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DUKE POWER

March 28, 1990

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

Subject: McGuire Nuclear Station Units 1 and 2
Docket No. 50-369
Licensee Event Report 369/90-05

Gentlemen:

Pursuant to 10 CFR 50.73 Sections (a)(1) and (d), attached is Licensee Event Report 369/90-05 concerning a Technical Specification violation involving inadequate verification of samples of the Equipment Staging Building 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,

Tony L. McConnell / go

T.L. McConnell

DVE/ADJ/cbl

Attachment

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MC-815-04
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LICENSEE EVENT REPORT (LER)

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TITLE (4) Technical Specification Required Flow Rate Verification And Equipment Staging Building Ventilation System Samples Were Not Performed Properly Because Of Inappropriate Actions

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)		
0	2	2	1	9	0	9	0	0	0	0	5	0	0	0
0	2	2	1	9	0	9	0	0	0	0	5	0	0	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) 1 0 0	20.402(b)	20.406(c)	50.73(a)(2)(iv)	73.71(b)						
	20.406(a)(1)(i)	50.36(e)(1)	50.73(a)(2)(v)	73.71(c)						
	20.406(a)(1)(ii)	50.36(e)(2)	50.73(a)(2)(vi)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)						
	20.406(a)(1)(iii)	X 50.73(a)(2)(i)	50.73(a)(2)(viii)(A)							
	20.406(a)(1)(iv)	50.73(a)(2)(ii)	50.73(a)(2)(viii)(B)							
20.406(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(ix)								

LICENSEE CONTACT FOR THIS LER (12)

NAME Alan Sipe, Chairman, McGuire Safety Review Group	TELEPHONE NUMBER AREA CODE: 7 0 4 8 7 5 - 4 1 8 3
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COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)									
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NFRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NFRDS

SUPPLEMENTAL REPORT EXPECTED (14) <input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE) <input checked="" type="checkbox"/> NO	EXPECTED SUBMISSION DATE (15)	MONTH DAY YEAR
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ABSTRACT (Limit to 1400 spaces, i.e. approximately fifteen single space typewritten lines) (16)

On February 17, 1990, monitor 2EMFRT5900, Radiation Monitor For Equipment Staging Building, and the Sampler Minimum Flow Device were declared inoperable. Consequently, Radiation Protection (RP) personnel were required by Technical Specifications (TS) to obtain a radioactive gas sample every 12 hours and perform an estimation of flow through the alternate continuous Particulate and Charcoal (P&C) sampler every 4 hours until the monitor was again declared operable. On February 21, 1990, at 1139, RP Shift personnel performed the required 12 hour sample. After obtaining the sample, the RP personnel failed to properly realign the sample valve and left the sample pump turned off. At 1600 on the same day, RP personnel performed the required 4 hour estimation of flow but failed to do so properly since the valve was misaligned and the pump was off. At 2000, RP personnel from the next shift performed the 4 hour estimation of flow and discovered that the pump was off. The valve misalignment was not discovered. At 2341, RP personnel went to perform the 12 hour sample, found the valve misaligned, and corrected the problem. This event is assigned a cause of Inappropriate Action because RP personnel failed to follow procedures. RP staff personnel will cover this event with all appropriate personnel and the appropriate procedures will be enhanced to prevent recurrence of similar events. Unit 2 was in Mode 1 (Power Operation), at 100 percent power at the time this event occurred.

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TEXT (If more space is required, use additional NRC Form 306A's) (17)

EVALUATION:

Background

Radiation monitoring equipment [EIIS:IL] (EMFs) monitor ventilation systems which remove air from locations where systems containing radioactivity are located. The EMFs provide information and alarms [EIIS:RA] regarding airborne releases from the station. The control of the airborne radioactive material releases is based on laboratory analyses. The Containment Purge system (VP) [EIIS:VA], Containment Annulus Ventilation system (VE) [EIIS:VD], Condenser Air Ejector system (ZJ) [EIIS:WF], Fuel Pool Ventilation system (VF) [EIIS:VG], and other potentially radioactive systems discharge through the unit vents [EIIS:VL]. The Equipment Staging Building Ventilation system (VK) has a separate discharge point. It is continuously monitored for radioactive gases by 2EMF-59. 2EMF-59 incorporates a sample pump [EIIS:P] that draws a single gas stream in series through a particulate paper filter [EIIS:FLT], an iodine filter consisting of a charcoal cartridge, and a gas channel chamber. A minimum flow device [EIIS:FA] is incorporated into the stream that alarms in the Control Room [EIIS:NA] when sample air flow falls below predetermined values. An indicator light for loss of power is also provided both at the EMF and in the Control Room. Daily checks are performed by RP personnel to verify operability of the minimum flow device. Also daily and weekly samples are obtained which are analyzed for particulate, iodine, tritium, and gaseous activity.

TS 3.3.3.9 requires that with less than the minimum number of radioactive gaseous effluent monitoring instrumentation channels operable, take the action shown in Table 3.3-13. Table 3.3-13 Action Statements 36 and 37 state that with the minimum flowrate device inoperable and the noble gas activity monitor inoperable, releases through this pathway may continue for up to 30 days provided the flow rate is estimated at least once per 4 hours and grab samples are taken at least once per 12 hours. These grab samples must be analyzed for gross radioactivity within 24 hours.

Description of Event

On February 17, 1990, at 0200, RP personnel discovered that the power light for 2EMF59, Radiation Monitor For Equipment Staging Building, was out at the monitor and in the Control Room. Subsequently, Work Request 43278 was initiated for repair of this problem and Operations personnel declared the monitor and sampler minimum flow device inoperable.

In order to satisfy the TS requirements for inoperable gaseous effluent monitoring and sampler minimum flow devices RP personnel began making 4 hour estimations of flow through the continuous P&C sampler and obtaining radioactive gas samples every 12 hours. (Reference illustration of Sample Device on page 6 of 6.)

On February 21, 1990, at 1139, RP Shift personnel performed the required 12 hour sample. RP Technician A obtained the sample and RP Technician B performed independent verification of the task. At the same time, the RP personnel performed the normal weekly tritium sampling for the Equipment Staging Building Vent since it was required that day. During performance of the task, Instrumentation and

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Electrical (IAE) personnel, who were working on the monitor problem, asked the RP personnel several questions about EMF flow. The IAE personnel were adjusting the flow device on 2EMF59 and were concerned that the sample would interfere. The RP personnel stated that they answered these questions and then continued obtaining the sample. Upon completion of the sample, the RP personnel closed the sample valve, turned off the sample pump, and exited the area.

At 1600, during performance of his regular shift duties, RP Technician A performed the 4 hour estimation of flow through the continuous P&C Sampler; however, the Technician did not notice that the sample valve was closed and the sample pump was off.

At 2000, an RP technician from the next shift performed the 4 hour estimation of flow. He found that the sample pump was off and turned it back on. Upon turning the sample pump on the RP technician thought flow was re-established through the P&C Sampler but the sample valve was still closed and the flow the Technician saw was caused by a leaky fitting on the supply tubing to the pump.

At 2341 on February 21, 1990, RP personnel attempted to perform the required 12 hour sample. At this time, they found that the sample valve was closed indicating that the continuous P&C Sampler had not been receiving flow since the previous 12 hour sample at 1139. The RP personnel then took appropriate measures to restore the continuous sample flow. Appropriate RP staff personnel were informed and Problem Investigation Report (PIR) 0-M90-0057 was initiated to investigate the incident.

Conclusion

This event is assigned a cause of Inappropriate Action because RP Technicians A and B did not follow procedures. The RP Actions For Inoperable Gaseous Effluent Monitoring And Flow Rate Measurement Devices procedure specifies to estimate flow through the continuous particulate and charcoal sample device once per 4 hours if the minimum flow device is inoperable. The procedure also states that with loss of 2EMF59, obtain a Gas Sample (4400 ml) from the inoperable EMF every 12 hours. Immediately following this step of the procedure is a note to ensure that flow continues through the in-line continuous P&C Sampler or an alternate P&C Sample is started. RP Shift personnel received specific training concerning actions required for inoperable components and both RP Technicians A and B stated that they were familiar with the procedure and requirements for 2EMF59. When the shift started, RP Technicians A and B reviewed the actions required for 2EMF59 and, since a weekly grab sample for tritium and gaseous activity was to be taken as well as the 12 hour sample required for inoperable components, decided to obtain both at once.

RP Technicians A and B stated that they had never performed both sample procedures at same time, but felt that this should not present any problem. However, upon performing the task, the Technicians slipped into the mindset of the procedure normally used for the weekly tritium and gaseous activity sample which is performed when the EMF is operable and did not follow the procedure for inoperable components. The weekly sample procedure specifies that the sample device be left

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with the sample pump off and the sample valve closed. Therefore, they left the sample device with the sample pump off and the sample valve closed.

At 1600, RP Technician A was to perform the second part of the procedure for inoperable components which is an estimation of flow. RP Technician A stated that he had performed this step; however, he did not approach the EMF closer than 10 to 15 feet and failed to see that the sample pump was off and the sample valve was misaligned. Therefore, he did not verify flow properly.

At 2000, an RP technician from the following shift attempted to perform the estimation of flow. At that time, he noticed that no flow was present and turned the pump back on. Upon doing this, he thought flow had been re-established, but the indication was false since the sample valve was still misaligned. The false indication was caused by leaky fittings on the sample rig. The problem with these fittings was subsequently repaired. All effluent sampling devices were inspected to ensure all tubing fittings were tight. At 2341, RP personnel again went to perform the 12 hour sample and at that time flow was re-established.

Both RP Technicians A and B were qualified according to the Employee Training And Qualification System (ETQS) program to perform the tasks required by both the procedures for obtaining weekly tritium samples and the 12 hour samples required for inoperable components. Both Technicians were familiar with these tasks and had performed them previously. No problems existed with communications, work environment, or schedule which could have affected job performance. The same task for the 12 hour sample had been performed by the same personnel on the two days prior to the event.

As a result of this incident, RP personnel have examined the configuration of the sample device in an effort to prevent recurrence of similar events. Also, RP Staff personnel will review the procedure for inoperable components and appropriate enhancements will be added to prevent recurrence of similar events. An evaluation of all RP effluent sampling procedures will be conducted and changes will be implemented requiring RP personnel to carry applicable enclosures when performing sampling tasks. The event will be covered with all appropriate RP personnel.

A review of the Operating Experience Program data base for the past twenty four months prior to this event revealed 1 event involving TS required flow estimates of ventilation equipment not being performed because of Inappropriate Actions caused by failure to follow procedures. This was LER 369/89-16 involving failure to perform required flow estimates of the unit vent sample device. The corrective actions taken at that time included procedure enhancements and covering the event with the personnel involved. Therefore, this event is considered to be recurring.

Also, the review revealed 6 incidents with a root cause of Inappropriate Action because of failure to follow procedure. These were LERs 370/89-13, 369/89-23, 370/89-08, 370/89-09, and PIRs 1-M90-0066 and 2-M89-0225. These all had the same root cause but the circumstances and equipment involved in each incident were different. Therefore, the problem of incidents caused by failure to follow procedure is recurring.

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

There were no personnel injuries, or radiation overexposures as a result of this incident.

CORRECTIVE ACTIONS:

- Immediate: RP personnel restored flow through the continuous Particulate and Charcoal Sampler.
- Subsequent:
 - 1) RP personnel inspected the sample device for 2EMF59 and made appropriate repairs and modifications to prevent recurrence of similar events.
 - 2) RP personnel inspected all effluent sampling devices to ensure all tubing fittings were tight.
- Planned:
 - 1) RP Staff and Management personnel will review procedure HP/O/B/1009/14, Health Physics Actions For Inoperable Gaseous Effluent Monitoring and Flow Rate Measurement Devices, and make changes requiring the logging of flow readings.
 - 2) RP Staff and Management personnel will conduct an evaluation of all RP effluent sampling procedures and implement changes requiring RP personnel to carry applicable enclosures when performing any effluent sampling tasks.
 - 3) RP Management personnel will cover this event with all appropriate RP personnel.

SAFETY ANALYSIS:

The failure to maintain continuous flow through the alternate P&C Sampler for 2EMF59 when it was inoperable could have allowed radioactive materials to be released from the Equipment Staging Building that could not have been quantified. However, during the 12 hour period when the event occurred no jobs were carried out in the Equipment Staging Building which could have generated particulate or gaseous radioactive materials to be released. The continuous 24 hour samples, 12 hour grab samples, and weekly tritium samples for the periods immediately before and after the event have been analyzed and the quantitative results revealed no activity when compared to previous samples taken when the EMF package was operable. It can therefore be assumed based upon the sample results that no unquantified radioactive material was released from the Equipment Staging Building during the 12 hour period when continuous flow was not maintained. All normal EMFs in the Auxiliary Building [EIIS:NF], Containment Building, and Spent Fuel Pool Building [EIIS:ND] were operational during this time and would have alerted station personnel had a problem existed in any of the areas adjacent to the Equipment Staging Building. Therefore, the possibility of radioactivity being released during this time was low.

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

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TEXT IF more space is required, use additional NRC Form 288A's (17)

FLOW SAMPLE DEVICE SCHEMATIC

