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March 29, 1992

DUKE POWER

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

Subject: McGuire Nuclear Station Unit 1
Docket No. 50-369
Licensee Event Report 369/92-05

Gentlemen:

Pursuant to 10 CFR 50.73 Sections (a) (1) and (d), attached is Licensee Event Report 369/92-05 concerning Essential Trains A and B being inoperable due to a missed Technical Specification. 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,

T.C. McMeekin

TLP/bcb

Attachment

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LICENSEE EVENT REPORT (LER)

FACILITY NAME(1)	DOCKET NUMBER(2)	PAGE(3)
McGuire Nuclear Station, Unit 1	05000 369	1 OF 11

TITLE(4) Essential Trains A and B were inoperable due to a missed Technic . Specification requirement caused by Inappropriate Actions and a Procedure Deficiency

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)
									N/A	05000
02	18	92	92	05	0	03	29	92		05000

OPERATING MODE(9)	1	THIS REPORT IS SUBMITTED PURSUANT TO REQUIREMENTS OF 10CFR (Check one or more of the following)(11)									
POWER LEVEL(10)	97%		20.402(b)		20.405(c)		50.73(a)(2)(iv)		73.71(b)		
			20.405(a)(1)(i)		50.36(c)(1)		50.73(a)(2)(v)		73.71(c)		
			20.405(a)(1)(ii)		50.36(c)(2)		50.73(a)(2)(vii)		OTHER (Specify in Abstract below and in Text)		
			20.405(a)(1)(iii)	X	50.73(a)(2)(i)		50.73(a)(2)(viii)(A)				
			20.405(a)(1)(iv)		50.73(a)(2)(ii)		50.73(a)(2)(viii)(B)				
			20.405(a)(1)(v)		50.73(a)(2)(iii)		50.73(a)(2)(x)				

LICENSEE CONTACT FOR THIS LER(12)

NAME	TELEPHONE NUMBER	
	AREA CODE	
Terry L. Pedersen, Supervisor, McGuire Safety Review Group	704	875-4487

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	

SUPPLEMENTAL REPORT EXPECTED(14)			EXPECTED SUBMISSION DATE(15)	MONTH	DAY	YEAR
	YES (If yes, complete EXPECTED SUBMISSION DATE)	X NO				

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

Diesel Generator 1A was technically inoperable from approximately 1830, February 26, 1992 until approximately 1900, February 28, 1992, due to the fuel oil level in Fuel Oil Storage Tank (FOST) 1A being below 39,500 gallons as required by Technical Specifications. Approximately 5,000 gallons of fuel oil had been inadvertently transferred from FOST 1A to FOST 1B by Chemistry personnel during fuel oil sampling activities. Unit 1 Train B components were also inoperable during certain times from 1830, February 26, through 1522, February 27, 1992, due to being removed from service for performance testing and maintenance activities. This resulted in Train 1A and 1B components being inoperable during the time periods when the B train components were out of service. Unit 1 was in Mode 1 (Power Operation) at 97 percent power and Unit 2 was in Mode 5 (Cold Shutdown) at the time of discovery. The 5,000 gallons of fuel oil were returned to FOST 1A. This event is assigned causes of Inappropriate Actions and a Procedure Deficiency.

EVALUATION:

Background

The Diesel Generator (DG) Engine Fuel Oil (FD) system [EIIS:DC] is designed to provide an adequate fuel oil supply for each DG engine. Each train of the FD system consists of a 50,000 gallon seismically designed underground storage tank [EIIS:TK], associated valves [EIIS:V], and piping.

Technical Specification (TS) 3/4.8.1.1 requires that during Modes 1 (Power Operation), 2 (Startup), 3 (Hot Standby), and 4 (Hot Shutdown), 2 separate and independent DGs [EIIS:DG], each with a separate fuel storage system containing a minimum volume of 39,500 gallons of fuel, be operable. TS 3/4.8.1.1.c requires that with 1 DG inoperable, all required systems, trains, or components that depend on the remaining operable DG as a source of emergency power are also operable. If this condition is not satisfied then initiate shutdown sequence within 2 hours.

Each DG is required by TS, to be demonstrated operable, in part, by verifying the fuel level in fuel oil storage tanks (FOSTs) A and B at least once every 7 days, and by sampling fuel oil in accordance with ASTM D2276-78 at least once every 31 days. Standard practice at McGuire Nuclear Station is to verify FOST level twice per 12 hour shift.

A 30 gpm fuel oil recirculation pump [EIIS:P] with associated valves, filter [EIIS:FLT], and sample connection are provided to recirculate, cleanup, and sample the fuel oil in each FOST. The suction and discharge header for the fuel oil recirculation pump are common to both A and B FOSTs.

The FOST recirculation and sampling system is under dual control of Chemistry (CHM) and Operations (OPS). CHM personnel may manipulate these components after obtaining permission from OPS Control Room (CR) [EIIS:NA] personnel.

Description of Event

On February 26, 1992, CHM Technicians A and B were assigned the task of obtaining samples of fuel oil from Unit 1 and 2 DG FOSTs. This task is performed approximately every 28 days and is controlled by procedures CP/1(2)/A/8600/41, CHM Procedure For Sampling Of Oils On Unit 1 and Unit 2. These procedures require that fuel oil inside each FOST be recirculated at least 4 hours prior to sampling.

At 0800, CHM Technician A contacted OPS CR personnel and was granted permission to manipulate equipment necessary to obtain the required samples. At 0830, CHM Technicians A and B then

proceeded to the Unit 2 FOST location. Appropriate valve alignments were made by CHM Technicians A and B and FOST 2A was placed in recirculation mode as directed by procedure CP/2/A/8600/41.

At approximately 0845, OPS Non-Licensed Operator (NLO) A was performing the first of two inspections normally performed according to shift of the Service Building [EIIS:MF] and Outside Equipment per Operations Management Procedure (OMP) 2-8, Unit 1 and 2 Service Building/ Outside Checklist. NLO A documented 43,000 gallons of fuel oil in FOST 1A in the appropriate block in OMP 2-8, Attachment 3, Unit 1/2 Service Building Rounds Sheets.

At 0900, the CHM Technicians proceeded to the Unit 1 FOST location. CHM Technician A then unlocked and opened valves 1FD-118, FOST 1A Recirculation Line Isolation, and 1FD-119, FOST 1A Recirculation Line Isolation, in the discharge header of the FOST 1A recirculation pump. CHM Technician B unlocked and opened valves 1FD-84, FOST 1A Recirculation Line Isolation, and 1FD-95, FOST 1A Recirculation Line Isolation, in the suction header of the FOST 1A recirculation pump. Other appropriate valve alignments were made as procedurally directed and, at 0930, FOST 1A was placed in the recirculation mode . CHM Technicians A and B then returned to other duties while they waited for the fuel oil in the tanks to recirculate.

At 1300, CHM Technicians A and B proceeded to the Unit 1 FOST location to obtain a sample from FOST 1A and place FOST 1B in the recirculation mode. CHM Technician B obtained the fuel oil samples for FOST 1A as directed by procedure steps 4.1.12 through 4.1.26. CHM Technician A then unlocked and opened valves 1FD-120, FOST 1B Recirculation Line Isolation, and 1FD-121, FOST 1B Recirculation Line Isolation, in the discharge header of the FOST recirculation pump, while CHM Technician B unlocked and opened valves 1FD-97, FOST 1B Recirculation Line Isolation, and 1FD-107, FOST 1B Recirculation Line Isolation, in the suction header of the FOST recirculation pump, as directed by procedure step 4.1.27. Discharge valves 1FD-118 and 1FD-119 for FOST 1A were then closed and locked. The FOST Recirculation Pump was then energized and CHM Technicians A and B returned to a chemistry lab for other duties while they waited for FOST 1B to recirculate for the required 4 hours. CHM Technicians A and B did not realize that suction valves 1FD-84 and 1FD-95 had been left open and the procedure did not specify an individual sign off for the valve position. Therefore, during the 4 hour recirculation period, the Unit 1 FOST Recirculation Pump had suction on both FOST 1A and 1B but was discharging to FOST 1B only.

At approximately 1330, NLO A left work early (his assigned shift was scheduled to work until 1930 that day) and was unable to complete the second round as specified by OMP 2-8. However, NLO A did turn over the duty to perform the second round to NLO B. Plant parameters observed during the second NLO round are not required to be documented. It is expected that any out of normal equipment status is corrected on that shift or brought to the attention of the next shift during turnover discussion.

At approximately 1500, NLO B was performing a routine test of portable radio equipment and passed by the Unit 1 FOSTs. At that time, he observed that the level in FOST 1A and FOST 1B was slightly above 40,000 gallons.

At 1800, CHM Technicians A and B proceeded to the Unit 1 FOST location to obtain a sample from FOST 1B. CHM Technicians A and B did not realize that suction valves 1FD-85 and 1FD-95 were still open.

At 1830, CHM Technician B obtained the fuel oil samples for FOST 1B as procedurally directed. The FOST Recirculation Pump was secured and valves 1FD-97, 1FD-107, 1FD-121, 1FD-120, and 1FD-115, Fuel Oil Recirculation Sample, were closed and locked. CHM Technicians A and B then returned to a chemistry lab with the fuel oil samples to be analyzed.

At approximately 2030, OPS NLO C was performing the first night shift inspection of the Service Building and Outside Equipment per OMP 2-8. He observed that the FOST 1A level was 38,000 gallons. He noted this value in the appropriate block in attachment 3 to OMP 2-8. At the conclusion of his rounds, NLO C informed Assistant Shift Supervisor (SRO) A that the level in FOST 1A was down. SRO A acknowledged the comment and stated he would look into it. At the time, SRO A believed the FOST 1A level was within TS limits. The TS required value was increased from 28,000 to 39,500 in December 1991. However, the FOST level had been administratively controlled at 39,500 gallons since July 16, 1991 when OPS Special Order 91-03 was approved. SRO A stated he did not remember the exact value and did not verify the required value in TS. NLO C did not show the completed rounds sheet to SRO A since SRO A was not the person assigned to review it.

SRO B was subsequently given the rounds sheet, since he was assigned the rounds sheet review for the night shift on February 26, 1992. The normal practice for SRO review of rounds sheets is to focus primarily on values that are flagged as out of normal with an "E1" designation. NLO C completing the rounds sheets had not flagged any out of normal values for the FD system even though the values that were recorded were less than 40,000 gallons. NLO C did not flag the out of normal level because he had informed SRO A of the problem and believed the FOST 1A level was within TS limits. Since the out of normal values were not flagged, they were not detected during SRO B's review of the rounds sheet. Therefore, at that time, no action was taken by SRO B to increase the fuel oil level in FOST 1A.

At 0730, on February 27, 1992, OPS NLO D, SRO C and Shift Supervisor (SS) A came on duty. NLO D was assigned to perform the OMP 2-8 rounds for that shift. NLO D made the required rounds and subsequently observed 37,500 gallons in FOST 1A. He noticed that 38,000 gallons was written on rounds sheet from the shift before. He did not look at the required value of "greater than 40,000" gallons listed on the rounds sheet. Therefore, he did not flag the out

of normal value with the required "E1" designation on the rounds sheet. SRO C subsequently reviewed the rounds sheet. There were no "E1" designations on the round sheet and, therefore, SRO C did not notice the 38,000 value listed for FOST 1A. Therefore, at that time, no action was taken by SRO C to increase the fuel oil level in FOST 1A.

At 0920 through 1254, on February 27, 1992, Train B of the Containment Air Return Exchange and Hydrogen Skimmer (VX) system [EIIS:BB] was inoperable due to running procedure PT/1/A/4450/06B, VX system Train 2B performance test.

At 1342 through 1522, on February 27, 1992, Train B of the Containment Spray (NS) system [EIIS:BE] system was inoperable due to running procedure PT/1/A/4208/02B, NS Train B System Quarterly Valve Stroke Timing.

At 1930, NLO C and SRO D came on duty. NLO C was assigned to perform the OMP 2-8 rounds for that shift. NLO C made the required rounds and subsequently observed 37,500 gal in FOST 1A. NLO C remembered that he had already brought the low level to SRO A's attention on his previous shift. Because of this, NLO C saw no reason for concern and did not notify SRO D that the FOST 1A level was still low. For the same reasons, NLO C did not flag the out of normal value the rounds sheet for February 27, 1992. Later, close to the end of the shift, SRO D reviewed the rounds sheet. There were no "E1" designations on the round sheet and he did not notice the 37,500 value listed for FOST 1A. Therefore, at that time, no action was taken by SRO D to increase the fuel oil level in FOST 1A.

At 0730, on February 28, 1992, OPS NLO D, SRO C and Shift Supervisor (SS) A came on duty. NLO D was assigned to perform the OMP 2-8 rounds for that shift. NLO D made the required rounds and subsequently observed 37,500 gallons in FOST 1A; however, again he did not look at the "greater than 40,000 gallons" and did not flag the out of normal value on the rounds sheet. SRO C was assigned to review the rounds sheets for that shift but he had to leave early. Therefore, SRO C asked SS A to perform the rounds sheet review. At approximately 1800, SS A reviewed the rounds sheet per SRO C's request. SS A had not performed this review in a long time and was not as familiar with rounds sheet review. Therefore, he was very thorough in looking at data. At first glance, he did not think there was a problem with 37,500 gallons in FOST 1A. After studying the rounds sheet more, SS A realized that FOST 1A was outside of TS limits. He initiated an investigation to determine why the level was low and sent an NLO to transfer fuel from FOST 1B to FOST 1A.

At 1830, OPS CR personnel contacted CHM personnel on duty and inquired if any CHM personnel had recently sampled, transferred, or added any fuel oil to either Unit 1 FOST. The OPS person informed the CHM duty person (CHM Technician C) that FOST 1A had recently lost 5,000 gallons and FOST 1B had gained 5,000 gallons of fuel oil. CHM Technician C informed the OPS

person that a sampling procedure had been performed on February 26, however, performance of that procedure should not have resulted in a fuel oil transfer from one tank to another. At 1850, CHM Technician C decided to perform a visual inspection of the fuel oil unloading pad where the subject FD system equipment is located. He discovered that valves 1FD-84 and 1FD-95 were unlocked and in the open position. He inspected all other FD system valves at that location and found them locked and closed as expected. CHM Technician C then telephoned OPS CR personnel and informed them that he had found the suction valves from FOST 1A to the Fuel Oil Recirculation Pump in the incorrect (open) position and unlocked. At the direction of OPS personnel, CHM Technician C subsequently closed and locked the valves. CHM Technician C then inspected the Unit 2 fuel oil unloading pad and verified that the FD system valves at that location were closed and locked.

At 2000, the level in FOST 1A was recorded at 43,800 gallons.

Conclusion

This event is assigned a cause of Inappropriate Action due to inadequate self checking by CHM Technicians A and B. On February 28, 1992 CHM Technicians A and B performed the sequence of placing a FOST in recirculation and taking a sample 4 separate times. Three of these tasks were performed correctly. However, the task was performed incorrectly on FOST 1A. CHM Technicians A and B did not self check as they proceeded through the valve alignment process. Consequently, they did not realize that suction valves 1FD-84 and 1FD-95 were left open and unlocked. Therefore, during the 4 hour recirculation period for FOST 1B, the FOST Recirculation Pump was taking a suction on both FOST 1A and 1B. This resulted in approximately 5,000 gallons of fuel oil being transferred from FOST 1A to FOST 1B. At 0845, February 28, FOST 1A contained approximately 43,000 gallons of fuel oil. By 1830, the level in FOST 1A had been reduced to approximately 38,000 gallons. This resulted in Train A being technically inoperable since TS 3/4.8.1.1 requires, during Modes 1 through 4, that each FOST contain a minimum volume of 39,500 gallons of fuel to be Operable. During the time, Train A was considered to be operable by OPS CR personnel. Since OPS CR personnel were unaware of the inoperability of Train A they granted permission for performance and maintenance activities to be performed on Train B. This resulted in certain components in both Trains A and B being inoperable simultaneously during several periods from 1830, on February 26 through 1522, February 27, 1992.

Both CHM Technicians believed that all valves had been placed in the required position during performance of the sampling procedure and that all affected valves had been returned to the locked and closed position at completion of the procedure. All valves on the FD system pad are well labeled and the flow path from each tank is marked on the piping. However, during

investigation of the event, it could not be proven that valves 1FD-84 and 1FD-95 were closed when required by procedure CP/1/A/8600/41. Neither CHM Technician A nor B could remember whether all valves were left locked closed. There was no evidence found that CHM Technicians A and B had made an effort to verify correct valve alignment before proceeding with the next procedure step.

A cause of Defective Procedure is also assigned because procedure CP/1/A/8600/41 did not require recording verification of individual valve alignments. The procedure specifies that valves associated with the fuel oil recirculation path for both tanks be verified locked in the correct position prior to, and after, initiating the sampling procedure. However, the sign off blank on Enclosure 6.1, Visual Check For Water And Particulate Contamination In Unit 1 FOSTs, includes only 1 signoff blank for position of all valves associated with the fuel oil recirculation flow path.

A cause of Inappropriate Action is assigned due to lack of attention to detail by NLOs C and D which resulted in failure to flag out of normal parameters on the rounds checklist. The rounds standards instructions in OMP 2-8 specifies for any out of normal value or value parameter that is noted on the enclosure, the person performing the rounds inspection shall write "E1" in the parameter space along with the parameter value. The accepted practice for SRO review of rounds sheets is to focus primarily on values that are flagged as out of normal with an "E1" designation. NLOs C and D had not flagged any out of normal values for the FD system when they completed the rounds sheets on February 26, 27, and 28 even though the values that were recorded were less than the 40,000 gallon requirement listed on the rounds sheet. Since the out of normal values were not flagged, the out of normal values were not detected during the SRO review of the rounds sheets. Therefore, at these times, no action was taken by the duty SROs to increase the fuel oil level in FOST 1A.

A review of the Operating Experience Data Base for the previous 24 months revealed 4 events which involved a TS violation and the Diesel Generator with a cause of Inappropriate Action or Defective Procedure. These previous events are documented in LERs 369/91-08, 369/90-17, 370/90-03, 370/91-05. The corrective actions addressed in the these events were not applicable to this event, and would not have prevented occurrence of this event. TS violations because of lack of attention to detail is a recurring problem, and a search conducted for equipment mispositioning revealed several examples. Therefore, this problem is considered recurring.

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

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

CORRECTIVE ACTIONS:

Immediate: None

Subsequent:

1. FOST 1A valves 1FD-84 and 1FD-95 were closed and locked by CHM personnel.
2. OPS personnel returned 5,000 gallons fuel oil from FOST 1B to FOST 1A.
3. Procedure CP/1/A/8600/41 was revised by CHM staff personnel to require sign offs on individual valve alignments.
4. Procedure CP/2/A/8600/41 was revised by CHM staff personnel to require sign offs on individual valve alignments.
5. CHM Management personnel discussed the event with the CHM technicians involved.
6. CHM personnel resampled FOST 1B.

Planned:

1. OPS Management personnel will evaluate the current NLO rounds turnover policy and initiate changes to the policy if necessary.
2. The importance of NLO rounds sheets, management's expectations of how to complete rounds sheets, proper rounds turnover, and proper rounds techniques will be re-emphasized in NLO training.
3. OPS personnel will revise rounds sheets to highlight TS related items.
4. OPS personnel will evaluate how out of normal values are flagged on rounds sheets and make changes as appropriate.
5. OPS Management personnel will devise an Equipment Training and Qualification Standard (ETQS) that incorporates having an OPS supervisor accompany each NLO and Reactor Operator (RO) during rounds activities at least once every 2 years.

6. OPS and CHM personnel will evaluate the interface process for operation of plant equipment which is under the dual control of OPS and CHM and enhance current practices as appropriate.

7. CHM Management personnel will cover this event with appropriate CHM personnel.

8. CHM personnel will review all procedures under their control that are directly involved with state, federal, or NRC regulations and assure that component configuration control is adequately addressed.

9. CHM personnel will evaluate the practice of locking open valves during tank recirculation activities and revise this policy as appropriate.

10. CHM Management will revise the task of obtaining fuel oil samples during routine monthly sampling of FOSTs so that Train A tanks will be sampled on a different day than Train B tanks.

11. Procedure CP/1/A/8600/41 will be revised by CHM staff personnel to require notification of the duty SRO (not just CR personnel) prior to FOST recirculation and sampling activities.

12. Procedure CP/2/A/8600/41 will be revised by CHM staff personnel to require notification of the duty SRO (not just CR personnel) prior to FOST recirculation and sampling activities.

SAFETY ANALYSIS:

DG 1A was technically inoperable from February 26, 1992 until approximately 1900, February 28, 1992 due to the fuel oil level in FOST 1A being below TS limits. The 39,500 gallon TS limit is used to assure that an adequate supply of fuel oil is available for each DG engine. The actual amount of fuel oil in FOST 1A was never below 35,700 gallons during the time period of the event. Therefore, DG 1A was capable of providing its intended safety function for a sustained duration. During this period, ample time would have been available for OPS personnel to obtain more fuel oil from off site sources or pump fuel oil from FOST 1B.

Unit 1 Train B components were also inoperable during certain times from 1600, February 26 through 1522, February 27, 1992 due to being removed from service for performance testing. This resulted in both Trains 1A and 1B being inoperable during the time periods the B train components were out of service. Although DG 1A was technically inoperable, offsite power was available to Unit 1 Train A components for the entire time through the normal 4160 volt bus

supply.

In the event of an accident, the Unit 1 Train B DG was available and was capable of performing its intended safety function. The Unit 1 Train B components that were out of service due to performance testing and maintenance activities, i.e. VC/YC, VX, NS, EMF43B could have been restored to an operable status in a short period of time.

During the time period of this event, the ability to safely shutdown Unit 1 and mitigate the consequences of an accident was maintained. No events occurred which required the actuation of emergency electrical power.

Therefore, the health and safety of the public were not affected by this event.

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
McGuire Nuclear Station, Unit 1	05000 369	92	05	0	11	OF	11