Duke Power Company
McGuire Nuclear Station
P.O. Box 488
Cornelius, N.C. 28031-0488

(704) 875-0000

DUKE POWER

September 11, 1989

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

Subject: McGuire Nuclear Station Unit 2
Docket No. 50-370
Licensee Event Report 370/89-07

Gentlemen:

Pursuant to 10CFR 50.73 Sections (a)(1) and (d), attached is Licensee Event Report 370/89-07 concerning a Technical Specification violation because both Centrifugal Charging Pumps were inoperable during Mode 6, Refueling. This report is being submitted in accordance with 10CFR 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

T.L. McConnell

ARS/bcb

Attachment

xc: Mr. S.D. Ebneter
Administrator, Region II
U.S. Nuclear Regulatory Commission
101 Marietta St., NW, Suite 2900
Atlanta, GA 30323

INPO Records Center
Suite 1500
1100 Circle 75 Parkway
Atlanta, GA 30339

M&M Nuclear Consultants
1221 Avenue of the Americas
New York, NY 10020

American Nuclear Insurers
c/o Dottie Sherman, ANI Library
The Exchange, Suit 245
270 Farmington Avenue
Farmington, CT 06032

Mr. Darl Hood
U.S. Nuclear Regulatory Commission
Office of Nuclear Reactor Regulation
Washington, D.C. 20555

Mr. P.K. Van Doorn
NRC Resident Inspector
McGuire Nuclear Station

IE22
1/1

bxc: B.W. Bline
A.S. Daughtridge
R.C. Futrell
R.L. Gill
R.M. Glover (CNS)
T.D. Curtis (ONS)
P.R. Herran
S.S. Kilborn (W)
S.E. LeRoy
R.E. Lopez-Ibanez
J.J. Maher
R.O. Sharpe (MNS)
G.B. Swindlehurst
K.D. Thomas
L.E. Weaver
R.L. Weber
J.D. Wylie (PSD)
J.W. Willis
QA Tech. Services NRC Coordinator (EC 12/55)
MC-815-04
(20)

NRC Form 366
(9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/88

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
McGuire Nuclear Station, Unit 2	0 5 0 0 0 3 7 0	1 OF 0 5

TITLE (4) Unit 2 Operated In Violation Of Technical Specification 3.1.2.1a and 3.1.2.3 Because Both Centrifugal Charging Pumps Were Inoperable During Refueling

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 8	1 0	8 9	8 9	— 0 0 7	— 0 0	0 9	1 1	8 9	N/A	0 5 0 0 0
										0 5 0 0 0

OPERATING MODE (9)	6	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)			
POWER LEVEL (10)	0 0 0	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, NRC Form 366A)
		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
Alan Sipe, Chairman, McGuire Safety Review Group	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 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)

On July 13, 1989, Mechanical Maintenance personnel completed preventative maintenance on Centrifugal Charging Pump 2B. No functional verification or retest was performed at that time because of a lack of equipment availability. The work request was returned to the Planning Section to reschedule for performance of the functional verification. Consequently, Planner A changed the status of the work request to "Awaiting Functional Verification" and placed it in the appropriate outage file. On August 1, 1989, Operations personnel declared "B" Train equipment operable and removed "A" Train equipment from service. Therefore, Unit 2 operated in Mode 6, Refueling, with both pumps inoperable. On August 8, 1989, Planner B found that the work request had been placed in the "Awaiting Functional Verification" file in error. The work request was immediately forwarded to the Performance Group for retest of the pump. This event is assigned a cause of Management/Quality Assurance deficiency since Operations personnel were unaware that Centrifugal Charging Pump 2B had not been retested because of the lack of a tracking program during outages. A contributory cause of Inappropriate Action because of lack of attention to detail is assigned since Planner A failed to send the work request to the appropriate retest group. Subsequent retest and functional verification have been successfully performed on the pump. Programmatic Changes will be made to better control tracking of equipment operability during outage periods.

EVALUATION:

Background

The Chemical and Volume Control System (NV) [EIIS:CB] is designed to provide control of water chemistry conditions, activity level, soluble chemical neutron absorber concentration, and makeup. Normally, charging flow is handled by a single Centrifugal Charging Pump [EIIS:P].

Technical Specifications (TSs) 3.1.2.1a and 3.1.2.3 state that, as a minimum, one Centrifugal Charging Pump in the boron injection flow path shall be operable and capable of being powered from an operable emergency power source. These TSs are applicable in Modes 5, Cold Shutdown, and 6, Refueling. The required action when no Centrifugal Charging Pump is operable is to suspend all operations involving core alterations or positive reactivity changes.

Description of Event

On July 13, 1989, Mechanical Maintenance (MM) personnel performed routine yearly preventive maintenance on Centrifugal Charging Pump 2B as directed by Station Work Request 095186. Upon completion of the work MM personnel were unable to perform a functional verification on the subject pump because of the lack of equipment availability caused by work in progress on other "B" Train equipment. Since no further work could be accomplished at that time the work request was returned to the MM General Supervisor.

On July 14, 1989, the MM General Supervisor returned Work Request 095186 to the Planning Section with direction that it needed to be rescheduled for performance of the functional verification. No mention was made of whether a retest of the pump had been performed.

Maintenance Planner A received Work Request 095186 from the MM General Supervisor and consequently changed the status to "Awaiting Functional Verification". He then placed the work request in the outage "Awaiting Functional Verification" file in the Planning Office.

On August 1, 1989, Operations (OPS) personnel declared "B" Train equipment operable and removed "A" Train equipment from service. OPS personnel were unaware that Centrifugal Charging Pump 2B had not been retested and therefore, considered it to be operable. Since Centrifugal Charging Pump 2A was taken out of service with the "A" Train equipment there were no operable Centrifugal Charging Pumps at that time; however, Centrifugal Charging Pump 2B was capable of functioning as verified later by retest.

On August 8, 1989, while performing a routine check, Maintenance Planner B discovered that there were several work requests in the "Awaiting Functional Verification" file which should have gone for retest evaluation prior to being placed there. Work Request 095186 was included in that group of work requests. He immediately sent those work requests to the appropriate groups so that retest could be performed on the associated equipment if necessary.

On August 10, 1989, the Performance Supervisor reviewing Work Request 095186 determined that Centrifugal Charging Pump 2B required a retest to be considered operable. Performance personnel then discovered that Unit 2 had violated TSs 3.1.2.1a and 3.1.2.3 because both Centrifugal Charging Pumps were inoperable while core alterations were performed during Mode 6.

Performance personnel performed the required retest of Centrifugal Charging Pump 2B and the results were satisfactory.

On August 11, 1989, MM personnel performed the required functional verification of Centrifugal Charging Pump 2B and the results were satisfactory. OPS personnel accepted control of the pump and it was declared operable.

Conclusion

This event is assigned a cause of Management/Quality Assurance Deficiency because of the lack of a policy or directive to follow train related equipment required during Modes 5 and 6. During normal operating conditions any work request requiring work to be performed on a Centrifugal Charging Pump would be stamped "Tech Spec" and logged appropriately in the Technical Specification Action Item Log (TSAIL) by Operations personnel. This would have flagged Work Request 095186 both for Operations personnel and the Maintenance Planner. Historically, because of the large number of items of this nature which occur during an outage and the less stringent Technical Specification requirements during those periods, no such entries have been made in the TSAIL during Outage periods. Since no TSAIL Log entry was made and no other mechanism for tracking inoperable equipment existed, Operations personnel were unaware of the work request still outstanding on Centrifugal Charging Pump 2B.

Operations and Integrated Scheduling personnel will develop an adequate system of tracking inoperable equipment during outage periods to prevent recurrence of similar events.

A contributory cause of Inappropriate Action because of a lack of attention to detail is assigned since Planner A failed to send Work Request 095186 to the appropriate Retest Group as required. Maintenance Planner A changed the status of Work Request 095186 to "Awaiting Functional Verification" based on his conversation with the MM General Supervisor. The General Supervisor gave instructions that the work request needed to be rescheduled for functional verification and Maintenance Planner A failed to check to see if a retest of the pump had been performed. Planner A was familiar with receiving work requests in this manner and was aware of his responsibility to check work requests for retest requirements.

Section II of Work Request 095186 was marked to indicate that a retest was required by the Performance Group. Maintenance Management Procedure 1.5 section 8.0 states that if a retest is required the work request will be returned to the Planning Section and the Planner will update the work request to Retest/Working status and place it in the appropriate box for Performance personnel to pick up.

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
McGuire Nuclear Station, Unit 2	0 5 0 0 0 3 7 0	8 9	0 0 7	0 0	0 4 OF 0 5

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

In an effort to prevent recurrence of similar events, Planning Supervisory personnel met with all Maintenance Planners and reemphasized the need for a close review of all work requests upon receipt in Planning to ensure that any work requests which specify a retest are handled appropriately. Also, all Outage work requests which are changed to "Awaiting Functional Verification" status are now given to the designated Outage Planner before being placed in the file. This assures a second review of the work request for potential problems. Additionally the "Awaiting Functional Verification" files are to be audited by the designated Outage Planners once a week during an Outage to ensure no problems exist.

A review of McGuire Licensee Event Reports (LERs) for the previous twelve months revealed four events involving Technical Specification violations and attributed to a Management/Quality Assurance Deficiency because of an inadequate or nonexistent policy. These were LERs 369/88-27, 369/88-31, 369/88-45, and 370/88-10-01. None of these events involved use of inoperable components thought to be operable because of a lack of tracking during outages. The planned corrective actions were specific to the events and would not have prevented this event from recurring; therefore, this event is not considered recurring.

A review of McGuire LERs for the previous twelve months revealed no events involving a TS violation because of Inappropriate Action involving the work request process. Therefore, this event is not considered recurring.

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

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

CORRECTIVE ACTIONS:

Immediate:

1) Performance personnel performed the required retest of Centrifugal Charging Pump 2B.

2) Mechanical Maintenance personnel performed the required functional verification of Centrifugal Charging Pump 2B.

3) Operations personnel verified Centrifugal Charging Pump 2B to be operable and signed "Control Accepted" on Work Request 095186.

Subsequent:

1) Planning Supervisory personnel met with all Maintenance Planners and reemphasized the Planner's responsibility for ensuring that retests are performed when required.

2) Planning Supervisory personnel changed the routing of outage work requests being placed in the "Awaiting Functional Verification" file to require review by a designated Outage Planner.

3) Planning personnel will audit the "Awaiting Functional Verification" file once a week during outages to ensure no work requests requiring a retest have been erroneously placed in those files.

Planned: Operations and Integrated Scheduling personnel will evaluate and develop a system of tracking inoperable equipment during outage periods.

SAFETY ANALYSIS:

When the reactor [EIIS:RCT] is subcritical; i.e., during cold or hot shutdown, refueling, and approach to criticality, the neutron source multiplication is continuously monitored and indicated in the Control Room [EIIS:NA]. Any appreciable increase in the neutron source multiplication, including that caused by the maximum physical boron dilution rate, is slow enough to give ample time to initiate a corrective action (boron dilution stopped and boration started) to prevent the core from becoming critical.

With system temperature below 200 degrees-F, as it was during the time that this event occurred, one Boron Injection path is acceptable without single failure consideration. This is based on the stable reactivity condition of the reactor and the additional restrictions prohibiting core alterations and positive reactivity changes. In the event the single Boron Injection path becomes inoperable Operations personnel would have sufficient time to react to provide another path for either addition of volume or boron. One possible solution is realigning the suction of the available Residual Heat Removal (ND) [EIIS:BP] Pump to the Refueling Water Storage Tank [EIIS:TK].

During the time period of this event, no increase in the neutron source multiplication was observed and no additions were required. However, when Centrifugal Charging Pump 2B was retested, it operated satisfactorily and could have been used if necessary during this time period as a Boron Injection Path.

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 2	0 5 0 0 0 3 7 0	8 9	— 0 0 7	— 0 0	0 5 OF 0 5

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

3) Planning personnel will audit the "Awaiting Functional Verification" file once a week during outages to ensure no work requests requiring a retest have been erroneously placed in those files.

Planned: Operations and Integrated Scheduling personnel will evaluate and develop an improved system of tracking inoperable equipment during outage periods.

SAFETY ANALYSIS:

When the reactor [EIIS:RCT] is subcritical; i.e., during cold or hot shutdown, refueling, and approach to criticality, the neutron source multiplication is continuously monitored and indicated in the Control Room [EIIS:NA]. Any appreciable increase in the neutron source multiplication, including that caused by the maximum physical boron dilution rate, is slow enough to give ample time to initiate a corrective action (boron dilution stopped and boration started) to prevent the core from becoming critical.

With system temperature below 200 degrees-F, as it was during the time that this event occurred, one Boron Injection path is acceptable without single failure consideration. This is based on the stable reactivity condition of the reactor and the additional restrictions prohibiting core alterations and positive reactivity changes. In the event the single Boron Injection path becomes inoperable Operations personnel would have sufficient time to react to provide another path for either addition of volume or boron. One possible solution is realigning the suction of the available Residual Heat Removal (ND) [EIIS:BP] Pump to the Refueling Water Storage Tank [EIIS:TK].

During the time period of this event, no increase in the neutron source multiplication was observed and no additions were required. However, when Centrifugal Charging Pump 2B was retested, it operated satisfactorily and could have been used if necessary during this time period as a Boron Injection Path.

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

*U.S. GPO: 1988-520-589/00070