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 FACIL: 50-269 Oconee Nuclear Station, Unit 1, Duke Power Co. 05000269
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 RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 93-002-00: on 930129, unplanned RPS actuation occurred during depressurization & cooldown of RCS & one channel of RPS tripped unexpectedly. Caused by lack of attention to detail. Controlling procedures revised. W/930301 ltr.

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DUKE POWER

March 1, 1993

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

Subject: Oconee Nuclear Site
Docket Nos. 50-269, -270, -287
LER 269/93-02

Gentlemen:

Pursuant to 10 CFR 50.73 Sections (a)(1) and (d), attached is Licensee Event Report (LER) 269/93-02, concerning an unplanned Reactor Protective System actuation during unit shutdown.

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

Very truly yours,


J. W. Hampton
Vice President

/ftr

Attachment

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LICENSEE EVENT REPORT (LER)

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

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), 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.

FACILITY NAME (1) Oconee Nuclear Station, Unit One	DOCKET NUMBER (2) 05000 269	PAGE (3) 1 OF 5
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TITLE (4) **Operator Inattention To Detail Results In An Unplanned Reactor Protective System Actuation During Unit Shutdown**

EVENT DATE (5)			LER NUMBER (6)			REPORT NUMBER (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
01	29	93	93	-- 02 --	00	03	01	93		05000
										05000

OPERATING MODE (9) N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)																	
POWER LEVEL (10) 000	<input type="checkbox"/> 20.402(b)	<input type="checkbox"/> 20.405(a)(1)(i)	<input type="checkbox"/> 20.405(a)(1)(ii)	<input type="checkbox"/> 20.405(a)(1)(iii)	<input type="checkbox"/> 20.405(a)(1)(iv)	<input type="checkbox"/> 20.405(a)(1)(v)	<input type="checkbox"/> 20.405(c)	<input type="checkbox"/> 50.36(c)(1)	<input type="checkbox"/> 50.36(c)(2)	<input checked="" type="checkbox"/> 50.73(a)(2)(iv)	<input type="checkbox"/> 50.73(a)(2)(v)	<input type="checkbox"/> 50.73(a)(2)(vii)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)	<input type="checkbox"/> 50.73(a)(2)(x)	<input type="checkbox"/> 73.71(b)	<input type="checkbox"/> 73.71(c)	<input type="checkbox"/> OTHER

(Specify in Abstract below and in Text, NRC Form 366A)

LICENSEE CONTACT FOR THIS LER (12)

NAME S. G. Benesole, Safety Review Manager	TELEPHONE NUMBER (Include Area Code) (803) 885-3518
--	---

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)	<input checked="" type="checkbox"/>	NO					

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

On January 29, 1993 at approximately 1536 hours, Unit 1 was at Hot Shutdown conditions, following a refueling outage, when a leaking valve was discovered. Reactor Coolant System (RCS) pressure and temperature had to be reduced in order to repair the leaking valve. During the depressurization and cooldown of the RCS, an unplanned Reactor Protective System (RPS) actuation occurred. The Reactor was subcritical with Safety Rod Group 1 at approximately 50% withdrawn. The operator was decreasing RCS pressure and temperature when his attention was diverted to a control rod problem. One RPS channel tripped unexpectedly on low RCS pressure, followed by another RPS channel trip. The unit shutdown continued in accordance with the shutdown procedure. The Root Cause of this event is Inappropriate Action (Improper Action - Lack of Attention to Detail) and a contributing cause of Management Deficiency (Deficient Supervision - Insufficient Supervision). Corrective actions include, Reactor Operator A and the Control Room SRO conveying the lessons they learned as a result of this event to all five operating shifts and making changes to the shutdown procedure.

**LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION**

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

BACKGROUND

The Reactor Protective System (RPS) [EIIS:JC] is a safety related system which protects the reactor core from damage by automatically deenergizing control rod drive mechanisms (CRDMs) when two of four independent input channels reach their setpoint. Among the inputs to the RPS is Reactor Coolant System (RCS)[EIIS:AC] low pressure. The low RCS pressure setpoint is procedurally set at 1810 psig.

The CONTROLLING PROCEDURE FOR UNIT SHUTDOWN, OP/1/A/1102/10, describes the steps required to cooldown and depressurize the RCS. Safety Rod Group 1 [EIIS:ROD] is kept at 50% withdrawn during most of this procedure to provide available negative reactivity for insertion if required. Rods are manually inserted prior to reaching the low pressure RPS trip setpoint. The RPS is expected to trip as the RCS is depressurized to the low pressure setpoint. After RCS pressure is further reduced, the Shutdown Bypass feature of RPS allows the RPS and CRDMs to be reset and Group 1 control rods are withdrawn to 50% to continue the cooldown.

EVENT DESCRIPTION

On January 29, 1993 at approximately 1500 hours, Oconee Nuclear Station Unit 1 was at Hot Shutdown following a refueling outage (Start-up in progress). Operations Staff personnel notified Operations shift supervision to reduce the Reactor Coolant System (RCS) pressure to 1000 psig and temperature to 400 degrees to allow maintenance to repair a leaking flange on a Core Flood System check valve.

At approximately 1510 hours, the Control Room Senior Reactor Operator (CR SRO) instructed Reactor Operator A (RO A) to begin cooldown and depressurization of the RCS per Enclosure 4.2, (OP/1/A/1102/10) HOT SHUTDOWN CONDITIONS TO 250F/350PSIG. The RCS was already borated to provide an adequate shutdown margin. Prior to commencing cooldown and depressurization of the RCS, the CR SRO reviewed the procedure with RO A to determine RCS pressure/temperature hold points. The initial hold point was at 1900 to 1850 psig to insert Safety Group 1 rods. Reactor Operator B (RO B) was on break from the control room during the review of hold points. The CR SRO returned to his desk within the Control Room to review the shutdown/startup procedures to determine the appropriate procedure action to place the RCS at 1000 psig and 400 degrees F and align the RCS for heatup after the leaking valve was repaired.

In accordance with step 2.3 of Enclosure 4.2, RO A commenced cooldown by adjusting the Turbine Bypass Valves (TBVs)[EIIS:SO]. Depressurization was begun at approximately 1525 hours by deenergizing the pressurizer

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[EIIS:VSL] heaters. The pressurizer spray valve (RC-1) [EIIS:V] was placed in manual and opened with RCS pressure at approximately 2133 psig at 1527 hours. RO B returned to the control room at approximately 1530 hours and was told by RO A that he had started depressurization and cooldown of the RCS. RO B was preparing to take RCS temperature data in order to plot and maintain the proper RCS cooldown rate.

At approximately 1532 hours, RO A observed an asymmetric rod fault on rod 5 in Safety Rod Group 1. Instrument and Electrical (I&E) Personnel, who were in the control room at that time, suggested that RO A exercise the rod to free a rod position indication reed switch that appeared to be sticking. The CR SRO was aware of the rod problem and approved the exercising of the rod by RO A at this time.

While in the process of exercising the rod, RO A did not recognize that RCS pressure was approaching the low pressure setpoint of 1810 psig, Reactor Protection System Channels B and A tripped on low pressure at 1536:08 hours. This initiated a reactor trip signal, opened the Control Rod Drive breakers, and dropped Safety Rod Group 1 into the core from approximately 50% withdrawn. No operating transients occurred, because the reactor was already shutdown. Operations personnel investigated the cause and determined that the trip occurred due to the actuation of the RPS on the low pressure setpoint.

CONCLUSIONS

The Root Cause of this event is classified as Inappropriate Action, Improper Action; lack of attention to detail. RO A allowed his attention to be diverted from the depressurization of the Reactor Coolant System (RCS) to the asymmetric rod fault. During the exercising of the rod, RO A was not observing the decreasing RCS pressure, therefore RO A allowed RCS pressure to decrease below the plateau where Safety Rod Group 1 should have been inserted into the core. This resulted in the unexpected actuation of the Reactor Protection System (RPS). An interview with RO A revealed that he was aware of the plateau in which Safety Rod Group 1 should have been inserted. RO A also stated that he last observed RCS pressure at 1910 psig prior to exercising the rod. At the existing depressurization rate this was about thirty seconds prior to entering the window in which Group 1 is required to be inserted. It is concluded that if RO A had maintained his focus on the depressurization of the RCS, this event would have been prevented.

A contributing cause to this event is a Management Deficiency, Deficient Supervision, insufficient supervision. Operations Management Procedure

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2-1, Enclosure 4.5, RESPONSIBILITIES OF THE SRO IN THE CONTROL ROOM, states that the SRO in the Control Room shall oversee the activities in the Control Room. The SRO in the Control Room should not have allowed any additional activities to occur which would divert RO A's attention from the depressurization of RCS. The exercising of the rod could have been delayed until the completion of the RCS depressurization. The exercising of the rod should have been performed later, when the procedure required Group 1 to be inserted into the core. If the SRO in the Control Room had not allowed the rod exercising job to override the more important task of controlling the RCS depressurization this event may not have occurred.

A review of past events over the last two years revealed one similar event. LER 287/91-01 (Unplanned Reactor Protective System Actuation During Depressurization) reported an unplanned RPS actuation occurred during a planned shutdown. The root cause of that event was an inappropriate action on the part of the Reactor Operator controlling the shutdown. The Reactor Operator was not observing the correct pressure indication. The corrective actions were too narrow in scope to be effective. This event is classified as recurring. The corrective actions taken as result of this LER should prevent a similar event from occurring in the future.

There were no releases of radioactive materials, no personnel overexposure or personnel injuries associated with this event. There were no equipment malfunctions or component failures involved in the event, therefore no NPRDS reportable conditions exists. The health and safety of the public were not compromised as a result of this event.

CORRECTIVE ACTIONS

Immediate

NONE

Subsequent

- 1) Operations shift personnel continued the cooldown and depressurization of the unit in accordance with the shutdown procedure.

Planned

- 1) Reactor Operator A and Control Room SRO who were involved in this event will discuss this event with all five operating shifts, indicating lesson learned as result of this event.

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- 2) Operations Management will reemphasize Operations Management Procedure 2-1 (Duties and Responsibilities of Operations Personnel) to the Reactor Operator and the Control Room SRO involved in this event.
- 3) The Controlling Procedure for Unit Shutdown Enclosure 4.2 will be revised for all three units. The revision will require Group 1 Rods to be inserted prior to opening RC-1 (Pressurizer Spray Valve) to initiate depressurization the Reactor Coolant System from hot shutdown conditions.

SAFETY ANALYSIS

Unit 1 was subcritical and in the process of cooling down from Hot Shutdown to repair a leaking valve. The reactor tripped, dropping the Safety Rod Group 1 rods from approximately 50% withdrawn position. The Reactor Coolant System had been borated to maintain >1% Shutdown Margin with the worst case rod fully stuck out in accordance with the shutdown procedure. Following the reactor trip, the unit was safely maintained below hot shutdown. No significant abnormalities in plant parameters were observed following the trip. There were no actuation of Engineered Safeguards systems. The pressurizer relief valves did not open. There was no abnormal Reactor Coolant System leakage identified due to this trip. There were no personnel injuries or overexposure associated with this event. The health and safety of the public were not affected as a result of this event.