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REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 9210140170 DOC. DATE: 92/10/08 NOTARIZED: NO
 FACIL: 50-269 Oconee Nuclear Station, Unit 1, Duke Power Co.
 AUTH. NAME: BENESOLE, S.G. AUTHOR AFFILIATION: Duke Power Co.
 HAMPTON, J.W. Duke Power Co.
 RECIP. NAME: RECIPIENT AFFILIATION

DOCKET #
05000269

SUBJECT: LER 92-013-00: on 920908, containment isolation valve 1N-107 found open. Caused by defective procedure (technical deficiency). 1N-107 closed & containment integrity restored. W/921008 ltr.

DISTRIBUTION CODE: IE22T COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 7
 TITLE: 50.73/50.9 Licensee Event Report (LER), Incident Rpt, etc.

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Duke Power Company
Oconee Nuclear Generation Department
P.O. Box 1439
Seneca, SC 29679

J.W. HAMPTON
Vice President
(803)885-3499 Office
(704)373-5222 FAX



DUKE POWER

October 8, 1992

U. S. Nuclear Regulatory Commission
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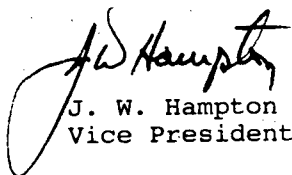
Subject: Oconee Nuclear Site
Docket Nos. 50-269, -270, -287
LER 269/92-13

Gentlemen:

Pursuant to 10 CFR 50.73 Sections (a)(1) and (d), attached is Licensee Event Report (LER) 269/92-13, concerning a Technical Specification violation due to lack of containment integrity.

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,


J. W. Hampton
Vice President

/ftr

Attachment

xc: Mr. S. D. Ebnetter
Regional Administrator, Region II
U.S. Nuclear Regulatory Commission
101 Marietta St., NW, Suite 2900
Atlanta, Georgia 30323

Mr. L. A. Wiens
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555

INPO Records Center
Suite 1500
1100 Circle 75 Parkway
Atlanta, Georgia 30339

Mr. P. E. Harmon
NRC Resident Inspector
Oconee Nuclear Site

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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 (MNNB 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 6		
TITLE (4) Technical Specification Violation Due To Lack Of Containment Integrity Resulting From A Defective Procedure														
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			
09	08	92	92	-- 13 --	00	10	08	92			05000			
OPERATING MODE (9)		N		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (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				
				20.405(a)(1)(iii)		<input checked="" type="checkbox"/> 50.73(a)(2)(i) (B)		50.73(a)(2)(viii)(A)		(Specify in Abstract below and in Text, NRC Form 366A)				
				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 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)					NO <input checked="" type="checkbox"/>									

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

ABSTRACT

On September 8, 1992 at 2250 hours, Unit 1 was operating at 100 percent full power. Containment Isolation valve 1N-107 was found open during the quarterly performance of the Reactor Building Containment Isolation and Verification procedure. Upon discovery, the valve was closed as required by Technical Specifications for containment integrity. Investigation revealed that on May 30, 1992, during a startup after a forced outage, 1N-107 had been opened by procedure. This procedure did not contain provisions for reclosing the valve. The Reactor Building Containment Isolation and Verification procedure had been started on May 29, 1992 and completed on June 3, 1992. The controlling procedure for Unit Startup allowed these procedures to be performed simultaneously. The root cause of this event is Defective Procedure (technical deficiency). Corrective actions include revising procedures to return 1N-107 to the closed position within the procedure.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

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TEXT (If more space is required, use additional NRC Form 388A's) (17)

BACKGROUND

The Low Pressure Nitrogen [EIIS:LK] header penetrates the Reactor Building (RB) [EIIS:NH] and supplies nitrogen to various components in the RB. Containment integrity is established by closing three valves. Valves 1N-107 (Low Pressure Nitrogen Heater Bypass), 1N-106 (Low Pressure Nitrogen Heater Outlet) are manually operated valves located outside the RB within the Auxiliary Building. Valve 1N-246 (Low Pressure Nitrogen Header Isolation) is a check valve located inside the RB.

Technical Specification 3.6.1 states that containment integrity shall be maintained whenever all of the following exist:

- 1) Reactor coolant [EIIS:AB] pressure is 300 psig or greater.
- 2) Reactor coolant temperature is 200 degrees F or greater.
- 3) Nuclear fuel is in the core [EIIS:RCT].

Containment integrity is established such that, should the maximum hypothetical accident occur, the limits of 10CFR100 would not be exceeded.

PT/1/A/115/08 (Reactor Building Containment Isolation and Verification) is performed during startups in order to verify that containment integrity exists prior to exceeding 200 degrees F and 300 psig in the Reactor Coolant System. It is also performed quarterly to verify containment integrity exists.

EVENT DESCRIPTION

On May 24, 1992 at 1230 hours, a shutdown of Unit 1 was initiated due to degraded conditions of the 1A2 Reactor Coolant Pump seals.

On May 26, 1992 at 0602 hours, OP/0/A/1103/05 (Pressurizer Operation) Enclosure 3.2 (Pressurizer Shutdown - Depressurization) was used to align nitrogen to the Pressurizer. This enclosure would have placed the Nitrogen (N2) System heater in service. However, the heater was inoperable and OP/0/A/1102/06 (Removal & Restoration of Station Equipment) (R & R) was issued to open 1N-107 (Low Pressure N2 Heater Bypass). This completed the alignment for addition of N2 to the Pressurizer.

At 2239 hours, 1N-107 was closed and verified closed per the R & R procedure.

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

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TEXT (If more space is required, use additional NRC Form 356A's) (17)

OP/1/A/1102/01 Enclosure 4.1 (Unit Startup from Cold Shutdown to Reactor Coolant System Temperature and Pressure of 250 degrees F and 350 psig) was entered, which allows the following procedures to be performed in parallel: Reactor Building Containment Isolation and Verification, Filling and Venting the Reactor Coolant System, and Pre-Heatup Checklist.

On May 29, 1992, PT/1/A/115/08 (Reactor Building Containment Isolation and Verification) was initiated in preparation for startup. Enclosure 13.4 (Outside Reactor Building Manual Isolation Valve Checklist Verification) includes verifying that 1N-107 is closed.

On May 30, 1992 at 1300 hours, OP/1/A/1103/02 (Filling and Venting the Reactor Coolant System) was started. Enclosure 4.7 (Valve Checklist) requires 1N-107 to be opened. Enclosure 4.7 was signed off as being completed on May 31, 1992. This procedure does not contain a step to close 1N-107 when the Fill and Vent is complete. Therefore, the valve remained opened.

On June 2, 1992 at 0314 hours, the pressurizer was pressurized with N2 in accordance with OP/1/A/1103/02. This task required 1N-107 to be open in order to provide a flow path for N2 to the pressurizer.

On June 3, 1992 at 2145 hours, PT/1/A/115/08 Enclosure 13.4 was signed off as being complete.

On June 5, 1992 at 1350 hours, PT/1/A/115/08 was signed off as being completed in the final step of the Containment Integrity Checklist. This checklist is required to be completed prior to exceeding 200 degrees F and 300 psig in the Reactor Coolant System (RCS).

On June 5, 1992 at approximately 1500 hours, Unit 1's RCS temperature and pressure exceeded 200 degrees F and 300 psig. Heatup continued and the Reactor was taken critical on June 7, 1992 at 2214 hours.

On September 8, 1992 at 2250 hours, a Non Licensed Operator (NLO), performing PT/1/A/115/08, discovered 1N-107 open. The NLO informed the Control Room and the Unit Supervisor. The Unit Supervisor verified 1N-107 open and at 2305 hours the NLO shut 1N-107.

CONCLUSIONS

PT/1/A/115/08 (Reactor Building Containment Isolation and Verification) was started on May 29, 1992 and completed on June 3, 1992. The documentation available did not reveal the date that 1N-107 was verified to be closed. The Non Licensed Operator (NLO) that verified it closed was interviewed and he stated that he could not remember the date in which he had performed the verification. A review of his time sheet revealed he had worked May 29, 30, and 31. A review of the High Radiation Key (HRK) Log indicated that he had signed out a HRK on May 29 only. A HRK is required for entry

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 80.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

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TEXT (If more space is required, use additional NRC Form 388A's) (17)

into the area where 1N-107 is located. Based on this information, it is probable that the step in the enclosure to verify 1N-107 closed was performed on May 29. However, even if the valve was verified closed as late as May 31, procedure steps were performed after this date that indicate 1N-107 had to be in the open position.

The root cause of this event is Defective Procedure (Technical deficiency). On May 30, 1N-107 was opened as required by OP/1/A/1103/02 (Filling and Venting the Reactor Coolant System) Enclosure 4.7 (Valve Checklist). Steps in this procedure which applied nitrogen to the pressurizer were signed off on June 2 at approximately 0320 hours. In order for nitrogen to be applied to the pressurizer, 1N-107 would have to be in the open position. The procedure does not require 1N-107 to be closed upon completion of the procedure.

OP/1/A/1102/01 Enclosure 4.1 (Unit Startup from Cold Shutdown to Reactor Coolant System Temperature and Pressure of 250 degrees F and 350 psig) does not require the above procedures to be performed in a specific sequence to ensure Containment Integrity.

During a review of other procedures that included valve 1N-107, the review revealed that OP/1/A/1103/05 (Pressurizer Operation) requires 1N-107 to be opened and does not contain a step to reclose the valve. The procedure change which opens this valve was implemented during July 1992 following the forced outage of Unit 1. The evaluation for the change stated that 1N-107 will be closed per PT/1/A/115/08 prior to exceeding 200 degrees F and 300 psig. The change was made to eliminate the need to implement a Removal and Restoration procedure when the Low Pressure Nitrogen Heater was inoperable.

A review of past events revealed that a similar event, as defined by Duke Power guidelines, had occurred on December 1, 1991 (Licensee Event Report 287/91-09). Containment isolation valve 3IA-91 was discovered opened and the investigation of that event did not indicate a root cause of defective procedure. Therefore, this event is not recurring.

In addition to the event described above, the following events, which occurred during unit startup, were reviewed for similarity and corrective action effectiveness. On January 28, 1992, during a startup of Unit 1, Reactor Protective System Channel "C" tripped on high flux at approximately 4 percent power. This event was apparently caused by coordination of Startup and Shutdown procedures when taking the unit to Hot Shutdown and returning to power. The corrective action for this event was to revise the procedure(s) to provide for better coordination. On April 12, 1991, two Low Pressure Service Water valves were discovered open. The mispositioned valves were opened by sign-off steps in the body of the shutdown procedure,

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but were not closed by sign-off steps in the body of the startup procedure, although they were included in an enclosure in the startup procedure. This procedure problem caused the operator to overlook the fact that the valves were opened. The corrective actions for this event was to review the startup and shutdown procedures to identify and correct similar problems.

These events were the result of problems with the coordination and procedural human factors relating to the startup and shutdown procedures. The event addressed by this Licensee Event Report (LER) was due to an inadequate procedure relating to filling and venting of the Reactor Coolant System, therefore, it is concluded that the corrective actions performed as result the events above could not have prevented the event addressed by this LER.

This event did not result in the release of any radioactive material, radiation overexposures or personnel injuries. There was no NPRDS reportable equipment failure associated with this event.

CORRECTIVE ACTIONS

Immediate

1. 1N-107 was closed and containment integrity was restored.

Subsequent

none

Planned

1. Revise OP/1/A/1103/05 and OP/1/A/1103/02 to return 1N-107 to the closed position upon completion of the procedure.
2. Revise OP/1/A/1102/01 Enclosure 4.1 to perform Containment Integrity Checklist after the completion of procedures that affect Containment Isolation Valves.
3. Operating procedures that position valves that are verified in Periodic Test (PT) procedures performed quarterly or prior to startup will be reviewed to ensure that the procedure returns the valves to the correct position as indicated in the verification PT. Procedure changes will be made, if necessary, based on this review.

LICENSEE EVENT REPORT (LER)
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TEXT (If more space is required, use additional NRC Form 398A's) (17)

SAFETY ANALYSIS

The safety concern in this incident was a potential release of post-accident Reactor Building (RB) atmosphere into the environment. The Nitrogen (N₂) system is a closed system that is isolated from the Reactor Coolant System (RCS) by a minimum of two closed manual isolation valves. Before any leakage could occur into the low pressure N₂ system downstream of the portion of the piping which make up the safety related penetration, either both of the RCS isolation valves would have to leak or the N₂ system pipe boundary would have to fail. Any in-leakage would first have to leak past 1N-246, (manufactured by Anchor - Darling) a swing check valve located inside the RB, which is leak rate tested. The last leak test was performed on August 16, 1992. (Actual leak rate was 24 SCCM versus the acceptable limit of 1572 SCCM.)

Another leakage path would be from the RB atmosphere through 1N-247 (Low Pressure Nitrogen Header Test inside RB) and into the low pressure N₂ header. However, an evaluation of the N₂ system design reveals that in-leakage into the low pressure N₂ header is extremely unlikely because 1N-247 was verified closed during startup and capped off to ensure no leakage of the RB atmosphere into the low pressure N₂ header. 1N-247 is also leak tested (20 SCCM during the last test).

Even if leakage occurred through both boundaries of the penetration into the N₂ piping outside the RB, it would still be confined within the N₂ system piping, which is normally pressurized to higher pressures than the post-accident RB pressure, unless the piping outside the RB also failed.

Oconee FSAR, Chapter 15.15.4, assumes a total leakage from engineered safeguard systems during a maximum hypothetical accident to be 6140 cc/hr. This showed that the doses released to the atmosphere, even with this amount of leakage were well below the limits of 10CFR100.

Based on the above, it is concluded that leaving 1N-107 open for approximately three months would not have an impact on the health and safety of the public even during the most severe hypothetical accident.

There were no releases of radioactive material involved with this incident. Based on the above analysis, the health and safety of the public were not affected.