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

Subject: Oconee Nuclear Station
Docket Nos. 50-269, -270, -287
Licensee Event Report 269/98-17, Revision 0
Problem Investigation Process No.: 0-098-5706

Gentlemen:

Pursuant to 10 CFR 50.73 Sections (a) (1) and (d), attached is Licensee Event Report 269/98-17, concerning a missed Quadrant Power Tilt surveillance required by Technical Specification 3.5.2.4.g.

This report is being submitted in accordance with 10 CFR 50.73 (a) (2) (i) (B). This event is considered to be of no significance with respect to the health and safety of the public.

Very truly yours,

W. R. McCollum, Jr.

Attachment

IE22

cc: Mr. Luis A. Reyes
Administrator, Region II
U.S. Nuclear Regulatory Commission
61 Forsyth Street, S. W., Suite 23T85
Atlanta, GA 30303

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

INPO Records Center
700 Galleria Parkway, NW
Atlanta, GA 30339-5957

Mr. M. A. Scott
NRC Resident Inspector
Oconee Nuclear Station

NRC FORM 366 (4-95)

U.S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Oconee Nuclear Station, Unit 1	05000 269	1 OF 7

TITLE (4)
Inadequate Work Planning Results In Missed Surveillance

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 NAME	DOCKET NUMBER(S) 05000
11	28	98	1998	-	17	- 00	12	17	98		05000

OPERATING MODE (9)	N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR (Check one or more of the following) (11)					
POWER LEVEL (10)	100	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
J.E. Burchfield, Regulatory Compliance Manager	AREA CODE (864) 885-3292

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 November 28, 1998, Oconee Unit 1 was at 100% power. Due to planned maintenance on the Operator Aid Computer (OAC), Operations entered procedure OP/0/A/1103/20, Loss Of Computer, at 1638 hours, to take compensatory actions. The repair of the OAC was to be a short term evolution. Compensatory actions for the two hour surveillance requirement for Quadrant Power Tilt (QPT), which was due at 1800 hours, were not immediately initiated. When Operations recognized that the OAC would not be returned to service prior to this surveillance requirement, the Reactor Engineering Group was contacted to perform the QPT Calculations. This occurred at 1750 hours, approximately ten minutes before the surveillance requirement was due. There was not enough time remaining for the Duty Reactor Engineer to arrive on-site and complete the QPT calculations. QPT calculations were completed at 1935 hours. The root cause was inadequate work planning by the Control Room Senior Reactor Operator. The job scoping did not identify the need for a contingency plan in case the OAC work was delayed. Operation's management expectations for performance of the QPT surveillance requirement were communicated to the appropriate Operations personnel.

EVALUATION:

Background

A plant Operator Aid Computer (OAC) [EIIS:ID] is used on each unit to provide fuel management measurements and calculations. The OAC also provides for alarm monitoring, performance monitoring, data logging, and sequence monitoring during plant operations. OAC readout facilities for alarm and sequence monitoring are provided in the control room to aid the operator.

Technical Specification (TS) core power distribution limits, including quadrant power tilt (QPT), are established to maintain core thermal margin throughout the fuel cycle. Core power distribution parameters provide inputs to the in-core [EIIS:IG] monitoring software residing within the OAC. The in-core monitoring software monitors the quadrant tilt, power imbalance, and rod positions, and actuates alarms if these parameters exceed the operational limits. Monitoring of core performance during fuel cycle operation confirms the validity of predictions and ensures that design and safety criteria are satisfied.

TS 1.6.1 defines QPT as an equation expressed in percent:

$$100 \times \frac{\text{Power in any core quadrant}}{\text{Average power of all quadrants}} - 1$$

TS 3.5.2.4.g requires that QPT shall be monitored on a minimum frequency of once every two hours during power operation above 15% full power. The QPT limits set forth in TS 3.5.2.4 have been established to prevent the linear heat rate peaking increase associated with a positive QPT during normal operation from exceeding the values assumed in the reload design analyses.

Description of Event

On November 28, 1998, problems with some OAC computer points had been occurring since approximately 1100 hours. These problems were not related to computer points used to determine QPT. Local Information Technology (LIT) had been working to resolve these problems and as a result, had planned a controlled shutdown of the OAC later in the day. LIT planned to

resolve the problems with the affected computer points by reinitializing the OAC.

Prior to shutting down the OAC, a pre-job briefing was held between Operations and LIT. LIT indicated that they would be shutting down the OAC to reinitialize the system and that this evolution would take approximately forty five minutes. Operations thought this was a reasonable time period for repair based on previous experience and planned to take compensatory actions per the Loss Of Computer procedure. Based on experience, there was reason to believe that the OAC would be in service for the next quadrant power tilt (QPT) surveillance requirement. The Loss of Computer procedure provided compensatory guidance for manually performing the QPT calculations if the OAC was not returned to service. Operations felt that the time left in the surveillance window would be adequate for performing the QPT calculations manually.

At 1638 hours on November 28, 1998, the OAC was shutdown to reinitialize the computer and resolve the problems with the affected computer points. In conjunction with the OAC shutdown at 1638 hours, Operations entered the Loss Of Computer procedure to take compensatory measures. However, since the OAC was expected to be restored to service in a short time, no compensatory measures were taken immediately concerning the QPT calculations. This decision was a judgment call by the Control Room Senior Reactor Operator (SRO) and is allowed per the Loss of Computer procedure.

LIT was unsuccessful in reinitializing and restoring the OAC to service in the originally planned time interval. At 1723 hours, the SRO was informed by LIT that the OAC could not be restored prior to the next surveillance. The SRO contacted the Shift Work Manager to call the Duty Reactor Engineer to come in and perform the calculations. The call out occurred at 1750 hours, ten minutes before the required 1800 hours surveillance. The Duty Reactor Engineer immediately responded and came in to perform the QPT Calculations. The Duty Reactor Engineer arrived at the station at approximately 1835 hours. The Duty Reactor Engineer had to gather baseline data to perform the QPT Calculation. QPT data was taken from the previous surveillance that was recorded in Periodic Instrument Surveillance procedure, PT/1/A/600/01. However, Nuclear Instrumentation (NI) data from the OAC surveillance taken at 1600 hours was not readily available. LIT was able to eventually retrieve this information from the OAC files. The

QPT calculation utilizing Excore Tilt Calculations procedure, PT/0/A/1103/18 was then successfully completed at 1935 hours. This was one hour and thirty five minutes past the required 1800 hours surveillance requirement. Subsequent to the missed QPT surveillance, the 2000 hours QPT surveillance was performed successfully. The OAC was returned to service at 2143 hours.

Conclusion

The root cause of this event is an inappropriate action in that the Operations personnel, specifically the Control Room Senior Reactor Operator (CRSRO) on shift, exhibited inadequate work planning. Specifically, the job scoping did not identify special circumstances or conditions as applicable to the planned shutdown of the OAC.

This event was initiated when Operations personnel failed to look ahead in their contingency plan for a loss of the OAC greater than forty five minutes. It is recognized that the activities in progress were routine and it was an expectation that the OAC would be returned to service in time to perform the Quadrant Power Tilt (QPT) surveillance. However, there should have been a stronger questioning attitude regarding contingency plans if the OAC remained unavailable. It is recognized that the Excore Tilt Calculations procedure, PT/0/A/1103/18, was not available in the control room; however, the procedure was available nearby in the Work Control Center and a copy could have been retrieved easily.

Operations personnel have been trained on performance of the QPT calculations and were capable of performing these calculations. Operators are instructed to perform the calculations every two hours per the Loss of Computer procedure. The procedure allows the Operators to contact Reactor Engineering for assistance. However, the Duty Reactor Engineer was not contacted in a timely manner. By the time the decision was made to call him out, it was unreasonable for the CRSRO to expect the Duty Reactor Engineer to arrive on-site, gather data, and complete the calculations within the remaining time. The Duty Reactor Engineer could have been contacted initially so that appropriate contingency actions could have been taken. Additionally, data gathering could have begun earlier regardless of Reactor Engineering's role.

The Operations personnel did not show clear ownership for the QPT calculations. Even though the procedure stated that Reactor Engineering could be contacted "for assistance," the Operations personnel on shift felt that Reactor Engineering owned this function and, therefore, contacted the Duty Reactor Engineer with the expectation that he would perform the QPT calculations.

QPT monitoring is normally performed by the OAC. Technical Specifications (TS) state that the two hour surveillance monitoring for QPT is considered adequate when the OAC is out of service. However, two hours is restrictive when problems associated with the OAC exist and manual calculations are necessary. Conversion to Improved TS will relax the two hour surveillance requirement to seven days. Performing the QPT at the seven day frequency allows QPT mechanisms, such as xenon redistribution, burnup gradients, and control rod drive mechanism malfunctions, which can cause slow development of a QPT, to be detected. Operating experience has confirmed the acceptability of a surveillance frequency of 7 days.

A similar event occurred in 1997 and was reported as LER 287/97-04. In that event, Operators were to compare OAC subcooling margin to Inadequate Core Cooling subcooling margin. The OAC subcooling margin was out of service. The operators were signing off the OAC check and explaining the results in the comments section. The concern was that acceptance criteria were being signed off with discrepancies and that technical specification surveillance requirements were being missed. Although LER 287/97-04 involves the OAC and missed surveillances, the root cause is different; therefore, this event is not recurring.

CORRECTIVE ACTION:

Immediate:

1. Reactor Engineering completed the 1800 hours Quadrant Power Tilt surveillance by performing the Excore Tilt Calculations procedure, PT/0/A/1103/18 at 1935 hours.

Subsequent:

1. Reactor Engineering completed the 2000 hours Quadrant Power Tilt surveillance by performing the Excore Tilt Calculations procedure, PT/0/A/1103/18. This surveillance was completed on time.

2. Local Information Technology completed repairs and returned the Unit 1 Operator Aid Computer to service at 2143 hours.

3. Excore Tilt Calculations procedure, PT/0/A/1103/18 was placed with other Operations Control Copy procedures that are readily accessible to each Unit's Control Room.

4. A communication was provided to the appropriate Operations personnel concerning Operations management expectations that Operations will perform the Excore Tilt Calculations procedure PT/0/A/1103/18 upon a loss of the Operator Aid Computer.

Planned:

1. Operations Management will communicate "lessons learned" from this event to appropriate Operations personnel. This communication will include a management expectation for an evaluation of consequences if equipment removed from service is not returned to service as scheduled. Appropriate contingency provisions should be identified prior to removal from service, if possible, and initiated in a timely manner, when needed.

2. Periodic Instrument Surveillance procedures, PT/1,2,3/A/0600/001 will be revised to record power range NI values when Quadrant Power Tilt values are recorded, so that the information from the previous calculation needed to perform the next calculation will be more readily available.

3. Excore Tilt Calculations procedure, PT/0/A/1103/18 enclosures 13.1 and 13.2 will be revised to simplify performance of the Quadrant Power Tilt calculations by Operators.

Planned corrective action 1 is considered to be an NRC Commitment Item. This is the only NRC Commitment item contained in this LER.

SAFETY ANALYSIS:

This event involved exceeding the Technical Specification (TS) surveillance interval for Quadrant Power Tilt on Unit 1. The required 1800 hours surveillance was performed by manual calculation and completed at 1935 hours because the Operator Aid Computer was out of service. The alternate means of performing Quadrant Power Tilt is by manually calculating it per Excore Tilt Calculations procedure, PT/0/A/1103/18. Prior to 1800 hours, the Quadrant Power Tilt had been performed satisfactorily on two hour frequencies. There were no operational transients or change in operating conditions that would be expected to change the observed quadrant power tilt during the time period required to calculate the values manually. The UFSAR Chapter 15 design basis accidents define various control rod accidents that would affect Quadrant Power Tilt. However, these accidents are bounded and terminated by the Reactor Protective System (RPS) such that not performing this surveillance requirement within the frequency specified did not affect the plant's ability to respond appropriately in the event of a control rod accident. Therefore, this event is of no safety significance.

The health and safety of the public was not compromised by this event.