(v)(C) and 10 CFR 50.73(a)(2)(v)(D) to provide notification of the subject event.

If there are any questions, please call Mr. Robert Tomonto at 305-246-7327.

Very truly yours,

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 10</p>											
4. TITLE <p style="text-align:center;">MSIV Drain Line Leak Causes Technical Specification Required Shutdown; Failure to Perform PMT Causes Inoperable MSIV</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								
5	4	2009	2009	002	00	7	2	2009											
9. OPERATING MODE <p style="text-align:center;">2</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;">2%</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)					
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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 checked="" type="checkbox"/> YES (If yes, complete 15. EXPECTED SUBMISSION DATE)										<input type="checkbox"/> NO			10	1	2009				
ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)																			
<p>On May 4, 2009 at approximately 2000 hours with Unit 3 in Mode 2 at approximately 2% reactor power during restart from a refueling outage, plant personnel found steam leaking from the bottom of the 3C Main Steam Isolation Valve (MSIV) in the area where the weld boss joins the valve body. Technical Specifications (TS) 3.4.10 and 3.0.3 were entered and a unit shutdown was initiated at approximately 0330 on May 5, 2009, upon confirmation that the leak was from a weld and structural integrity was impacted. At approximately 0348 hours, operators closed the 3A and 3B MSIVs. The 3C MSIV did not close on demand, was declared inoperable and TS 3.7.1.5 was entered. At approximately 0437, the 3C MSIV closed. The reactor was tripped and Mode 3 was entered at approximately 0438. Mode 4 was entered at approximately 0847 on May 5, 2009 and Mode 5 was entered at approximately 1431 the same day whereupon Unit 3 exited TS 3.0.3. The root cause of the leak is under evaluation. The root cause of the 3C MSIV failure to close on demand is attributed to inadequate guidance for verification of post maintenance tests for returning equipment to service. Corrective actions include repairing the 3C and 3B MSIV drain lines, and revision to work package PMT identification and review practices to: 1) Establish clearly defined roles between departments, and 2) establish when in the work package development and review cycle separate departments provide input to PMT requirements.</p>																			

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DESCRIPTION OF THE EVENT

On May 4, 2009 at approximately 2000 hours with Unit 3 in Mode 2 at approximately 2% reactor [AC, RCT] power during restart from a refueling outage, plant personnel found steam leaking from the bottom of the 3C Main Steam Isolation Valve (MSIV) [SB, ISV] in the area where the weld boss joins the valve body. A leak in this area was previously repaired during the outage when water was noted coming from the weld area. The MSIVs had been opened at approximately 2000.

Technical Specifications (TS) 3.4.10 and 3.0.3 were entered and a unit shutdown was initiated at approximately 0330 on May 5, 2009, upon confirmation that the leak was from a weld and structural integrity was impacted.

At approximately 0348 hours, operators closed the 3A and 3B MSIVs. The 3C MSIV did not close on demand, was declared inoperable and TS 3.7.1.5 was entered. At approximately 0437, the 3C MSIV closed. The reactor was tripped and Mode 3 was entered at approximately 0438. Mode 4 was entered at approximately 0847 on May 5, 2009 and Mode 5 was entered at approximately 1431 the same day whereupon Unit 3 exited TS 3.0.3.

Event Notification 45043 was made to the NRC Operations Center at approximately 0541 hours on May 5, 2009 in accordance with 10 CFR 50.72(b)(2)(i) due to the initiation of a plant shutdown required by the TSs, and 10 CFR 50.72(b)(3)(v)(D) due to the inoperability of the 3C MSIV.

Condition Reports (CR) 2009-13544 and 2009-13568 were initiated to address the 3C MSIV drain line leak and failure to close on demand issues, respectively. The completion of the shutdown required by the 3C MSIV drain line leak is reportable in accordance with 10 CFR 50.73(a)(2)(i)(A). The inoperability caused by the failure of the 3C MSIV to close upon demand is reportable in accordance with 10 CFR 50.73(a)(2)(i)(B), 10 CFR 50.73(a)(2)(v)(C) and 10 CFR 50.73(a)(2)(v)(D) since the 3C MSIV was inoperable for a period longer than allowed by the TSs and the inoperability impacted the safety function of the valve to control the release of radioactive material and mitigate an accident.

CAUSE OF THE EVENT

3C MSIV Drain Line Leak

The root cause of the leak is under evaluation. A supplement to this report will be submitted.

3C MSIV Failure to Close on Demand

The root cause is attributed to inadequate guidance (roles, responsibilities, actions, considerations) for verification of post maintenance tests (PMT) for returning equipment to service.

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Contributing causes include:

- The PMT procedure is not sufficiently robust to address testing requirements for all components that could be affected by working passive throttle valves.
- Passive valves that directly affect the safety function of Inservice Testing (IST) components are not included in the IST program.
- Human performance error on the part of a mechanic in not recognizing that valve 3-5304 was out of position.
- Human performance error on the part of an operator in not following the administrative requirement to notify a supervisor that a valve was found in an unexpected position.
- Human performance error on the part of an operator in locking the valve in an abnormal position.

ANALYSIS OF THE EVENT

Background

One MSIV is provided outside the containment [NH] for each main steam line from the steam generators [SB, SG]. Each valve consists of a swing disc held open against flow by a pneumatic cylinder. A check valve is provided down stream of the MSIV to stop reverse flow from the other two steam lines in the event of a steam line break, up stream of the isolation valve.

The MSIVs provide safety related isolation capability for the steam generators for main steam line breaks and steam generator tube ruptures. The MSIVs are maintained closed by the Instrument Air System [LD]. On Unit 3, a safety related nitrogen supply subsystem [LK] functions as a backup to the Instrument Air System. The backup subsystems consist of independent pneumatic circuits, redundant electric control solenoid valves, and dedicated high pressure gas reserves. This ensures that each MSIV will close in 5 seconds or less under no steam flow conditions if the Instrument Air System and one 125 VDC power channel are unavailable. These backup systems also ensure that the MSIVs will remain closed for a minimum of one hour without the need for operator action, independent of the availability of instrument air.

Analysis

3C MSIV Drain Line Leak

During the recent refueling outage a modification was performed to replace carbon steel piping with chrome-moly piping from the drain line from the MSIV to the second isolation valves on all three MSIVs. The modification was performed to address flow accelerated corrosion. Subsequently, on April 9, 2009 while in Mode 5, a water leak at the 3C MSIV drain line was observed. It was determined that the leak was at the weld between the half coupling and the reducing insert on the bottom of the MSIV. The leak was repaired and non-destructive examination (PT) of the repair was satisfactory.

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On May 4, 2009 while in Mode 2, a steam leak at the 3C MSIV drain line was observed. This leak was noted to be coming from beneath the MSIV at the point where the weld boss joins the reducing insert, which is in the same area as the leak mentioned above. A crack was found on the boss/half coupling area [SB, PSF] that connects the 1 inch x 1/2 inch reducer to the weld boss.

Following the second leak that occurred on May 4, 2009, a cut made at the crack location was examined. Visual examination of the socket weld revealed a circumferential indication that encompassed approximately 3/4 of the circumference. The majority of the crack was centered on the apparent shoulder of the 1 inch half coupling. There was also a minor section that extended into the weld throat. The crack edges were slightly jagged; however, there was no evidence of gross plastic deformation to the weld or attached piping components.

It was noted in the forensic examination that lack of fusion between the weld metal and reducer was evident in the fresh metal regions touched by the grinding operations. High temperature oxides were present on the surfaces of the above noted crack in the throat region of the weld metal, suggesting they too had formed during the welding process. As expected, the exposed side and end surfaces of the reducer also displayed these high temperature oxides.

The examination also noted that the original machined threads on the ID surface of the valve body that had been partially removed to accommodate installation of the half coupling were in excellent condition.

The above observations suggest that the primary cause of failure was the presence of significant sub-surface weld defects that were not detectable by the post welding PT examination. These include lack of fusion as evidenced by the circumferential crack extending along the apparent shoulder of the half coupling and scattered high temperature oxides in the mating weld metal. There was also evidence of hot cracking in the weld metal throat that likely originated at the weld root and propagated outward.

The satisfactory PT performed subsequent to welding suggests that there had been a thin ligament of sound weld metal covering these defects. The jagged edges of the cracks suggest that this ligament failed due to ductile fracture when the pipe was loaded (thermal and pressure) during the ascension in power. There was also unanticipated loading due to binding with the concrete penetration. However, given the severity of the weld defects, this binding must be considered a secondary contributor to the failure.

Access to the area between the MSIV and the concrete penetration was limited. The weld had to be performed by two welders, one on each side of the MSIV, lying in a prone position. This was a difficult process. The limited space hampered visibility and the physical ability to make a good weld.

3C MSIV Failure to Close on Demand

A work order was planned for the Unit 3 Cycle 24 outage for a packing adjustment to the MSIV Instrument Air Throttle Valve 3-5304 [LD, FCV]. The work package was not tied to other MSIV work in the schedule and was not linked to MSIV stroke timing for completion. The work package required only two PMTs, a

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general leak test (Snoop), and cycling of the valve. The work package did not identify the package as IST required and did not identify any testing for the MSIV as a result of the work completed on valve 3-5304.

The planned package was reviewed and accepted by Operations. The work package does not require a clearance zone for completion. However, the work order was tied to clearance zone CZ 72-02 for tracking. CZ 72-02 was hung in the plant on 3/18/09 to complete work on the 3C MSIV. Valve 3-5304 was controlled under CZ 72-02 via a 'no tag' step requiring the valve to be unlocked and closed. Most of the scheduled work on the 3C MSIV was completed and CZ 72-02 was released to allow stroke testing of the MSIV. During the boundary modification, valve 3-5304 was positioned one turn open and locked. Surveillance was completed with a satisfactory closure time on the 3C MSIV.

On 4/6/09, the work package was approved to start the packing adjustment on valve 3-5304. The work package was tied to CZ 72-02 boundary modification 5. However, the work package indicates that no clearance is required. As no clearance was required, the package was not signed onto the clearance by any Maintenance personnel. When the package was approved by Operations for start, the work package was added to the equipment out of service (EOOS) entry for the 3C MSIV.

The work package indicates that valve 3-5304 should be in a throttled position. Operations assistance is required to manipulate valve 3-5304 because the valve is found and left locked. The operator unlocked the valve and checked position by attempting to close the valve. The valve did not move during the attempt to close and the operator assumed the valve was closed. The operator identified the as-found position of the valve as 'Closed.' The valve 3-5304 handwheel is yellow and has a tag attached that reads "NORMALLY LOCKED THROTTLED." The operator recognized that the valve was out of expected position but did not stop as required by plant procedures and expectations. This was identified as a human performance error on the part of the operator in not correctly identifying valve position and not stopping and contacting the Work Control Center when the valve was out of expected position.

The mechanic did not recognize that the valve was out of expected position and logged the as-found position as 'closed' in the work package. This was identified as a human performance error on the part of the mechanic in not reviewing the work package sufficiently to recognize the expected valve position. The form in the work package was identified as a weak/failed barrier as it does not prompt for the expected position, nor does it identify 'throttled' as an option for as-found position.

The mechanic and operator completed the work package to adjust the valve packing and returned valve 3-5304 to the documented as-found position of 'closed' and locked the valve. Both of the required PMTs were completed and documented as 'SAT.' The operator recognized that the valve had been repositioned and locked in an abnormal line-up and researched CZ 72-02 boundary modification 5. The clearance identified that valve 3-5304 would be left throttled and locked. The operator assumed that the clearance would address restoration of the valve to its normal position. This was identified as a human performance error on the part of the operator in locking a valve in a position other than the normal position.

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As the work package had never been signed onto the clearance, the clearance reviewer assumed that the valve was in the correct position and had not been manipulated. As such, there was no need to reposition the valve. In addition, the reviewer recognized that if the valve was repositioned during restoration of the clearance, the MSIV would require stroking again to verify closure timing. Therefore, the reviewer approved the clearance for release without further manipulation of the valve to avoid additional valve stroke timing. CZ 72-02 boundary modification 5 was released by Operations without manipulation of valve 3-5304 during restoration, and solely verified that the valve was in a locked condition.

Operations reviewed the EOOS entry for the MSIV upon completion of the work. The EOOS entry indicated that during the outage the MSIV had been stroked with a satisfactory closure time. The EOOS reviewer did not recognize that the work on valve 3-5304 was completed after the MSIV stroke test, or that the work on 3-5304 required an additional MSIV valve timing stroke. As such, the MSIV was removed from the EOOS log and returned to service. This was identified as a failed barrier in the planning and review process as the PMT requirements identified for the work on valve 3-5304 did not include a stroke test of the MSIV. In addition, while valve 3-5304 does not meet the requirements for identification as an IST component, it does directly impact the safety function of an IST component. This was identified as a missing barrier in the IST program.

Reportability

TS 3.4.10 requires that the structural integrity of Class 1, 2 and 3 components be maintained at all times. The failed weld on the 3C MSIV drain line fitting is a Class 2 component. With the structural integrity of a Class 2 component not met, the following TS Action applies:

With the structural integrity of any ASME Code Class 2 component(s) not conforming to the above requirements, restore the structural integrity of the affected component(s) to within its limit or isolate the affected component(s) prior to increasing the Reactor Coolant System temperature above 200°F.

Since reactor coolant system temperature was above 200°F and the leak could not be isolated, the above action could not be met. Therefore, TS 3.0.3 applies and a plant shutdown initiated within one hour so that cold shutdown could be achieved within, at most, the following 36 hours. The shutdown was completed on 5/5/2009 at approximately 1431, within the required time as TS 3.0.3 was entered on 5/5/2009 at approximately 0330.

The completion of a TS required shutdown is reportable in accordance with 10 CFR 50.73(a)(2)(i)(A).

TS 3.7.1.5 requires the MSIVs to be operable in Modes 1, 2 and 3. In Modes 2 and 3, one MSIV may be inoperable provided the following TS Action is met:

With one MSIV inoperable, subsequent operation in MODE 2 or 3 may proceed provided the isolation valve is maintained closed. Otherwise, be in HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

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With Unit 3 in Mode 2, the MSIVs were opened at approximately 2000 on 5/4/2009. Since the 3C MSIV was not operable from the time it was opened until the time it closed, the above TS Action was not met. The 3C MSIV closed at approximately 0437 on 5/5/2009 and so it was inoperable and open for approximately 8 hours and 37 minutes.

The condition of the 3C MSIV being open and inoperable in Mode 2 is reportable in accordance with 10 CFR 50.73(a)(2)(i)(B):

- "Any operation or condition which was prohibited by the plant's Technical Specifications except when:
- (1) The Technical Specification is administrative in nature;
 - (2) The event consisted solely of a case of a late surveillance test where the oversight was corrected, the test was performed, and the equipment was found to be capable of performing its specified safety functions; or
 - (3) The Technical Specification was revised prior to discovery of the event such that the operation or condition was no longer prohibited at the time of discovery of the event."

The event does not meet any of the three exceptions for reporting in 10 CFR 50.73(a)(2)(i)(B) and so it is reportable.

The safety function of the MSIVs is as follows:

- The MSIVs provide isolation capability of the steam generators to establish control of fission products released to the secondary system from the primary system following a steam generator tube rupture event.
- The MSIVs provide isolation capability of the steam generators to limit steam release following main steam line break.

The 3C MSIV could not have performed its intended safety function of closing within 5 seconds of demand when required to be operable in accordance with TS 3.7.1.5. Therefore, its inoperability is reportable in accordance with 10 CFR 50.73(a)(2)(v)(C) and 10 CFR 50.73(a)(2)(v)(D):

- "Any event or condition that could have prevented the fulfillment of the safety function of structures or systems that are needed to:
- (A) Shut down the reactor and maintain it in a safe shutdown condition;
 - (B) Remove residual heat;
 - (C) Control the release of radioactive material; or
 - (D) Mitigate the consequences of an accident."

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ANALYSIS OF SAFETY SIGNIFICANCE

3C MSIV Drain Line Leak

The 3C MSIV drain line steam leak was discovered shortly after the MSIVs were opened. The piping is small bore and the unit was at a low power level (approximately 2%) when the MSIVS were opened thereby limiting leakage. Given the short exposure time of approximately 8 hours and 37 minutes, the safety significance of the leak is considered to be low.

3C MSIV Failure to Close on Demand

The 3C MSIV was inoperable when required to be operable for a period of approximately 8 hours and 37 minutes. For a period of approximately 9 hours, the Incremental Conditional Core Damage Probability (ICCDP) is 6.8E-11, and Incremental Conditional Large Early Release Probability (ICLERP) is 3.7E-11. These are both far below their respective NRC Significance Determination Process thresholds of 1E-6 for ICCDP and 1E-7 for ICLERP.

Additionally, had this condition existed under full power operations with full steam flow, the MSIV would have started to close on demand and the spring close mechanism and weight of the valve disc would have driven the MSIV disc into the flow stream. The force of the steam flow would have acted on the disc and assisted the closure of the MSIV during a main steam line break downstream of the MSIV. Interviews with the control room crew and shift manager on duty during the time of the event confirmed that the 3C MSIV went to the intermediate position with seconds of demand.

Given the minimal leak by from valve 3-5304 and the closure force of the steam flow, the volume of the lower chamber of the actuator would have reduced, raising the pressure in the lower part of the actuator above 250 psig causing the rupture disc to release. This would have released the pressure of the lower chamber of the cylinder allowing the MSIV to remain closed by the force of the instrument air acting on the upper part of the piston, for at least 1 hour.

In conclusion, based on the small values for ICCDP and ICLERP, this event is considered to be of low safety significance.

CORRECTIVE ACTIONS

3C MSIV Drain Line Leak

1. The 3C MSIV drain line was repaired. The chrome-moly fittings were replaced with carbon steel. Concrete in the area was removed to provide better access for the repair.
2. The 3A and 3B MSIV drain lines were examined for flaws. Repairs were needed to correct flaws on the 3B MSIV drain line.

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3C MSIV Failure to Close on Demand

Immediate Corrective Actions Taken

- ◆ An extent of condition review of sister valves for 3-5304 to ensure correct configuration was performed. The position of valves 3-5269 and 3-5234 was verified to be in the correct configuration.
- ◆ Line-up verifications of Instrument Air and Back-up Nitrogen for all Unit 3 MSIVs and Instrument Air for Unit 4 MSIVs were performed.
- ◆ A review was performed of outage work orders completed after safeguards testing that could have impacted safety functions of components to ensure that system line-ups and appropriate testing were completed.
- ◆ Cold stroke timing of Unit 3 MSIVs was performed prior to Mode 4. All MSIVs passed stroke timing satisfactorily.
- ◆ Hot stroke timing of Unit 3 MSIVs was performed in Mode 2. The 3C MSIV failed to stroke in the required time. CR 2009-14096 was written to document and evaluate the slow closure time. Throttle adjustments to meet the closure time were completed prior to Mode 1 and in accordance with TS requirements.

Corrective Action to Prevent Recurrence (CAPR)

Revise work package PMT identification and review practices to:

- Establish clearly defined roles between departments.
- Establish when in the work package development and review cycle separate departments provide input to PMT requirements.

Interim Corrective Actions

Until the CAPR is implemented, interim actions have been assigned to help ensure appropriate PMTs are assigned and reviewed.

Corrective Action for Contributing Causes

1. The PMT procedure was revised to require an IST timing stroke for components that could be affected by working passive throttle valves.
2. Passive valves that directly affect the safety function of IST components are being included in the IST program.
3. The event was reviewed with Maintenance personnel, including valve identification and other barriers that would have helped the journeymen and supervisor to identify the valve as "Throttled." Training of Maintenance personnel will be performed on expectations of a new independent verification sheet process to be developed.
4. Pre-outage training will be provided Operations personnel on when configuration control processes are applicable, and when any action is outside the domain of those processes.

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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

On 10/26/2007 (CR 2007-35199) a misposition event associated with valve 3-70-257A (3A EDG right side starting air isolation valve) occurred. The valve was found in the locked closed position vice the required locked open position. The evaluation identified that Turkey Point practice at that time required all valves to be locked after manipulation, even when out of normal configuration. The evaluation further identified that standard industry practice is to only lock a valve in the normal position. Corrective action revised procedures to change this practice to lock valves in the normal position only. This event is similar in that valve 3-5304 was locked in the closed position, however, the normal position is locked throttled. CR 2009-14296 has been initiated to address the potentially ineffective CAPR associated with CR 2007-35199. This event (CR 2009-13568) is considered to be a repeat occurrence with respect to the contributing human performance cause.