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January 7, 1991

U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, D.C. 20555

Subject: McGuire Nuclear Station Unit 1 and 2
Docket No. 50-369
Licensee Event Report 369/90-34

Gentlemen:

Pursuant to 10 CFR 50.73 Sections (a)(1) and (d), attached is Licensee Event Report 369/90-34 concerning a Technical Specification 3.0.3 entry involving the Control Area Ventilation System. This report is being submitted in accordance with 10 CFR 50.73(a)(2)(i). This event is considered to be of no significance with respect to the health and safety of the public.

Very truly yours,

Tom L. McConnell
T.L. McConnell

DVE/ADJ/cbl

Attachment

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Handwritten initials/signature

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) McGuire Nuclear Station, Unit 1 DOCKET NUMBER (2) 0 5 0 0 0 3 6 9 1 OF 15 PAGE (3)

TITLE (4) Technical Specification 3.0.3 Was Voluntarily Entered To Perform A Change Out Of Filters On Both Trains Of The Control Area Ventilation System

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)								
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAMES	DOCKET NUMBER(S)							
1	2	0	9	0	3	4	0	1	0	7	9	1	0	0	3	7	0
									McGuire Unit 2	0 5 0 0 0 3 7 0							

OPERATING MODE (9) 1 THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5 (Check one or more of the following) (11)

POWER LEVEL (10) 0 9 8	20.402(b)	20.406(i)(1)(ii)	20.406(i)(1)(iii)	20.406(i)(1)(iv)	20.406(i)(1)(v)	20.406(i)(1)(vi)	20.406(i)(1)(vii)	20.406(i)(1)(viii)	20.406(i)(1)(ix)	50.73(a)(2)(iv)	50.73(a)(2)(v)	50.73(a)(2)(vi)	50.73(a)(2)(vii)(A)	50.73(a)(2)(vii)(B)	50.73(a)(2)(ix)	73.71(b)	73.71(c)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)
							X											

LICENSEE CONTACT FOR THIS LER (12) Alan Sipe, Chairman, McGuire Safety Review Group TELEPHONE NUMBER 7 0 4 8 7 5 - 4 1 8 3

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC

SUPPLEMENTAL REPORT EXPECTED (14) YES (If yes, complete EXPECTED SUBMISSION DATE) NO X

EXPECTED SUBMISSION DATE (15) MONTH DAY YEAR

ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single space typewritten lines) (16)

On December 6, 1990, at 1057, Operations (OPS) personnel declared both trains of the Control Area Ventilation (VC) system inoperable. This was due to normal maintenance being performed on the system requiring the personnel access door associated with the common ductwork plenum for both air handling units to be opened for longer than 20 seconds. OPS personnel logged Unit 1 into Technical Specification 3.0.3 and suspended any reactivity changes to Unit 2. At 1239, OPS personnel were informed that the maintenance work had been completed and the plenum access door closed. Subsequently, OPS personnel declared the VC system operable, logged Unit 1 out of Technical Specification 3.0.3 and removed the restriction from Unit 2. This event has been assigned no cause since the activity was agreed upon in advance by Station Management personnel. Unit 1 was in Mode 1 (Power Operation), at 100 percent power at the time of this event and Unit 2 was in Mode 5 (Cold Shutdown). This maintenance was being performed using an approved procedure. A design study has been initiated to identify appropriate modifications or Technical Specification changes that would allow maintenance of this type to be performed without entry into Technical Specification 3.0.3.

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TEXT (If more space is required, use additional NRC Form 366A's) (17)

EVALUATION:

Background

The Control Area Ventilation (VC) [EIIS:VI] and Chilled Water (YC) [EIIS:KM] systems are designed to maintain the environment in the Control Room [EIIS:NA], Control Room Area, and Switchgear [EIIS:SWGR] Room, within acceptable limits for safe occupancy of the Control Room during plant operations and following post accident shutdown. Based on these criteria, the system is designed as an Engineered Safety Features (ESF) system with absolute and carbon filtration in the outside air intakes and with equipment redundancies for use as conditions require.

Two 100 percent redundant air handling systems are provided for the Control Room, Switchgear Rooms, and the Control Room Area (equipment rooms, cable [EIIS:CBL] room, battery [EIIS:BY] room, etc.). The air handling units [EIIS:AHU] are provided with chilled water from the YC system. The Nuclear Service Water (RN) [EIIS:BI] system provides the cooling water for the chiller condenser [EIIS:COND] on the YC system. Two Control Room pressurization fans [EIIS:FAN] and filter [EIIS:FLT] trains are provided for pressurization of the Control Room, to prevent entry of dust, dirt, smoke, radioactivity, etc., originating outside the Control Room. Air filtration is provided by prefilters on all air handling units. Instruments are provided for temperature control and indication, and to indicate radioactivity levels. Smoke alarms [EIIS:ALM] are also provided.

Technical Specification (TS) 3/4.7.6 includes requirements that in Mode 1 (Power Operation), Mode 2 (Startup), Mode 3 (Hot Standby), and Mode 4 (Hot Shutdown), with one train of the VC/YC system inoperable, the inoperable train must be restored to operable status within seven days or be in at least Hot Standby within the next six hours, and in Cold Shutdown within the next thirty hours. With both trains of VC/YC system inoperable, with the unit in Mode 1, the specified action is to comply with TS 3.0.3. TS 3.0.3 requires that within 1 hour action must be initiated to place the unit in a Mode in which the TS does not apply. TS 3.7.6 applies to Unit 1 and Unit 2 because the VC/YC system is shared. TS 3.7.6 also includes requirements that in Mode 5 (Cold Shutdown), and Mode 6 (Refueling), with both trains of the VC/YC system inoperable, core alterations or positive reactivity changes must be suspended.

McGuire Problem Investigation Report 0-M90-0324, dated November 13, 1990, noted that during normal maintenance functions associated with the Control Room Area Air Handling units (CR-AHU-1 and CR-AHU-2) a common ductwork [EIIS:DUCT] plenum is entered through a single access door [EIIS:DR]. Opening of the door allows unfiltered air into the Control Room. The resolution to this potential problem states the following:

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TEXT (If more space is required, use additional NRC Form 366A's) (17)

Resolution

Normal maintenance entry to the VC system plenum can be made with the plenum door opened less than or equal to 20 seconds at one time. No prior contact with the Control Room is necessary, if the maintenance personnel can verify that there is no accident signal prior to each opening of the door. Control Room dose calculations assume that 20 seconds after accident initiation, the Control Room is not pressurized and unfiltered inleakage is occurring. This is documented in calculations MCC-1227.00-00-0002 rev. 1 and MCC-1227.00-00-0032 rev. 3. Accident calculations assume instantaneous transport without identifying a transport means. Opening the access door to the Control Room Ventilation plenum is acceptable during non accident conditions since no control on inleakage is normally in place prior to an accident signal, and 20 seconds is allowed for the Control Room Ventilation system to achieve proper alignment and establish pressure in the Control Room. The open access door will not prevent the Control Room from pressurizing with filtered air in the normal amount of time as long as it is closed within 20 seconds.

Description of Event

On December 6, 1990, Mechanical Maintenance (MM) personnel were preparing for the normal changeout of Prefilter Elements and Varicell Filter Elements on 1A and 1B Control Room Air Handling Units. During the performance of this task it was necessary to open the personnel access door associated with the common ductwork plenum to access the filter elements. This work is performed using procedure MP/0/A/7450/16, VC Filter Removal And Replacement.

At 1050, MM personnel notified Operations (OPS) personnel in the Control Room that the access door would be opened for more than 20 seconds and both VC trains would be inoperable. Subsequently, at 1057, OPS personnel declared both trains of the VC system inoperable, logged Unit 1 into Technical Specification 3.0.3, and suspended any reactivity changes on Unit 2.

MM personnel then proceeded to remove the old Prefilter Elements and Varicell Filter Elements from the air handling units, inspect the filter frames, and install new Prefilter Elements and Varicell Filter elements per the procedure.

At 1239, MM personnel notified OPS personnel in the Control Room that the filter elements had been replaced, and that the personnel access door had been closed. Therefore, OPS personnel declared both trains of the VC system operable, logged Unit 1 out of Technical Specification 3.0.3, and removed the restriction from Unit 2.

Conclusion

No cause has been assigned to this event since the activity was agreed upon in advance. This event is being reported because Unit 1 voluntarily entered

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into Technical Specification 3.0.3 since both trains of the VC system were technically inoperable. This was necessary to allow performance of procedure MP/O/A/7450/16, VC Filter Removal And Replacement. It was determined as a resolution to McGuire Problem Investigation Report O-M90-36, dated November 13, 1990, that the plenum access door cannot stay open longer than 20 seconds. Control Room dose calculations show that 20 seconds after an accident initiation, with the Control Room not pressurized and unfiltered inleakage occurring, GDC 19 dose limits would be exceeded. During performance of MP/O/A/2450/16 the plenum access door was opened several times exceeding the 20 second time limit to perform the work.

This activity was agreed upon in advance by Station Management personnel. The task was properly managed. All appropriate notifications were made when the unit was entered into Technical Specification 3.0.3. During the time when the VC system was inoperable, OPS Control Room personnel were fully aware of the situation and no events occurred requiring them to take further action. The maintenance was performed in a controlled and orderly manner. Therefore, MM and OPS personnel involved would have been able to take appropriate actions as required to mitigate any problems requiring VC system operation to be restored. A design study has been initiated to identify appropriate modifications of Technical Specification changes that would allow maintenance of this type to be performed without entry into Technical Specification 3.0.3.

A review of the Operating Experience Program data base for the previous 24 months prior to this event revealed 2 LERs documenting entering Technical Specification 3.0.3 voluntarily to perform required actions. These were LERs 369/89-06 and 370/89-11; however, neither of these involved the VC system or the performance of filter change outs. While previous filter changeouts have undoubtedly had the access door open for greater than 20 seconds, the problem was not previously identified as reportable but would have been recurring.

This event is not Nuclear Plant Reliability Data System (NPRDS) reportable.

There were no personnel injuries, radiation overexposures, or releases of radioactive material as a result of this event.

CORRECTIVE ACTIONS:

Immediate: None

Subsequent: MM personnel reclosed the personnel access door.

Planned: Design Engineering personnel will evaluate the situation and initiate appropriate modifications or Technical Specification changes that would allow the access door to be opened for greater than 20 seconds without entry into Technical Specification 3.0.3.

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TEXT: If more space is required, use additional NRC Form 366A (17)

SAFETY ANALYSIS:

The design requirements of the VC system are to supply filtered air at a controlled temperature and humidity to the Control Room and to pressurize the Control Room to prevent inleakage of unfiltered air. The VC system helps ensure that doses to Control Room personnel are Low As Reasonably Achievable and in the event of a design based accident, the VC system acts to limit Control Room operator dose to less than General Design Criterion 19 limits, i.e., less than 5 Rem whole body or equivalent. Since whole body doses are primarily due to exposure to noble gases which the filters do not remove, the VC system is not required to ensure acceptable whole body doses. However, the VC system reduces thyroid and skin doses by pressurizing the Control Room with filtered air to minimize unfiltered in-leakage.

The principle contaminant contained in air leaking into the Control Room is assumed to be radioactive Iodine which is very conservatively modeled in dose calculations. Very low amounts of Iodine would be expected to reach the area around the Control Room since this requires passage through either Auxiliary (VA) or Turbine Building Ventilation systems [EISS:VF,VK] or passageways first.

No credit is taken for the VA filtration, with regard to Control Room dose calculation, in mitigating the Emergency Core Cooling System leakage source. However, this system is automatically switched to the filtered exhaust mode of operation on an accident or Blackout signal or if radiation is detected by the exhaust monitor [EISS:MON]. The VA system has four 50 percent capacity trains for Units 1 and 2 which respond to an accident on either unit thus providing essentially redundant protection. Operation of the VA system in the filtered exhaust mode by either train of the system would serve to reduce the calculated dose to Control Room personnel.

In the event the Control Room atmosphere became unbreathable, self contained breathing apparatus (SCBAs) provided in the Control Room area could be employed. Radiation monitors in the Control Room would alert Control Room personnel of high radiation levels.

Both trains of the VC system were technically inoperable but were fully capable of operating. The filters being changed are not necessary for the system to be operable during an accident situation. Therefore, there would have been no need to finish the filter changeout to restore operability. OPS personnel could have immediately initiated actions to get MM personnel out and close the door, thereby, restoring both trains of the VC system to an operable condition if the need arose.

During the event, there were no accidents that would have required operation of the VC system to maintain habitability of the Control Room.

This event did not affect the health and safety of the public.