

November 15, 2005

U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Attention: Document Control Desk

Subject: McGuire Nuclear Station, Units 1 and 2
Docket No. 50-369
Licensee Event Report 369/2005-03, Revision 0
Problem Investigation Process (PIP) M-05-04128

Pursuant to 10 CFR 50.73, Sections (a)(1) and (d), attached is Licensee Event Report (LER) 369/2005-03, Revision 0.

On September 20, 2005, McGuire Nuclear Station identified a historical condition concerning refilling ice condenser baskets during core alterations on Units 1 and 2 which was prohibited by the plant's Technical Specifications.

This report is being submitted in accordance with 10 CFR 50.73 (a)(2)(i)(B). This event was determined to be of no significance to the health and safety of the public. There are no regulatory commitments contained in the LER.



G. R. Peterson

Attachment

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cc: W. D. Travers
U. S. Nuclear Regulatory Commission
Regional Administrator, Region II
Atlanta Federal Center
61 Forsyth St., SW, Suite 23T85
Atlanta, GA 30303

R. E Martin (Addressee Only)
NRC Project Manager (McGuire)
U. S. Nuclear Regulatory Commission
Mail Stop 8-G9A
Washington, DC 20555-0001

J. B. Brady
Senior Resident Inspector
U. S. Nuclear Regulatory Commission
McGuire Nuclear Site

Beverly O. Hall, Section Chief
Radiation Protection Section
1645 Mail Service Center
Raleigh, NC 27699-1645

LICENSEE EVENT REPORT (LER)

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

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 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 McGuire Nuclear Station, Unit 1	2. DOCKET NUMBER 05000 369	3. PAGE 1 OF 6
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4. TITLE
Containment Closure Requirements Not Met During Core Alterations

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
9	20	2005	2005	- 003 -	00	11	15	2005	FACILITY NAME	DOCKET NUMBER

9. OPERATING MODE 5	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)						
10. POWER LEVEL 0	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)						
[REDACTED]	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)	50.73(a)(2)(i)(A)	50.73(a)(2)(v)(D)	[REDACTED]						
	20.2203(a)(2)(v)	X 50.73(a)(2)(j)(B)	50.73(a)(2)(vii)							
	20.2203(a)(2)(vi)	50.73(a)(2)(j)(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 Lee A. Hentz, Regulatory Compliance	TELEPHONE NUMBER (Include Area Code) 704-875-4187
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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		
YES (If yes, complete 15.EXPECTED SUBMISSION DATE).	X	NO				

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

Unit Status: At the time this historical condition was identified, Unit 1 was in Mode 5 (Cold Shutdown) at 0 percent power and Unit 2 was in Mode 1 (Power Operation) at 100 percent power.

Event Description: In September 2005, the historical practice of re-filling the Ice Condenser ice baskets by blowing ice through a containment penetration during refueling outages was reviewed as a transportability corrective action from Problem Investigation Process (PIP) M-05-1608 and LER 370/2005-03. It was concluded that this practice did not meet Technical Specification (TS) 3.9.4 LCO requirements when performed during core alterations or fuel movement and thus represented an operation prohibited by McGuire's Technical Specifications. McGuire interprets TS 3.9.4 to only allow the Containment Purge (VP) system penetrations to provide direct access from the containment atmosphere to the outside atmosphere during core alterations or fuel movement. This event was not significant with respect to the health and safety of the public.

Event Cause: The cause for this historical condition was the use of a non-conservative interpretation of TS 3.9.4 when the safety evaluation for this practice was originally performed.

Corrective Actions: All affected procedures were revised to prohibit opening the ice blowing containment penetration during core alterations or fuel movement.

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

BACKGROUND

Applicable Energy Industry Identification (EIIS) system and component codes are enclosed within brackets. McGuire unique system and component identifiers are contained within parentheses.

The ice condenser [COND] (NF) is an insulated cold storage area in which ice is maintained in an array of vertical cylindrical columns in the form of perforated metal baskets. The spaces between the ice baskets form the flow channels for steam and air. The ice condenser is contained in the annulus formed by the containment vessel wall and the crane wall over a 300 degree arc. The ice condenser's primary function is the absorption of thermal energy released abruptly in the event of a loss of coolant accident (LOCA) or a secondary line break for the purpose of limiting the initial peak pressure in containment.

The purpose of the ice conveyor subsystem [BC] (NF) is to transport new ice from the auxiliary building to the ice condenser for ice basket replenishment during refueling outages. An ice delivery valve feeds ice into a stream of chilled compressed air produced by a blower [BLO] which transports the ice through a temporarily erected hose and a containment penetration to the ice condenser area. A ball valve [ISV] is also installed at the penetration which is manually closed when the ice blowing process is not in operation.

The purpose of the Containment Purge Ventilation System [VA] (VP) is to reduce the airborne radioactivity levels in Containment by purging the containment atmosphere to the environment via the unit vent during refueling when periods of personnel access are required. Two carbon filter units [FLT] (HEPA) are included in the system to aid in reducing the airborne radioactivity levels. The VP system helps to mitigate the consequences of a fuel handling accident (FHA) in the containment but is not required to be in operation provided the containment penetrations are closed.

Technical Specification (TS) 3.9.4, Refueling Operations, Containment Penetrations requires in part that during core alterations or movement of irradiated fuel assemblies within containment, each penetration providing direct access from the containment atmosphere to the outside atmosphere either be closed by a manual or automatic isolation valve, blind flange, or equivalent, or exhausting through an operable Containment Purge Exhaust System HEPA filter and carbon adsorber.

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EVENT DESCRIPTION

At the time this historical condition was identified, McGuire Unit 1 was in Mode 5, cold shutdown, and Unit 2 was in Mode 1 at 100% power. No systems, structures, or components were out of service at the time of this event which contributed to this event.

In September 2005, the historical practice of re-filling the Ice Condenser ice baskets by blowing ice through a containment penetration during refueling outages was reviewed as a transportability corrective action from Problem Investigation Process (PIP) M-05-1608. This practice started in 1989 on both McGuire Units. PIP M-05-1608 documents LER 370/2005-03 and the cause for the operation of the Containment Air Release and Addition system during fuel movement event (containment closure requirements not met during core alterations).

The review was performed to determine if the ice blowing practice was also an operation prohibited by TS 3.9.4 if performed during core alterations or fuel movement. The ice delivery valve and the blower were attempted to be qualified as an "equivalent isolation method" as currently allowed by TS 3.9.4 (material boundary). The blower produces a low pressure, cold air stream which transports the ice to containment. The rotary air lock valve feeds ice into the cold air stream. These two components are basically a solid material with the exception of close tolerances for the rotating components. But a bypass line was discovered between the blower discharge and the open suction which was used for pressure control and to cool the blower. This line would represent an unblocked atmospheric opening from containment back to the auxiliary building. Therefore, it was concluded that the ice blowing practice did not meet TS 3.9.4 LCO requirements when performed during core alterations or fuel movement and thus represented an operation prohibited by McGuire's Technical Specifications. TS 3.9.4 only allows VP system penetrations to provide direct access from the containment atmosphere to the outside atmosphere during core alterations or fuel movement.

In 1989, the maintenance procedure revision to allow ice blowing into containment during core alterations and fuel movement was developed and supported by a safety evaluation as documented in calculation MCC-1503.13-00-0201. This evaluation relied on the positive pressure of the ice delivery blower or closure of a ball valve at the penetration as a contingency to maintain containment integrity. It was stated that as long

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as this process exhausted through the VP exhaust system, TS 3.9.4 LCO was met. With the ball valve at the penetration closed, TS 3.9.4 LCO was also fully satisfied. The Fuel Handling Accident (FHA) in Containment dose analysis was reviewed and was determined to be unaffected by this evolution.

TS 3.9.4 in 1989 was the pre-"Improved Tech Specs" (ITS) version but was basically the same as the current Technical Specification with the exception of the expanded and highly detailed Bases section. Without any detailed clarifications or interpretations in the pre-ITS TS 3.9.4 Bases, it was assumed that a containment penetration could be open as long as no air exhausted through that penetration AND the VP exhaust system was in operation.

As stated above, the current LCO for TS 3.9.4 is very similar to the pre-ITS version but the new Bases provide extensive detail as to how to interpret the LCO and Surveillances. The Bases Background discusses VP system operation during fuel movement and then goes on to state: "The other containment penetrations that provide direct access from containment atmosphere to outside atmosphere must be isolated on at least one side." This is currently interpreted at McGuire that only the VP penetrations can provide direct access from the containment atmosphere to the outside atmosphere during core alterations or fuel movement. The current dose analysis for an FHA in Containment assumes the VP System is in operation and credits the VP filters to limit radioactivity. All other atmospheric penetrations are assumed to be closed. The act of closing the ball valve at the Containment penetration as the contingency also does not meet the Tech Spec LCO or the Surveillances.

CAUSAL FACTORS

The cause for this historical condition was the use of a non-conservative interpretation of TS 3.9.4 in the 1989 safety evaluation for the ice blowing evolution. McGuire's current interpretation of TS 3.9.4 LCO is that only the VP penetrations can provide direct access from the containment atmosphere to the outside atmosphere during core alterations or fuel movement.

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CORRECTIVE ACTIONS

1. The Containment Closure and Integrity procedures, PT/1&2/A/4200/002C, were revised to prohibit opening this penetration during core alterations or fuel movement.
2. The Installation and Operation of Ice Blowing Equipment and Penetration procedure, MP/0/A/7150/092, was revised to prohibit ice blowing during core alterations or fuel movement.

Note: The 10 CFR 50.59 process at McGuire has fundamentally changed and improved since the 1989 safety evaluation (50.59) was performed. Therefore, the corrective actions associated with this cause were focused on barrier actions versus 10 CFR 50.59 process and training improvements.

SAFETY ANALYSIS

From a Probabilistic Risk Assessment (PRA) perspective, shutdown risk assessments focus on a loss of decay heat removal. Although a loss of decay heat removal did not occur, it was considered in concert with the ice blowing process to assess how the event affects public health risk. The occurrence of a loss of decay heat removal during the ice blowing process does not represent a significant increase in risk. Isolating the penetration would not have been time critical during refueling operations due to the extended period of time to core boiling and uncovering with greater than 23 feet of water above the Reactor Vessel flange. Also, the risk of a loss of decay heat removal accident while this penetration was open was low. The penetration was capable of manual isolation during this time period. The penetration could be closed using the ball valve or by disconnecting the ice delivery system and installing a blind flange. Adequate time was available to perform either evolution due to the extended period of time to core boiling and uncovering as a result of a loss of decay heat removal.

VP system filtration is credited in the current McGuire Design Basis Fuel Handling Accident Radiological Analysis reflected in UFSAR Chapter 15. In the event of a fuel handling accident in containment during the ice blowing process, initial releases would be made through the filtered VP system as

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has been modeled in the current analysis. These results are below the regulatory limits and the plant did not operate outside its design or licensing basis.

Therefore, there was no impact to the health and safety of the public or plant personnel.

ADDITIONAL INFORMATION

As previously stated, a similar condition was reported by McGuire LER 370/2005-03 dated May 26, 2005 regarding a containment air release during core alterations. This ice blowing condition was discovered as a result of corrective actions from the event reported in May 2005. No other occurrences of containment closure issues have been identified.

Corrective Action 11 from PIP M-05-1608 documents a complete review of the Containment Closure and Integrity procedures, PT/1&2/A/4200/002C, for potential conflicts with TS 3.9.4. No other issues were identified with the exception of this ice blowing containment penetration.