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JUN 2 6 2003

L-2003-124
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: 2003-006-00
Date of Event: April 28, 2003
Technical Specification Required Shutdown
Due to Inoperable Containment Isolation Valve

The attached Licensee Event Report 250/2003-006-00 is being submitted pursuant to the requirements of 10 CFR § 50.73(a)(2)(i)(A).

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

Very truly yours,

Terry O. Jones
Vice President
Turkey Point Nuclear Plant

OH

Attachment

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

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

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

Estimated burden per response to comply with this mandatory information 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 Management Branch (T-6 E6), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to bjs1@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 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.

# 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 | 05000 0250 | 1 OF 5 |

**4. TITLE**

Technical Specification Required Shutdown Due to Inoperable Containment Isolation Valve CV 3-200B

| 5. EVENT DATE | | | 6. LER NUMBER | | | 7. REPORT DATE | | | 8. OTHER FACILITIES INVOLVED | |
|---|---|---|---|---|---|---|---|---|---|---|
| MO | DAY | YEAR | YEAR | SEQUENTIAL NUMBER | REV NO | MO | DAY | YEAR | FACILITY NAME | DOCKET NUMBER |
| 04 | 28 | 2003 | 2003 | - 06 - | 00 | 06 | 26 | 03 | FACILITY NAME | DOCKET NUMBER |

| 9. OPERATING MODE | 1 |
|---|---|
| 10. POWER LEVEL | 100 |

11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)

| | | | | | |
|---|---|---|---|---|---|
| 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 Specify in Abstract below or in NRC Form 366A |
| 20.2203(a)(2)(iii) | | 50.46(a)(3)(ii) | | 50.73(a)(2)(v)(C) | |
| 20.2203(a)(2)(iv) | X | 50.73(a)(2)(i)(A) | | 50.73(a)(2)(v)(D) | |
| 20.2203(a)(2)(v) | | 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 – Licensing Engineer | (305) 246-6607 |

**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 |
|---|---|---|---|---|---|---|---|---|---|
| E | CB | ISV | | | | | | | |
| | | | | | | | | | |

| 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 April 28, 2003, at 1600 hours, with Unit 3 in Mode 1 at 100 percent rated thermal power, letdown containment isolation valve, CV-3-200B, was determined to be inoperable due to excessive seat leakage. A management decision was made to shutdown Unit 3 in order to effect the required repairs, and TS 3.6.4, Action Statement d. was entered. On April 28, 2003, at 21:09 hours, in accordance with plant operating procedures, a manual trip of the unit was performed from approximately 22 percent power. Following the manual reactor trip, all three turbine-driven auxiliary feedwater pumps started and all control rods fully inserted. The plant was stabilized in Hot Standby (Mode 3). A decision was made to remain in Mode 3, isolate CV-3-200B and comply with TS 3.6.4 Action Statement c. On April 29, 2003, at 0105 hours, CV-3-200B was isolated and Technical Specification Action Statement c. was met. CV-3-200B was repaired and declared operable on April 30, 2003, at 1925 hours, and TS 3.6.4 was exited. This event is reported per the requirements of 10CFR50.73(a)(2)(i)(A).

The cause of this event was due to leakage through the letdown isolation valves CV-3-200 A, B, and C due to wear of the valve stems, cages and plugs. Corrective actions included the repair of CV-3-200 A, B, and C letdown isolation valves. In addition, the Preventive Maintenance program will be reviewed and revised to improve the reliability of CV-3-200A, B and C valves.

The health and safety of the public were not affected by this event.

## LICENSEE EVENT REPORT (LER)

| FACILITY NAME (1) | DOCKET (2) | LER NUMBER (6) | | | PAGE (3) |
|---|---|---|---|---|---|
| | | YEAR | SEQUENTIAL NUMBER | REVISION NUMBER | |
| Turkey Point Unit 3 | 05000250 | 2003 | - 006 | - 00 | Page 2 of 5 |

NARRATIVE *(If more space is required, use additional copies of NRC Form 366A)* **(17)**

Event Description

On April 28, 2003, at 1600 hours, with Unit 3 in Mode 1 at 100% rated thermal power, a management decision was made to enter Technical Specification (TS) 3/ 4.6.4, Containment Isolation Valves, Action Statement d., which requires that the unit be in at least Hot Standby within 6 hours and in Cold Shutdown within the following 30 hours. This decision was made in order to effect repairs to an inoperable containment isolation valve, CV-3-200B [CB:ISV], due to excessive seat leakage. On April 28, 2003, at 18:35 hours, the Unit 3 commenced reactor shutdown. At 21:09 hours, in accordance with plant operating procedures, a manual trip of the unit was performed from approximately 22% power. Following the manual reactor trip, all three turbine-driven auxiliary feedwater pumps started and all control rods fully inserted. The plant was stabilized in Mode 3. A decision was made to remain in Mode 3 (Hot Standby), isolate CV-3-200B and comply with TS 3.6.4 Action Statement c. On April 29, 2003, at 0105 hours, CV-3-200B was isolated and Technical Specification Action Statement c. was met. CV-3-200B was repaired and declared operable on April 30, 2003, at 1925 hours, and TS 3.6.4 was exited. This event is reported per the requirements of 10CFR50.73(a)(2)(i)(A) due to a Technical Specification required shutdown of Unit 3.

System Description

In order to maintain the desired Reactor Coolant System (RCS) inventory, the Chemical and Volume Control System (CVCS) must be capable of making up and rejecting water from the RCS. To accomplish its design functions, a continuous charging and letdown balance is maintained between the RCS and the CVCS. Reactor coolant is letdown from a connection on Loop B cold leg. The letdown then flows through the letdown isolation valve, (LCV-3-460) and enters the shell side of a regenerative heat exchanger. Letdown flow then passes through one or more letdown orifices. There are three letdown orifices with two rated at 60 GPM and one rated at 45 GPM. The flow limiting orifices (RO-3-3434, 3435 and 3536) are installed upstream of the letdown isolation valves CV-3-200A, B and C. During normal operation any combination of letdown orifices can be used; however, letdown flow should not exceed 120 GPM. This restriction is based on the design limitations of the system heat exchangers, filters, and demineralizers. When RCS pressure is below normal (e.g., plant heatup), all orifices may have to be opened to obtain the desired system flow rate. The orifices are placed in and removed from service by opening or closing their respective downstream orifice isolation valves.

| Orifice | Isolation Valve |
|---|---|
| 45 GPM | 200A |
| 60 GPM | 200B |
| 60 GPM | 200C |

The charging system, in conjunction with the normal and excess letdown systems, is required to maintain and change pressurizer level as required for the following normal plant operating conditions: stable power operation; ramp load changes between 15% and 100%; and plant heatup and cooldown.

An alternate letdown flow path is provided in the event that the normal flow path is inoperable or inadequate. Reactor coolant is letdown from the intermediate leg of Loop A and flows through the tube side of the excess letdown heat exchanger. The excess letdown can be diverted to the Reactor Coolant Drain Tank (RCDT) via

3-way valve CV-3-389. Excess letdown is useful in preventing a high pressurizer water level in the event that a normal letdown isolation occurs and can not be quickly restored.

CVCS piping enters containment through six penetrations (Nos. 14, 15, 24 A/ B/ C, and 25). Normal letdown (penetration 14) and excess letdown/RCP seal water leakoff ( penetration 25) are provided with redundant, automatic isolation valves in series. Letdown isolation valves CV-3-200 A, B, and C are located inside containment. The letdown line passes through containment penetration 14, and continues through to containment isolation valve CV-3-204 located outside containment in the auxiliary building pipe and valve room. CV-3-204 isolation valve will automatically close on receipt of a Phase A containment isolation signal. Phase A isolation is initiated by a safety injection signal.

The letdown isolation valves CV-3-200 A, B, and C are designed to close automatically if:

1. Pressurizer level drops below 14%, or
2. Letdown isolation valve LCV-460 begins to close, or
3. Loss of control air or 125 VDC, or
4. Phase A containment isolation.

In addition, letdown isolation valve (CV-3-200C) can be manually operated by means of a hand wheel operator located on the top works of the valve.

Sequence of Events

On April 28, 2003, at 1600 hours, with Unit 3 in Mode 1 at 100% rated thermal power, Technical Specification (TS) 3.6.4, Containment Isolation Valves, Action Statement d. was entered due to an inoperable containment isolation valve, CV-3-200B. TS 3.6.4 Action Statement d. requires that the unit be in at least Hot Standby within 6 hours and in Cold Shutdown within the following 30 hours.

Prior to this event, on April 26, 2003 at 1350 hours, while preparing to perform a scheduled 3A charging pump inservice test (IST), a decrease in pressurizer level was observed due to a mismatch of charging and letdown flow. The 3A charging pump was supplying design flow but was insufficient to maintain pressurizer level stable. The pressurizer level decrease observed was approximately 7 GPM. The IST of the 3A charging pump was terminated upon a 1% decrease in pressurizer level and the CVCS was returned to a normal condition. Under normal plant conditions, a second charging pump would have been started to maintain pressurizer level.

A troubleshooting plan was developed to determine the cause of the event and identify required corrective actions. Troubleshooting performed after the decrease in pressurizer level observed on April 26, 2003, identified excessive leakage through the closed letdown isolation valves CV-3-200A, B, and C, causing the drop in pressurizer level. On April 28, 2003, at 1506 hours, an inspection team entered the Unit 3 containment to perform a visual inspection of the letdown orifice isolation valves CV-3-200A, B, and C. The scope of the investigation was to perform a series of visual inspections and stroke measurements to identify which valve(s) were leaking by. The inspection team found a gap between the valve bonnet and actuator frame on CV-3-200B due to loose actuator to bonnet locking lug cap screws. As a result of this inspection, the condition of

letdown valve CV-3-200B was deemed indeterminate and on April 28, 2003, at 1600 hours, CV-3-200B was declared inoperable. A management decision was made to shutdown Unit 3 in order to effect the required repairs, and TS 3.6.4, Action Statement d. was entered. At 21:09 hours, in accordance with procedures, a manual trip of the unit was performed from approximately 22% power. The plant was stabilized in Hot Standby (Mode 3). A decision was made to remain in Hot Standby and comply with TS 3.6.4 Action Statement c. by isolating CV-3-200B. On April 29, 2003, at 0105 hours, CV-3-200B was isolated and TS 3.6.4 Action Statement c. was met. CV-3-200B was repaired and declared operable on April 30, 2003, at 1925 hours, and TS 3.6.4 was exited. CV-3-200A and CV-3-200C were also inspected and overhauled to ensure the leak tightness of penetration 14.

Causes of Event

The cause of the drop in pressurizer level is attributed to excessive leakage through the closed letdown isolation valves CV-3-200A, B and C. The cause of the excessive leakage was attributed to wear on the valves' stems, cages and plugs due to a lack of a defined Preventive Maintenance Program for periodic maintenance of the letdown isolation valves. Upon inspection of the valves, CV-3-200B was declared inoperable and a management decision was made to enter TS 3.6.4 Action Statement d. to effect required repairs.

Analysis of Safety Significance

The letdown isolation valves CV-3-200A, B and C are containment isolation valves located inside containment, which automatically close on a containment isolation signal to mitigate the consequences of accidents that could result in potential offsite exposure comparable to the 10 CFR Part 100 guidelines. These valves are relied upon to mitigate accidents or transients and are used in plant emergency operating procedures. The valves are verified closed on loss of all AC power, and are cycled in response to a reactor trip and steam generator tube rupture. These valves are also used during natural circulation cooldown to maintain the desired letdown flow rate.

TS 3/4.6.4, Containment Isolation Valves, requires that isolation valves be tested to verify closure time is less than required isolation time. The results of the visual inspection performed as part of the troubleshooting plan rendered the letdown valve CV-3-200B status as indeterminate and as such it was declared inoperable. TS 3.6.4 Action Statement d. was entered in order to effect repairs to the valve.

TS 3.6.1.2, Containment Leakage, requires that the containment leakage rates be limited in accordance with the Containment Leakage Rate Testing Program as described in Administrative TS 6.8.4.h. The combined leakage rate (as-left and as-found) for all penetrations subject to Type B and C tests is required to be less than $0.6L_a$.

In accordance with TS 3.6.1.2 and the Containment Leakage Rate Testing Program, the required Local Leak Rate Test (LLRT) under containment pressure conditions was successfully performed on the letdown isolation valves CV-3-200A, B, and C during the Unit 3 Cycle 20 refueling outage. It should be noted that no work was done on these valves during the outage.

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NARRATIVE *(If more space is required, use additional copies of NRC Form 366A)* **(17)**

Following the refueling outage, an analysis of plant trends (eg. Letdown/Charging flow rates) at normal RCS operating temperature and pressure conditions, shows that there was no change in the performance of the letdown isolation valves since startup from the refueling outage. There was no evidence of any mechanism that could have caused further valve degradation since the refueling outage LLRT was performed. The plant remained in compliance with TS 3.6.1.2.

The cause of the event was excessive leakage of the letdown isolation valves CV-3-200 A, B, and C, when subjected to normal RCS temperature and pressure. The letdown isolation valves automatically close on a containment isolation signal to mitigate the consequences of accidents that could result in potential offsite exposure comparable to the 10 CFR Part 100 guidelines. The conditions under which the letdown containment isolation valves must automatically close are those under adverse containment pressure conditions, not normal RCS pressure conditions. Based on the discussion presented above, it was determined that the leakage experienced by the isolation valves during the April 28, 2003 event affected normal plant operations but did not exceed the TS containment leakage criteria; therefore, the consequences of accidents that could result in potential offsite exposure would not be affected. In addition, isolation of the letdown system is also accomplished by closure of CV-3-204, located outside containment. The CV-3-204 isolation valve will automatically close on receipt of a Phase A containment isolation signal, which is initiated by a safety injection signal. Therefore, the health and safety of the public were not affected by this event.

Corrective Actions

1. Letdown isolation valves CV-3-200A, B and C were repaired.

2. The Unit 4 letdown isolation valves CV-4-200A, B, and C will be inspected, assessed by diagnostic testing, and overhauled if required, during the Fall 2003 refueling outage. There is no current day indication of a degraded condition existing on Unit 4.

3. Engineering will review and develop an appropriate preventive maintenance program to improve the reliability of CV-3/4-200A, B and C valves. The Preventive Maintenance program will include monitoring and maintenance requirements.

Additional Information

A review of Turkey Point LERs indicates that no similar event has occurred in the past.

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