



South Texas Project Electric Generating Station P.O. Box 289 Wadsworth, Texas 77483

December 20, 2005
NOC-AE-05001949
10CFR50.73

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
One White Flint North
11555 Rockville Pike
Rockville, MD 20852

South Texas Project
Unit 2
Docket No. STN 50-499
Licensee Event Report 2005-06,
Missing Motor-Operated Valve T-Drains

Pursuant to 10 CFR 50.73(a)(2)(i)(B), STP Nuclear Operating Company submits the attached Unit 2 Licensee Event Report 2005-06 regarding missing T-drains in two motor-operated valves that rendered the systems inoperable.

This event did not have an adverse effect on the health and safety of the public.

There are no commitments contained in this event report. Resulting corrective actions will be implemented in accordance with the Corrective Action Program.

If there are any questions regarding this submittal, please contact S. M. Head at (361) 972-7136 or me at (361) 972-7800.

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Vice President, Generation
and Plant General Manager

jtc/

Attachment: LER 2005-06

STI: 31958774

IE22

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LICENSEE EVENT REPORT (LER)

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

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.

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4. TITLE
Missing Motor-Operated Valve T-Drains

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
10	18	2005	2005	- 006 -		12	20	2005		05000
									FACILITY NAME	DOCKET NUMBER
										05000

9. OPERATING MODE 6	11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR§: (Check all that apply)									
10. POWER LEVEL 000	<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 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 checked="" 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

FACILITY NAME John Conly	TELEPHONE NUMBER (Include Area Code) (361) 972-7336
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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

14. SUPPLEMENTAL REPORT EXPECTED <input type="checkbox"/> YES (If yes, complete 15. EXPECTED SUBMISSION DATE) <input checked="" type="checkbox"/> NO	15. EXPECTED SUBMISSION DATE	MONTH	DAY	YEAR

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

On October 18, 2005, with Unit 2 shut down for refueling, it was discovered that the Limitorque motor on valve 2-SI-MOV-0019C had ordinary pipe plugs installed in the two drilled holes designed to contain T-drains, which are required as part of the motor's environmental qualification. During the subsequent inspection of other Unit 2 MOVs, valve RA-MOV-0003 was discovered to have one ordinary pipe plug and one T-drain installed rather than the two required T-drains. It was determined that the condition was reportable because the lack of T-drains would have rendered the associated systems inoperable for a period of time in excess of that allowed in the Limiting Condition for Operation.

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

I. DESCRIPTION OF REPORTABLE EVENT

A. REPORTABLE EVENT CLASSIFICATION

This event is reportable pursuant to 10 CFR 50.73(a)(2)(i)(B) as a condition prohibited by Technical Specifications.

B. PLANT OPERATING CONDITIONS PRIOR TO THE EVENT

Unit 2 was shutdown and defueled at the time of discovery.

C. STATUS OF STRUCTURES, SYSTEMS, OR COMPONENTS THAT WERE INOPERABLE AT THE START OF THE EVENT AND THAT CONTRIBUTED TO THE EVENT

There were no structures, systems, or components that were inoperable at the start of the event that contributed to the event.

D. NARRATIVE SUMMARY OF THE EVENT, INCLUDING DATES AND APPROXIMATE TIMES

On October 18, 2005 at approximately 17:33, while performing a lubrication and inspection on valve 2-SI-MOV-0019C (SI-19C), Low Head Safety Injection Train C to Loop 2C Hot Leg Isolation Motor Operated Valve (MOV), the actuator motor was discovered with ordinary pipe plugs installed instead of the two required T-drains. During the subsequent inspection of other Unit 2 MOVs, valve 2-RA-MOV-0003 (RA-03), inside return isolation valve for Containment radiation monitor RT-8011, was discovered to have one ordinary pipe plug and one T-drain installed rather than the two required T-drains. This condition makes the valves inoperable and constitutes a Technical Specification violation. The purpose of the T-drains is to facilitate draining condensation from the motor in a harsh environment; hence, they are required as part of the motor's environmental qualification.

T-drains are ordinary pipe plugs with a drain path drilled up the plug centerline to the square head of the plug with an intersecting drain path drilled perpendicular to the plug centerline through two opposite faces of the square head.

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E. THE METHOD OF DISCOVERY OF EACH COMPONENT OR SYSTEM FAILURE, OR PROCEDURAL OR PERSONNEL ERROR

The T-drains were discovered to be missing in SI-19C during a lubrication and inspection activity. The T-drain missing from RA-03 was discovered during an extent of condition inspection after the SI-19C discovery.

II. COMPONENT OR SYSTEM FAILURES

A. FAILURE MODE, MECHANISM, AND EFFECTS OF EACH FAILED COMPONENT

There were no failed components.

B. CAUSE OF EACH COMPONENT OR SYSTEM FAILURE

There were no failed components.

C. SYSTEMS OR SECONDARY FUNCTIONS THAT WERE AFFECTED BY FAILURE OF COMPONENTS WITH MULTIPLE FUNCTIONS

There were no failed components.

D. FAILED COMPONENT INFORMATION

There were no failed components.

III. ANALYSIS OF THE EVENT

A. SAFETY SYSTEM RESPONSES THAT OCCURRED

Not applicable; the condition was discovered during planned maintenance.

B. DURATION OF SAFETY SYSTEM TRAIN INOPERABILITY

When the discrepancy was discovered, the paint on the pipe plugs installed in the SI-19C motor appeared to be intact (i.e., it appeared that the plugs had not been disturbed since the motor was painted at the factory). If ordinary pipe plugs were installed instead of T-drains at the factory, this condition has existed since motor replacement in March 1994.

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RA-03 was refurbished in March 1994 and it can only be postulated that the fact that there was only one T-drain installed in the motor was missed at that time.

C. SAFETY CONSEQUENCES AND IMPLICATIONS

This event is significant because the absence of T-drains in SI-19C make the valve inoperable per Technical Specifications 3.5.2 and 3.5.3. This event is also in non-conformance with the Generic Letter 89-10/96-05 Motor Operated Valve Program.

SI-19C is a normally-closed MOV that is opened by a manual signal during transfer to the hot-leg recirculation phase of loss of coolant accident (LOCA) mitigation. This allows the Safety Injection System (SIS) to inject borated coolant from the Containment sumps into a reactor coolant hot-leg to establish flow through the core to prevent boron precipitation if the LOCA is a cold-leg break. The first step in the procedure for transferring to hot-leg recirculation is to check that three SI trains are operable and the second step is to energize and open the hot-leg injection valve. If SI-19C does not open at this step, the operator then selects another train to establish hot-leg recirculation. Therefore, if the following events were to occur:

- plant operating at 100% power instead of being shutdown, cooled down, and depressurized
- large-break cold-leg LOCA
- SI-19C failed to open on demand

then either Train A or Train B would be lined-up for hot-leg recirculation. Thus, the failure of SI-19C to open would have no safety consequences.

RA-03 is a normally-open, inside Containment isolation MOV for the return from Radiation Monitor RT-8011 to the Containment atmosphere. The safety function of RA-03 is to close on an SI signal, a manual Phase A isolation signal, a high alarm on either of two RCB purge radiation monitors, or a manual containment spray actuation. Two Containment isolation valves are provided in series in the return line because the radiation monitoring system associated with RA-03 is connected directly to the Containment atmosphere. Therefore, if the following events were to occur:

- plant operating at 100% power instead of being shutdown, cooled down, and depressurized
- large break LOCA
- RA-03 failed to close on demand

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then RA-06 (the redundant outside Containment return isolation valve for RT-8011) would close and maintain Containment integrity. Thus, the failure of RA-03 to close would have no safety consequences.

IV. CAUSE OF THE EVENT

The exact root cause of the T-drains not being installed in SI-19C cannot be determined. The corrective actions resulting from LER 93-008, a previous occurrence of missing MOV T-drains, were inadequate to ensure that subsequent maintenance performed on the motors would include installation of the T-drains (i.e., ineffective corrective actions).

The root cause of the T-drains not being discovered missing in these two valve actuators since 1994 is the fact that instructional guidance did not emphasize the criticality of validating T-drains were installed when checking the T-drains as part of the "lube and inspect" activity. Assumptions were made that the T-drains were installed following completion of corrective actions associated with LER 93-008. As such, focus was placed on the aspects of functionality.

V. CORRECTIVE ACTIONS

1. Implement programmatic guidance by enhancing procedural guidance used to install motors on MOVs to require verifying T-drains are properly installed each time a motor is removed/installed on Harsh Environment MOVs (i.e., remove the option of having a T-drain inspection in the work package).
2. Revise 0PMP05-ZE-0312 to require craft personnel to physically remove and inspect the T-drains on MOV motors during the course of this PM or make the step to require dual verification.
3. Conduct requalification training for MOV group craft personnel on:
 - The Lessons Learned from this event
 - Management expectations regarding proper use of written instructions
 - The justification for Environmental Qualification requirements of the equipment they maintain
4. Include the Lessons Learned from this event in I&C, Mechanical, and Electrical Maintenance requalification training.
5. Submit appropriate feedback to the Contracts Department on the performance problems of contract MOV personnel associated with this event.

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6. Train contract MOV personnel prior to 1RE13 on:

- The Lessons Learned from this event.
- Management expectations regarding proper use of written instructions.
- The justification for and importance of Environmental Qualification requirements of the equipment they maintain.

7. Implement the discipline program protocol with STPNOC individuals involved.

REMEDIAL ACTIONS

1. The required T-drains were installed in SI-19C and RA-03.
2. An inspection of all accessible harsh environment MOVs in both units was completed on October 22, 2005. The Unit 1 MOVs located inside the missile barrier will be inspected during 1RE13.

VI. PREVIOUS SIMILAR EVENTS

LER 2-93-008 (event date May 5, 1993)