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

Subject: McGuire Nuclear Station, Units 2
Docket No. 50-370
Licensee Event Report 370/2005-03, Revision 0
Problem Investigation Process (PIP) M-05-01608

Pursuant to 10 CFR 50.73, Sections (a)(1) and (d), attached is Licensee Event Report (LER) 370/2005-03, Revision 0, concerning a Containment air release during core alterations on McGuire Unit 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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NRC FORM 366 (6-2004) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104 EXPIRES 06-30-2007

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.

LICENSEE EVENT REPORT (LER)

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

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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
3	28	2005	2005	- 003 -	00	5	26	2005	FACILITY NAME	DOCKET NUMBER

9. OPERATING MODE	6
10. POWER LEVEL	0

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)	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)
Lee A. Hentz, Regulatory Compliance	704-875-4187

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
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 of the event, Unit 1 was in Mode 1 (Power Operation) at 100 percent power and Unit 2 was in Mode 6 (Refueling) at 0 percent power.

Event Description: On March 28, 2005, during core alterations on McGuire Unit 2, the Containment Air Release and Addition System (VQ) was aligned to reduce Containment pressure. This became necessary because the Containment Purge Ventilation System (VP) was temporarily out of service and isolated. Since Technical Specification (TS) 3.9.4 only allows the VP System to provide direct access from the Containment atmosphere to the outside atmosphere during core alterations or movement of irradiated fuel assemblies, this activity represented an operation prohibited by McGuire's Technical Specifications. This event was not significant with respect to the health and safety of the public.

Event Cause: The cause of this event was omission of relevant information in the VQ System operating procedure and the Bases for TS 3.9.4. Also, an inadequate procedure revision was performed in 2001 on the Containment Closure and Integrity procedure. This revision allowed the VQ System to be inservice during core alterations.

Corrective Actions: The Containment Closure and Integrity procedure for both units was placed on hold. All relevant procedures will be revised to prohibit VQ operation during the applicable modes of TS 3.9.4. TS Bases 3.9.4 will be revised to clarify the use of automatic isolation valves.

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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 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 control the consequences of a fuel handling accident in the Containment but is not required to be in operation provided the Containment penetrations are closed.

The purpose of the Containment Air Release and Addition System [BF](VQ) is to maintain Containment pressure between the Technical Specification limits of -0.3 to +0.3 psig. Increases in pressure during normal operation are controlled by venting the Containment through the VQ System filters [FLT]. Prior to release, the Containment atmosphere is sampled and analyzed. Based on station air release limits, valve 2 VQ-4 [FCV] is regulated to the desired purge rate and exhausts air to the unit vent. The VQ System does not contain any blowers [FAN]. The pressure differential between the outside atmosphere, Containment, and the Auxiliary Building produces natural flow. The VQ System filters are not credited in any radiological dose analyses.

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.

EVENT DESCRIPTION

At the time this condition was identified, McGuire Unit 2 was in Mode 6, refueling operations, and Unit 1 was in Mode 1 at 100% power. The Unit 2 VP System was out of service. No other systems, structures, or components were out of service at the time of this event which contributed to this event.

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In 2001, a revision was made to the Containment Closure and Integrity procedure, PT/1&2/A/4200/002C, to allow the VQ System penetrations to be in service in Modes 5 and 6 for operational flexibility.

On March 28, 2005 McGuire was performing the Unit 2 Reactor core reloading evolution with the VP System in operation as is the normal practice.

At approximately 1638, it was communicated to the control room that the VP System had unexpectedly tripped. It was determined that the VP System had been tripped since 1600.

At approximately 1640, core reloading was suspended to troubleshoot the VP System problem and to review the requirements of TS 3.9.4.

At approximately 1815, core reloading was resumed after it was determined that TS 3.9.4 allowed core alterations or irradiated fuel movement without the VP System in service provided Containment Closure was in effect.

At approximately 2250, it became necessary to reduce Containment pressure (high pressure alarm received). Since the VP System was shutdown and all atmospheric penetrations were closed, Containment pressure was slowly increasing. After reviewing the applicable procedures and TS 3.9.4, it was determined to be acceptable to perform a VQ System release. The VQ System was aligned for a release through the VQ filters and out the unit vent.

On March 29 at approximately 0120, the Containment air release through the VQ System was terminated. The filtered release volume was 9,430 cubic feet of air with a duration of 2 hours and 30 minutes.

At approximately 0130, the VP System was returned to service following the replacement of a blown fuse.

At approximately 1340, Problem Investigation Process (PIP) M-05-01608 was written to evaluate the acceptability of performing a VQ System release during core alterations.

On April 4, 2005, a thorough review of TS 3.9.4 Bases and the UFSAR determined that only the VP system can provide direct access from the Containment atmosphere to the outside atmosphere during core alterations so a VQ System release represented an operation prohibited by McGuire's Technical Specifications.

CAUSAL FACTORS

Three causes were identified for this event:

1. The Containment Air Release and Addition System Operating Procedure, OP/2/A/6450/017, was performed during a time when Containment Closure was required by TS 3.9.4 due to the omission of relevant information.

This operating procedure did not contain an initial condition that would have prohibited performing an air release using the VQ System from Containment during core alterations or movement of irradiated fuel assemblies within Containment. A six year historical review of procedure revisions revealed that no such initial condition had existed.

2. An inadequate procedure revision was made to the Containment Closure and Integrity procedure, PT/1&2/A/4200/002C, in 2001 to allow the VQ System penetrations to be in service.

Discussions with personnel involved with the procedure revision revealed that this was thought to be an administrative change only and the intent of the procedure did not change nor did the method of maintaining Containment closure. Also, an adequate review of the UFSAR or Technical Specifications was not performed.

3. TS 3.9.4 and its Bases state that Containment Closure can be performed by an OPERABLE automatic isolation valve. This was interpreted as allowing a penetration, such as VQ, to be open as long as the associated valve was fully capable of automatic closure. This was determined to be an omission of relevant information in the TS Bases.

The term "automatic" isolation valve was added to TS 3.9.4 during the conversion to Improved Technical Specifications based upon the approved Westinghouse Standardized Technical Specifications. The LCO of TS Bases 3.9.4 requires any penetration providing direct access from the Containment atmosphere to the outside atmosphere to be closed except for those exhausting through the VP System filters. The McGuire dose analysis for a Fuel Handling Accident in Containment does not assume an automatic isolation of the VP System but credits the VP System filters to limit radioactivity. All other atmospheric penetrations are assumed to be closed.

CORRECTIVE ACTIONS

Immediate:

1. PT/1&2/A/4200/002C were placed on technical hold.

Planned:

1. Revise OP/1&2/A/6450/017 to prohibit VQ System operation during the applicable modes of TS 3.9.4.

2. Revise PT/1&2/A/4200/002C to prohibit the VQ System penetrations to be in service during the applicable modes of TS 3.9.4.

Note: The 10 CFR 50.59 process at McGuire has fundamentally changed and improved since the 2001 revision to this procedure was performed. Therefore, the corrective action associated with this cause was focused on barrier actions versus 10 CFR 50.59 process and training improvements.

3. Revise TS Bases 3.9.4 to explicitly state that if an automatic isolation valve is used to satisfy Containment Closure, it must be a closed automatic isolation valve.

SAFETY ANALYSIS

The VQ System isolation valves are required to close on a Containment isolation signal in Modes 1 through 4 to mitigate the radiological effects of a loss of coolant accident (LOCA). At the time of this event, the VQ System isolation valves were capable of automatic or manual closure. The Containment Closure and Integrity procedure had required the Containment radiation monitors to be available to provide an isolation signal in the event of a fuel handling accident (FHA). In addition, the VQ System filters, which consist of a particulate filter, absolute filter, and a carbon adsorber, were available to filter a release if necessary. Although there filters are not tested for efficiency, they are routinely inspected and replaced.

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 VQ System

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air release to assess how the event affects core damage frequency. Results show that the occurrence of a loss of decay heat removal while performing a Containment air release with the VQ System does not represent a significant increase in risk. Isolating the VQ penetrations would not have been time critical during refueling operations due to the extended period of time to core boiling and uncovery 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 atmospheric penetration was open was very low.

The release from the VQ system during core alterations is bounded by the release modeled in the Design Basis Radiological Consequences Analysis of the Fuel Handling Accident (FHA). The VQ system release rate during this period was determined to be approximately 63 cubic feet per minute (cfm). The VP system exhaust flow rate during fuel movement is approximately 21,000 cfm so the VQ release was small in comparison to the release modeled in the FHA. Also, even if this small VQ release was considered to be unfiltered, it would not be considered significant and would be within the guideline values specified in 10 CFR 100.

Therefore, at no time were the health and safety of the public or plant personnel affected as result of this event.

ADDITIONAL INFORMATION

A review of the electronic Control Room logs was performed since the Containment Closure procedure change was made in 2001. Six refueling outages, three per unit, have been completed since January 2001. The Control Room logs were reviewed each time the unit entered Mode 6 to perform refueling and core alterations when Technical Specification 3.9.4 would be applicable. No other occurrences of Containment air releases using the VQ System were found. Therefore, this event is not recurring.