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February 16, 2000

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

Subject: Oconee Nuclear Site  
Docket No. 50-270  
Licensee Event Report 270/1999-04, Supplement 1  
Problem Investigation Process No.: O-99-2532

Gentlemen:

Pursuant to 10 CFR 50.73 Sections (a) (1) and (d), attached find Supplement 1 to Licensee Event Report 270/1999-04, concerning operation of the Unit 2 Reactor Coolant Pump Lube Oil Collection system outside design basis with respect to 10 CFR 50 Appendix R, (III), O.

The event was originally assessed as not meeting the reportability criteria of 10 CFR 50.73. A subsequent investigation revealed that while some utilities have reported similar events, there currently is no clear industry consensus. Notwithstanding, Duke has elected to conservatively report this event.

This report is being submitted in accordance with 10 CFR 50.73 (a)(2)(ii)(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

Document Control Desk

Date: February 16, 2000

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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  
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Washington, D.C. 20555

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700 Galleria Parkway, NW  
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Mr. M. C. Shannon  
NRC Senior Resident Inspector  
Oconee Nuclear Site

NRC FORM 366 U.S. NUCLEAR REGULATORY COMMISSION (4-95)	APPROVED OMD NO. 3150-0104 EXPIRES: 04/30/98 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 (MNB 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.
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## LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Oconee Nuclear Site, Unit 2	DOCKET NUMBER (2) 0 5 0 - 270	PAGE (3) 1 of 5
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TITLE (4)  
 Reactor Coolant Pump Lube Oil Collection System Outside Design Basis with respect to 10CFR 50 Appendix R (III) (O)

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)
06	18	99	1999	04	01	02	16	00		0 5 0

OPERATING MODE (9) 1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR (Check one or more of the following) (11)									
POWER LEVEL (10) 100	<input type="checkbox"/>	20.402(b)	<input type="checkbox"/>	20.405(c)	<input type="checkbox"/>	50.73(a)(2)(iv)	<input type="checkbox"/>	73.71(b)		
	<input type="checkbox"/>	20.405(a)(1)(i)	<input type="checkbox"/>	50.36(c)(1)	<input type="checkbox"/>	50.73(a)(2)(v)	<input type="checkbox"/>	73.71(c)		
	<input type="checkbox"/>	20.405(a)(1)(ii)	<input type="checkbox"/>	50.36(c)(2)	<input type="checkbox"/>	50.73(a)(2)(vii)	<input type="checkbox"/>	OTHER (Specify in		
	<input type="checkbox"/>	20.405(a)(1)(iii)	<input type="checkbox"/>	50.73(a)(2)(i)	<input type="checkbox"/>	50.73(a)(2)(viii)(A)	<input type="checkbox"/>	Abstract below and		
	<input type="checkbox"/>	20.405(a)(1)(iv)	<input checked="" type="checkbox"/>	50.73(a)(2)(ii)(B)	<input type="checkbox"/>	50.73(a)(2)(viii)(B)	<input type="checkbox"/>	in Text, NRC Form		
<input type="checkbox"/>	20.405(a)(1)(v)	<input type="checkbox"/>	50.73(a)(2)(iii)	<input type="checkbox"/>	50.73(a)(2)(x)	<input type="checkbox"/>	366A)			

LICENSEE CONTACT FOR THIS LER (12)								TELEPHONE NUMBER							
NAME L.E. Nicholson, 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)				<input checked="" type="checkbox"/> YES (f yes, complete EXPECTED SUBMISSION DATE)				<input type="checkbox"/> NO			
				EXPECTED SUBMISSION DATE (15)				MONTH DAY YEAR			

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

At 2335 on 6-18-99 control room instruments indicated an oil leak from the 2A1 Reactor Coolant Pump (RCP) Motor. Power was reduced to <70% at 0217 on 6-19-99 and the 2A1 RCP was secured at 0218. An unrelated reactor trip occurred at 1015 on 6-19-99 from approximately 65% due to a Main Turbine Trip (reference LER 270/1999-02). Subsequently, it was observed that the Appendix R oil collection system, that is designed to collect and route leakage to an oil collection tank in the reactor building basement, had leaked approximately 10 gallons of oil. The source of this leakage was a seal at the gasketed drip pan joint. The drip pan was reassembled using high temperature RTV sealant on the gasket to improve the seal. Corrective actions include the repair addressed above and enhanced maintenance procedural guidance.

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**EVALUATION:**

**BACKGROUND**

As described in UFSAR Section 9.5.1.6.1, the reactor coolant pumps (RCP) are provided with lube oil collection (LOC) systems to prevent oil spillage from reaching areas that may be above the flashpoint of the lubricating oil. The pump upper and lower oil pots are equipped with a shield to direct oil leakage to a collection tank.

This document reflects a conservative decision to report operation of the Unit 2 Reactor Coolant Pump LOC system outside design basis with respect to 10 CFR 50 Appendix R, (III), O, due to a small oil leak onto hot reactor coolant system (RCS) piping. At the time the condition was identified, the unit was in Mode 3. The sealing material used on the Unit 2 RCP LOC system degraded during the time period since the last refueling outage in May 1998.

**EVENT DESCRIPTION**

At 2335 on 6-18-99, a Control Room alarm for low oil pot level on the 2A1 RCP Motor was received. A slow downward trend on the RCP Motor lower oil pot level had increased. Operations calculated the rate of decrease would necessitate tripping the RCP within about three hours. Abnormal Procedure AP/2/A/1700/06 was entered and appropriate notifications were made. A power reduction to <70% was initiated. The affected RCP was secured at 0218 on 6-19-99. An unrelated reactor trip occurred at 1015 on 6-19-99 from approximately 65% due to a Main Turbine Trip. A reactor building (RB) entry was made at approximately 1700 on 6-19-99. Personnel noticed RCP lube oil vaporizing from contact with hot RCS piping. There were no visible flames. The decision was made to cool the reactor coolant system (RCS) down to 400°F (below the flashpoint of the oil). The cooldown was achieved at 0600 on 6-20-99.

During investigation, the drip (catch) pan under the RCP motor oil pot was found to be leaking. Approximately 10 gallons of oil had leaked out of the pan from a faulty seal at the drip pan joint gasket. The seal was

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repaired and the 2A1 RCP was re-started on 6-21-99 in preparation for unit startup.

CAUSAL FACTORS

The root cause of the oil leakage was inadequate maintenance procedural guidance that resulted in a degraded seal on the drip pan joint gasket.

CORRECTIVE ACTIONS

Immediate:

1. The RCS was cooled down below the 400°F flashpoint of the oil.

Subsequent:

1. The drip pan was reassembled using high temperature RTV sealant on the gasket.
2. The Unit 2 Reactor Coolant Pump Oil Collection System Enclosures were inspected, and repaired as needed.
3. The RCP Motor Major Preventative Maintenance procedure was revised to include enhanced guidance on inspection and sealing of the LOC enclosures.

Planned:

1. At the next refueling outage, inspect and refurbish as necessary the Unit 1 RCP Oil Collection System.
2. At the next refueling outage, inspect and refurbish as necessary the Unit 3 RCP Oil Collection System.
3. Engineering to review and initiate a PM Action Form to add the RCP Oil Collection System Enclosures to the PM Program for each unit.

The planned corrective actions 1-3 above are considered to be the only NRC Commitment Items contained in this LER.

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**SAFETY ANALYSIS**

The plant emergency procedures and strategies ensure there are sufficient features available to safely shutdown the plant. Fire protection uses a defense-in-depth solution to minimize the hazards and effects associated with fires. In this instance, there was no fire. The total amount of oil accumulated in the RCP LOC system was about 25 gallons. Of that quantity, only about 10 gallons leaked out. This leakage vaporized upon contact with the hot RCS piping. The risk of fire initiation in the reactor building was minimal due to the high flash point (450°F) of the oil, the collected location, and limited oxygen availability. The only potential ignition source was thermally hot pipe that is covered with metallic reflective insulation. This metallic jacket limited oxygen availability to the hot oil and would have mitigated the potential severity of a fire. A fire at any RCP would be limited to that cavity by lack of continuity of combustible materials. Thus, the potential for fire propagation was low. Additionally, the affected cavity is equipped with heat detectors to alert operators in the event of an actual fire.

The safety related pressure boundary of the RCP itself was not affected. There was no evidence of any design deficiencies with the RCP LOC systems.

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

**ADDITIONAL INFORMATION**

With respect to Appendix R, the design basis is considered: the ability to achieve and maintain hot standby in the time required, the ability to facilitate repairs and move to cold shutdown to complete repairs while maintaining core cooling, containment integrity and RCS integrity. The ability to achieve and maintain the aforementioned conditions is predicated on precluding fires from developing and being sustained in plant vital areas. The

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design basis of the RCP LOC system is to prevent oil from getting onto hot piping or equipment with a surface temperature above the flashpoint of the oil, thereby, eliminating a potential ignition in the reactor building. An ongoing review of the circumstances that led to this LER concluded that leakage of the RCP oil collection system onto hot piping constituted a condition outside the design basis.

A sample of the industry revealed a wide spectrum of policies regarding the reportability of issues related to RCP LOC system leakage. On 11-18-99, Duke chose to conservatively report the leak as operation of the Unit 2 RCP LOC system outside the design basis with respect to 10 CFR 50 Appendix R, (III), O. On 12/18/99, Duke provided an abstract of this incident to the NRC, and advised that a supplement would be provided within 60 days.

There were no releases of radioactive material, personnel over-exposures, or injuries associated with the event. There were no EPIX reportable equipment failures associated with the event.

A review of previous events at Oconee found one similar RCP LOC system leak due to a cracked oil catch pan. In that case, none of the oil leakage reached hot piping or equipment. The RCP LOC system was determined to be operable, and that problem was considered an isolated occurrence. Corrective actions from that event would not have reasonably been expected to preclude this event.