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June 7, 2000

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

Subject: Oconee Nuclear Station
Docket Nos. 50-287
Licensee Event Report 287/2000-03, Revision 0
Problem Investigation Process No.: O-00-1795

Gentlemen:

Pursuant to 10 CFR 50.73 Sections (a)(1) and (d), attached is Licensee Event Report 287/2000-03, Revision 0, concerning alarms that were required for Low Temperature Overpressure Protection being out of service longer than allowed by Technical Specifications. During the period the alarms were out of service, no event occurred to challenge the alarms.

This report is being submitted in accordance with 10CFR 50.73(a)(2)(i)(B) - "Any operation or condition prohibited" by Technical Specifications. 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

RGN-001

IE22

Document Control Desk

Date: June 7, 2000

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cc: Mr. Luis A. Reyes
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APPROVED BY OMB NO. 3150-0104 EXPIRES 06/30/2001
 Estimated burden per response to comply with this mandatory information collection request: 50 hrs. Reported lessons learned are incorporated into the licensing process and fed back to industry. Forward comments regarding burden estimate to the Records Management Branch (T-6 F33), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, and to the Paperwork Reduction Project (3150-0104), Office of Management and Budget, Washington, DC 20503. If an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

FACILITY NAME (1) Oconee Nuclear Station, Unit 3	DOCKET NUMBER (2) 05000 - 287	PAGE (3) 1 OF 7
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TITLE (4) Tech Spec Alarms Inoperable due to Operator Error and Deficient Procedure

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
04	16	00	2000	- 03	- 00	06	07	00		05000
									FACILITY NAME	DOCKET NUMBER
										05000

OPERATING MODE (9) 5	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)										
POWER LEVEL (10) 00%	20.2201(b)			20.2203(a)(2)(v)			<input checked="" type="checkbox"/> 50.73(a)(2)(i)(B)			50.73(a)(2)(viii)	
	20.2203(a)(1)			20.2203(a)(3)(i)			50.73(a)(2)(ii)			50.73(a)(2)(x)	
	20.2203(a)(2)(i)			20.2203(a)(3)(ii)			50.73(a)(2)(iii)			73.71	
	20.2203(a)(2)(ii)			20.2203(a)(4)			50.73(a)(2)(iv)			OTHER	
	20.2203(a)(2)(iii)			50.36(c)(1)			50.73(a)(2)(v)			Specify in Abstract below or in NRC Form 366A	
20.2203(a)(2)(iv)			50.36(c)(2)			50.73(a)(2)(vii)					

LICENSEE CONTACT FOR THIS LER (12)

NAME L.E. Nicholson, Regulatory Compliance Manager	TELEPHONE NUMBER (Include Area Code) (864) 885-3292
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COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX

SUPPLEMENTAL REPORT EXPECTED (14)					EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
<input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE).	<input checked="" type="checkbox"/> NO							

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

At 2030 hours on 5-8-2000, Unit 3 was in Mode 5 preparing for restart from a refueling outage. Operators performed a review of computer alarm points required for Low Temperature Overpressure Protection (LTOP) during the restart. They discovered that two points required by Technical Specifications (TS) were in a "Delete From Alarm" (DALM) state such that they could not alarm.

An investigation found that these points had been in DALM while they were required by TS from 4-13 to 4-16-2000 during shutdown for the refueling outage. However, LTOP compensatory measures had been in effect during two specific planned shutdown evolutions. Consequently, TS Allowed Action Times were only exceeded for less than 12 minutes at 2028 hours on 4-16-2000. The investigation also found that a TS surveillance had not detected the DALM condition.

The root causes were that two Reactor Operators did not fully comply with the procedure and a surveillance procedure lacked sufficient clarity and detail. Corrective actions were to return the alarm points to service, revise the surveillance procedure, and counsel the operators. No operating conditions occurred to challenge the alarms. This event is considered to have no significance with respect to the health and safety of the public.

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EVALUATION:

BACKGROUND

This event is reportable per 10CFR 50.73(a)(2)(i)(B) - "Any operation or condition prohibited" by Technical Specifications (TS). This event is not reportable under 10CFR 50.72.

Low Temperature Overpressure Protection (LTOP) is designed to protect the Reactor Coolant System (RCS) [EIIS:AB] from overpressurization at temperatures less than 325 F by providing a relief path and by providing time for operators to take action to terminate the event causing the pressurization. TS 3.4.12 requires that the Power Operated Relief Valve (PORV) [EIIS:RV] be operable at a low pressure setpoint and that certain administrative controls be in place to assure at least 10 minutes are available from the receipt of an alarm for the Operator At The Controls (OATC) to take action to mitigate an LTOP event. One of the administrative controls is that certain Operator Aid Computer (OAC) [EIIS:ID] alarms must be operable. Two of the OAC alarms required for LTOP monitor Pressurizer (PZR) [EIIS:PZR] level and pressure points as inputs to programmed logic that will generate alarms when appropriate.

If one or more of these administrative controls are NOT in place, TS 3.4.12 Condition F allows 4 hours to implement compensatory actions. If the appropriate compensatory actions are not implemented within the allowed completion time, Condition G requires depressurizing the RCS and establishing an adequate vent path within 12 additional hours. The compensatory actions are to establish a dedicated LTOP Operator, whose sole duty is to monitor for early indications of an LTOP event, which would allow mitigating actions to be initiated before alarm setpoints are reached.

Because the significance of some alarms may depend on specific operating modes and conditions, the operators may place individual OAC data points in a state where the OAC will not check for the alarm condition. This state is known as "No Alarm Check" or "Delete From Alarm" (DALM).

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Prior to this event, Unit 3 was in Mode 3 as part of a unit shutdown for refueling. No safety systems or components were out of service that would have contributed to this event.

EVENT DESCRIPTION

On May 8, 2000, Oconee Unit 3 was in Mode 5 for 3EOC18 refueling outage. Operations personnel were making preparations in advance of unit startup to enter the mode of applicability for LTOP controls. Four Unit 3 computer alarm points associated with LTOP were discovered to be out of service due to being in DALM status. Two of these alarm points had been required to satisfy TS 3.4.12 administrative controls for LTOP during shutdown earlier in the outage.

The Operations Shift Manager and Shift Technical Advisor were notified. They confirmed that, at the time of discovery, Unit 3 was not in the mode of applicability for TS 3.4.12. The computer points were taken out of DALM and returned to normal status.

Operations determined that the event was not reportable per 10 CFR 50.72. Regulatory Compliance was notified. A Problem Investigation Process (PIP) was initiated to determine if these alarms had been in DALM during the mode of applicability during the shutdown.

The investigation found that a Senior Reactor Operator placed these OAC alarms in DALM in December 1998 following the 3EOC17 refueling outage. This was done to eliminate invalid alarms, because normal operating conditions exceeded the LTOP alarm setpoints.

The investigation determined that, on 4-13-2000, Reactor Operators A and B independently did not adequately comply with procedure steps to verify operability of these alarms prior to entry into the LTOP mode of applicability. As a result, the required LTOP computer points were not returned to service as intended by the procedure.

In addition, a TS surveillance requirement exists to verify the operability of LTOP alarms every 12 hours. The investigation found that these surveillances were performed but, due to a procedural deficiency, did not detect/correct the DALM status of these alarms.

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Therefore, these OAC alarms were out of service throughout the entire period TS 3.4.12 was applicable during the shutdown (from 1320 hours on 4-13-2000 until approximately 2040 on 4-16-2000). However, a dedicated LTOP operator was established on two separate occasions, which satisfied the limiting condition for operation (LCO). The Allowed Action Times restarted each time the dedicated operator was removed. When the allowed action times were actually exceeded, activities to establish an RCS vent were already in progress. As a result, Unit 3 was in a reportable condition prohibited by TS for only a period of two to twelve minutes between 2028 and 2040 on 4-16-2000.

A computer data base was reviewed for the status of the equivalent OAC alarms during refueling outages 1EOC18 and 2EOC17, the two most recent refueling outages prior to this event. The OAC alarms were operable when LTOP was required.

CAUSAL FACTORS

There are two root causes for this event.

The first root cause is failure of licensed operators to comply with specific details of the procedure to establish LTOP Administrative Controls. The sub-step to verify that computer alarms are in service references an enclosure that lists the computer points and a computer display group that displays data for the computer points. The operators were to independently verify that all the computer points on the enclosure were in service. It was intended that this be done by looking at the value and status on the display group of each point required by the enclosure. In this case, Operator A looked at a different computer display, which displayed the value, but not the status of the points. Operator B looked at a different enclosure, which listed input points to the alarm logic but not the alarm points themselves.

The second root cause of this event was that a surveillance procedure lacked sufficient clarity and detail for the operators to assure that the alarms were operable. TS surveillance requirement (SR) 3.4.12.6 requires verification on a 12-hour frequency that the LTOP administrative controls are implemented. This represented additional opportunities to detect and correct the error before the TS Allowed Action Time was exceeded. However, PT/3/A/0600/01

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Periodic Instrument Surveillance, the implementing procedure for the surveillance, required verification of the operability of the inputs to the LTOP alarms but did not address the alarm points themselves. Consequently, three shift crews performed this surveillance on six shifts without detecting the inoperable alarms.

CORRECTIVE ACTIONS

Immediate:

1. Prior to discovery, the mode of applicability was exited by establishing an adequate RCS vent path.
2. At time of discovery, the points were placed back into normal alarm scan, in preparation for start up.

Subsequent:

1. Operators A and B have been counseled in accordance with Duke Power personnel policies.

Planned:

1. PT/1,2,3/A/0600/01 will be revised to include the LTOP alarm points in addition to the alarm inputs.

Oconee is now in full compliance. Therefore, none of the corrective actions are considered to be NRC commitment items. There are no other NRC commitment items contained in this report.

SAFETY ANALYSIS

This event involves TS required alarms being removed from service for a longer period of time than allowed by the TS LCO without compensatory action. However, the period in which the TS action times were exceeded was estimated to be only two to twelve minutes. This short period of operation in a condition prohibited by TS is reportable. No actual event occurred to challenge the alarms.

Administrative controls, including the high level and high pressure OAC alarms that alert the operators of a potential LTOP event, are

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required as part of a second train of LTOP protection. The primary train of LTOP protection is the PORV capable of automatic operation at the LTOP setpoint. The PORV was available throughout the LTOP period except for a period of less than one hour during a calibration. During that calibration, a dedicated operator was established as a compensatory action, which satisfied the TS LCO.

The TS compensatory action for having these alarms out of service is to establish a dedicated LTOP Operator who continuously monitors instrumentation and controls to identify the earliest indications of the initiation of an LTOP event. However, even when there is no dedicated LTOP Operator, there is an assigned OATC, who is trained to monitor the plant parameters including RCS pressure and PZR level. The computer points and instruments that are inputs to the alarm were still available to the OATC to aid in detection and termination of a LTOP event.

The TS Bases describe seven LTOP initiating scenarios, of which only three would be affected by having these alarms out of service.

Scenario 1 is the case where the makeup control valve (HP-120) fails open to its travel stop. The High Pressure Injection (HPI) [EIIS:BG and CB] system was removed from service (pumps off but available to start) at 1050 on 4-16-2000 (i.e. prior to the reportable period). Therefore, this scenario was less likely to occur during the reportable period.

Scenario 2 is the case where PZR heaters are erroneously energized. At 1743 on 4-16-2000, the PZR heaters were deenergized and tagged out. Therefore, this scenario could not occur during the reportable period.

Scenario 3 is a LTOP event where a temporary loss of decay heat removal occurs. In this scenario, there are control room alarms associated with the Low Pressure Injection (LPI) [EIIS:BP] system and Low Pressure Service Water (LPSW) [EIIS:BI] system. With respect to LTOP, those LPI and LPSW alarms do not provide adequate operator response time for all possible initial RCS conditions and decay heat removal system alignments. Therefore, they are not credited in the LTOP analysis. However, the reportable period did not occur until after RCS pressure was less than 100 psig; the Reactor Coolant Pumps were secured; and the unit had been subcritical for approximately 90 hours. Under these initial

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conditions, heat input is reduced and margin to the pressure limit is increased so that available operator response time is estimated to be 40 minutes or longer, much greater than the ten minutes required by TS.

Generically, there is a low probability of LTOP events at Babcock and Wilcox (B&W) designed plants since these plants are not normally operated in a water solid condition. The LTOP analyses credit the fact that Oconee has a PZR bubble present at all times (either steam or nitrogen) excluding hydro testing of the system. In this event the time period that the LTOP TS was applicable was approximately 3.3 days, but, due to use of the dedicated operator, credit was taken for the alarms for only about 1.25 days. Of that time, Unit 3 was out of compliance with TS for less than 15 minutes.

In summary, this analysis finds that LTOP events are low probability events, that the reportable time period was very short, that only two of seven LTOP scenarios depended on these alarms during that time, and the probability and significance of those two LTOP scenarios were greatly reduced due to the actual conditions. Therefore, the health and safety of the public was not affected by this event.

ADDITIONAL INFORMATION

A review of events over the previous two years indicates no similar events (LTOP train inoperable) due to these root causes (Operator inappropriate action or deficient procedure). Therefore, this event is not considered recurring.

There were no releases of radioactive materials, radiation exposures, or personnel injuries associated with this event.

This event is not considered reportable under the Equipment Performance and Information Exchange (EPIX) program.

This event did not include a Safety System Functional Failure.