

CATEGORY 1

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 9708040023 DOC. DATE: 97/07/25 NOTARIZED: NO
 FACIL: 50-269 Oconee Nuclear Station, Unit 1, Duke Power Co.
 AUTH. NAME AUTHOR AFFILIATION
 BOND, R.T. Duke Power Co.
 MCCOLLUM, W.R. Duke Power Co.
 RECIP. NAME RECIPIENT AFFILIATION

DOCKET #
05000269

SUBJECT: LER 97-007-00: on 970624, ECCS technically inoperable. Caused by inappropriate action failure to adhere to directives. Inspections were performed to verify whether potentially unapproved insulation existed in RB.W/970725 ltr.

DISTRIBUTION CODE: IE22T COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 8
 TITLE: 50.73/50.9 Licensee Event Report (LER), Incident Rpt, etc.

NOTES:

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Duke Power Company
A Duke Energy Company

Oconee Nuclear Site
P.O. Box 1439
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W. R. McCollum, Jr.
Vice President

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July 25, 1997

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

Subject: Oconee Nuclear Station
Docket Nos. 50-269, -270, -287
Licensee Event Report 269/97-07, Revision 0
Problem Investigation Process No.: 1-097-1924

Gentlemen:

Pursuant to 10 CFR 50.73 Sections (a) (1) and (d),
attached is Licensee Event Report 269/97-07, concerning
the technical inoperability of the Emergency Core Cooling
System.

This report is being submitted in accordance with 10 CFR
50.73 (a) (2) (ii) (B) and 10 CFR 50.73 (a) (2) (v) (D). 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

9708040023 970725
PDR ADOCK 05000269
S PDR



Document Control Desk

July 25, 1997

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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
Office of Nuclear Reactor Regulation
Washington, D.C. 20555

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

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.

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)

Oconee Nuclear Station, Unit One

DOCKET NUMBER (2)

05000 269

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TITLE (4) Emergency Core Cooling System Technically Inoperable Due To An Inappropriate Action

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	24	97	97	07	00	07	25	97	Oconee, Unit Two	05000 270
									Oconee, Unit Three	05000 287

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)	00	20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)
		20.405(a)(1)(i)	50.36(c)(1)	X 50.73(a)(2)(v) (D)	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)	50.73(a)(2)(i)	50.73(a)(2)(viii)(A)	
		20.405(a)(1)(iv)	X 50.73(a)(2)(ii)(B)	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

R. T. Bond, Safety Review Manager

TELEPHONE NUMBER

AREA CODE

864

885-3043

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)

YES (if yes, complete EXPECTED SUBMISSION DATE)

X

NO

EXPECTED SUBMISSION DATE (15)

MONTH DAY YEAR

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

On June 24, 1997, while Unit 1 was at cold shutdown, a routine walk down of the Reactor Building identified two sections of reactor coolant piping wrapped with blanket insulation that had potentially not been evaluated for use inside containment. A decision was made to inspect Unit 3 while power was at 15% and also to decrease power on Unit 2 from 100% to 15% for an inspection. Unit 3's inspection discovered two questionable pieces of blanket insulation and Unit 2's inspection discovered one piece. The questionable insulation was removed on all three units. No documentation could be found to show this insulation had been qualified or approved prior to use inside containment. Therefore, on June 25, 1997, Engineering concluded that past operability of the Reactor Building Emergency Sump may not be justified based on the unknown characteristics of the unapproved insulation. The Low Pressure Injection, High Pressure Injection, and Reactor Building Spray Systems might have been technically inoperable in the past. The root cause of this event is determined to be Inappropriate action, failure to adhere to directives. Planned corrective actions include increasing the awareness of engineering and maintenance personnel on the importance of utilizing the modification process when removing and replacing insulation in the Reactor Building.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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BACKGROUND:

The Low Pressure Injection (LPI) [EIIS:BP] system is an Engineered Safeguard System (ES) [EIIS:JE] designed to maintain core cooling for large break Loss of Coolant Accidents (LOCA). The High Pressure Injection (HPI) [EIIS:BG] System is also a part of the Emergency Core Cooling System (ECCS). The HPI System prevents uncovering of the core for smaller break sizes, where high Reactor Coolant System pressure is maintained, and delays the uncovering of the core for intermediate break sizes. The Reactor Building Spray System (RBS) [EIIS:BE] is an ES System designed to remove heat from the Reactor Building (RB) [EIIS:NH] following an accident.

Following an ES actuation the Borated Water Storage Tank (BWST) is the initial source for the LPI, HPI and RBS pumps. Prior to emptying the BWST, the suction path is aligned to the Reactor Building Emergency Sump. In small break LOCAs, the discharge of the LPI Coolers are aligned to the suction of the HPI pumps. This allows water to be circulated from the Reactor Building sump through the LPI pumps and LPI Coolers to the HPI pumps.

Technical Specification 3.0 states, "In the event a Limiting Condition for Operation and/or associated action requirements cannot be satisfied because of circumstances in excess of those addressed in the specification, the affected unit shall be placed in at least Hot Shutdown within the next 12 hours, and in at least Cold Shutdown within the following 24 hours unless corrective measures are completed that permit operation under the permissible action statements for the specified time interval as measured from initial discovery or until the reactor is placed in a mode in which the specification is not applicable."

EVENT DESCRIPTION:

On June 24, 1997, while Unit 1 was at cold shutdown, a routine walk down identified two sections of reactor coolant piping which had blanket insulation of a type that had not been evaluated for use inside containment. The immediate concern was that the insulation might become damaged after an accident and migrate to the Reactor Building Emergency Sump (RBES) where it might impact the operability of the systems which use the RBES to mitigate an accident. The questionable insulation was removed.

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Engineering questioned the qualification of the insulation and efforts were initiated to determine if similar insulation may exist in Units 2 and 3. At this time, Unit 3 was at 15% power and Unit 2 was at 100% power. A decision was made to inspect Unit 3 while at 15% power. Unit 3 was inspected at 1800 hours and the inspection discovered two questionable pieces of blanket insulation, which were removed. As a result, Engineering began an immediate evaluation of the impact of the suspect insulation on the RBES operability.

On June 25, 1997, at 2015 hours, Engineering concluded that operability of the RBES may not have been justified based on information available at this time because it is not known what buoyancy, transport, and head loss characteristics this material will exhibit. Engineering reviews in progress at this time also discovered photographs showing one piece of questionable insulation on Unit 2 reactor coolant piping. Therefore, the Low Pressure Injection, High Pressure Injection and Reactor Building Spray Systems on all three units might have been technically inoperable in the past and the present operability of Unit 2 was in question. As a result of these findings, a decision was made to conservatively enter Technical Specification (TS) 3.0 on Oconee Unit 2 at 2030 hours. Unit 2 was operating at 100% full power and power reduction began immediately to allow inspection and removal of questionable blanket insulation.

At 2334 hours, an inspection of Unit 2 began with power at approximately 15% power. The inspection found only the one piece of questionable insulation which had been previously identified by photographs.

On June 26, 1997, at 0030 hours, TS 3.0 was exited due to the insulation being removed. Unit 2 began power escalation to return to 100% power.

A review of past work requests and modifications that involved insulation within the Reactor Building was performed. Several modifications were discovered where damaged mirror insulation was removed and replaced with blanket type insulation that had been evaluated and approved by Engineering. However, no work requests or modifications were discovered that installed the unapproved blanket type insulation discovered in all three units. An interview with the insulation planner was conducted and he could not recall installing the unapproved insulation. Also, the engineer presently responsible for insulation could not recall approving the unapproved insulation. Interviews with various plant personnel revealed

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that insulation blankets of the type found in all three units were manufactured on site sometime in the middle 1980s for use outside containment. The mirror insulation drawings (which are controlled drawings but not marked as subject to the QA program) indicated that mirror insulation should have been installed where the unapproved insulation was found.

Engineering is still performing a past operability evaluation. This requires testing at an independent laboratory to determine the characteristics of the insulation material used in the blankets. This event is conservatively being reported assuming the past inoperability of the HPI, LPI, and RBS systems.

CONCLUSIONS:

The root cause of this event is Inappropriate action, failure to adhere to directives. The investigation did not identify the person or persons involved in the decision to use this type insulation. No modification was found which documented the installation of this insulation. If the modification process had been followed as required, only evaluated and approved insulation would have been installed and this event could have been prevented.

A review of operating experience at Oconee over the past two years did not reveal any previous events that involved the technical inoperability of a system required to mitigate an accident due to an inappropriate action. Therefore, this event is considered non-recurring.

There were no personnel injuries nor radioactive overexposures as a result of this event.

There was no NPRDS equipment failure associated with this event.

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CORRECTIVE ACTIONS:

Immediate:

1. Inspections were performed to verify whether potentially unapproved insulation existed in the Reactor Buildings.
2. The unapproved insulation found in all three units was removed.

Subsequent:

None

Planned:

1. The expectations and importance of following the modification process for removal and replacement of insulation will be communicated to all involved Engineering and Maintenance personnel.
2. An analysis will be performed on the unapproved insulation to determine its acceptability.

SAFETY ANALYSIS:

In this event insulation was discovered in the Reactor Buildings that might not meet design qualifications. The safety significance of this event is the potential for unapproved insulation to be blown off during a postulated Loss of Coolant Accident (LOCA) and possibly clog the Reactor Building Emergency Sump (RBES). As a result, the Low Pressure Injection (LPI), High Pressure Injection (HPI), and Reactor Building Spray systems (RBS) may become inoperable during the recirculation phase of a LOCA.

Following an Engineered Safeguards actuation, the Borated Water Storage Tank (BWST) is the initial source for the LPI pumps, HPI pumps and RBS pumps. Once the BWST is depleted, suction is taken from the RBES. However, in the unlikely event that a LOCA occurred on the piping where the potentially unapproved insulation was installed, the entire piece of insulation would have to be blown off and propagate in its entirety through a rigorous path to the RBES. Then the insulation would have to spread over

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the entire surface area of the RBES screens to prevent operation of the sump.

In the unlikely event that the RBES became totally clogged, measures could have been taken to refill the BWST. If this could not have been performed, a condition might have existed that potentially could have led to core damage.

The impact that the unapproved insulation may have on plant risk has been assessed. The assessment considers the low probability that the insulation would be transported to the RBES and the ability of the RBES to handle some amount of blockage. Considering these factors, the impact on the RBES recirculation and plant risk is small.

During the period of potential inoperability, no event occurred which required the accident mitigation functions of the LPI, HPI and RBS. Therefore, the health and safety of the public was not affected by this event.