

CATEGORY

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 9907130131 DOC. DATE: 99/07/08 NOTARIZED: NO
 FACIL: 50-269 Oconee Nuclear Station, Unit 1, Duke Power Co.
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 RECIP. NAME RECIPIENT AFFILIATION

DOCKET #
05000269

SUBJECT: LER 99-004-00: on 990610, pressurizer relief valve setpoint was found out of tolerance. Apparent cause due to set point drift. Pressurizer code safety relief valves replaced with certified spares.

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

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W. R. McCollum, Jr.
Vice President

July 8, 1999

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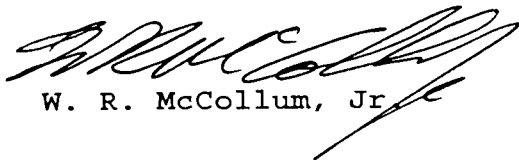
Subject: Oconee Nuclear Station
Docket Nos. 50-269, -270, -287
Licensee Event Report 269/99-04, Revision 0
Problem Investigation Process No. 1-099-2432

Gentlemen:

Pursuant to 10 CFR 50.73 Sections (a) (1) and (d), attached is Licensee Event Report 269/99-04, concerning a pressurizer relief valve setpoint found out of tolerance during testing.

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 to the health and safety of the public.

Very truly yours,



W. R. McCollum, Jr.

Attachment

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Document Control Desk

Date: July 8, 1999

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cc: Mr. Luis A. Reyes
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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 (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.

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Oconee Nuclear Station, Unit 1	DOCKET NUMBER (2) 05000-269	PAGE (3) 1 of 6
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TITLE (4)
Pressurizer Relief Valve Setpoint Found Out-of-Tolerance

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	10	99	1999	04	00	07	8	99		05000

OPERATING MODE (9) 6	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR (Check one or more of the following) (11)									
POWER LEVEL (10) 0	<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 Abstract below and in Text, NRC Form 366A)		
	<input checked="" type="checkbox"/>	20.405(a)(1)(iii)	<input type="checkbox"/>	50.73(a)(2)(i)(B)	<input type="checkbox"/>	50.73(a)(2)(viii)(A)				
	<input type="checkbox"/>	20.405(a)(1)(iv)	<input type="checkbox"/>	50.73(a)(2)(ii)	<input type="checkbox"/>	50.73(a)(2)(viii)(B)				
<input type="checkbox"/>	20.405(a)(1)(v)	<input type="checkbox"/>	50.73(a)(2)(iii)	<input type="checkbox"/>	50.73(a)(2)(x)					

LICENSEE CONTACT FOR THIS LER (12)									
NAME J.E. Burchfield, Regulatory Compliance Manager							TELEPHONE NUMBER		
							AREA CODE (864)		885-3292

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)										
CAUSE	SYSTEM	COMPONENT	MANUFACTURE R	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	

SUPPLEMENTAL REPORT EXPECTED (14)				X	NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE)									

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

On June 10, 1999, with Oconee Unit 1 in mode 6 (refueling), notification was received from Wyle Laboratories that the initial as-found lift pressure (2600 psig) of one reactor Coolant System (RCS) Pressurizer Safety Valve, during testing, was greater than the Technical Specification limits of 2500 psig including tolerance of +/- 25 psi.

The cause is believed to be set point drift. Corrective action taken included disassembly, inspection, and refurbishment by Dresser personnel. The pressurizer safety valve exhibited no abnormal conditions during the inspection. This valve will be tested as part of routine certification testing for pressurizer safety relief valves prior to being reinstalled.

The condition posed no threat to public health and safety.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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EVALUATION:

BACKGROUND

The Reactor Coolant System (RCS) [EIIS:AB] serves as a barrier which prevents release of radionuclides contained in the reactor coolant from reaching the atmosphere. System pressure limits have been established to assure the integrity of the RCS. The design pressure of the RCS is 2500 psig. The maximum transient pressure as specified by American Society of Mechanical Engineers (ASME) Code, Section III, Summer 1967, is 110 percent of design pressure. Thus, the safety limit for RCS pressure is 2750 psig. The pressurizer code safety relief valves (PCSRV) [EIIS:RV] prevent overpressurization of the RCS during transients and accidents that involve a mismatch between the primary heat source(s) and the secondary heat sink. Technical Specification 3.4.10 requires both PCSRVs to be operable (with lift settings greater than 2475 psig and less than 2525 psig, i.e. within +/-1% of setpoint) whenever the reactor [EIIS:RCT] is in Modes 1, 2 and Mode 3 with all RCS cold leg temperatures > 325 degrees F. PCSRVs are required by Technical Specifications to be tested every refueling outage.

The PCSRVs were manufactured by Dresser Industries. Since equipment to test and establish setpoints for these valves is not present on site, the valves are removed during scheduled refueling outages, shipped to a vendor (Wyle Laboratories), tested and adjusted as necessary, and returned to Oconee. Meanwhile, spare PCSRVs are installed to replace those being tested. When the tested valves are returned to Oconee, they become the spares. In this manner, each pair of PCSRVs is rotated between the three Oconee units.

EVENT DESCRIPTION

On May 25, 1999, pressurizer code safety relief valves (PCSRV) Serial Numbers (S/N) BL-8889 (1RC-67) and BT-4975 (1RC-68) were removed from Unit 1 pressurizer during the 1EOC18 refueling outage for testing, refurbishing, and calibration by Wyle Laboratories.

Wyle Laboratories tested these PCSRVs on June 4, 1999. PCSRV 1RC-68 (S/N BT-4975) as-found lift pressure was 2499 psig which met the Technical

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Specification. PCSRV 1RC-67 (S/N BL-8889) as-found lift pressure was 2600 psig, which is 4% above setpoint and 3% above the Technical Specification 3.4.10 limit.

On June 4, 1999, Wyle Laboratories notified Duke Energy by telephone that the preliminary as-found lift pressure of 1RC-67 was outside the Technical Specification limit. Duke Energy received written confirmation on June 10, 1999. Preliminary inspection results indicated no abnormal conditions. Problem Investigation Process (PIP) report number 1-099-2432 was written to document the as-found set point pressure of 2600 psig.

The final test report, describing the test results and mechanical condition of the PCSRVs from Wyle Laboratories and Dresser Industries had not been received when this report was prepared. If significant new information becomes available upon receipt of these reports, a supplement to this LER will be submitted.

CAUSAL FACTORS

The cause is believed to be set point drift. There are certain mechanical conditions for pressurizer relief valves that could cause the as-found set point pressure to be out of tolerance. Examples of these conditions include the valve internals being out of alignment, binding, wearing, the valve disk welding to the seat, testing/calibration of instruments and not being able to reproduce the as-left test conditions repeatedly and accurately. The inspection of the PCSRV showed the internal parts were within normal manufacture specifications, which appears to eliminate these failure mechanisms. The test and calibration were within the requirements of 10 CFR 50 Appendix B and ANSI N45.2. This leaves the test environmental conditions as the apparent variable.

CORRECTIVE ACTIONS

Immediate:

1. Unit 1 Pressurizer Code Safety Relief Valves were replaced with the certified spares.

NRC FORM 366A		U.S. NUCLEAR REGULATORY COMMISSION(4-95)		APPROVED OMB NO. 3150-0104 EXPIRES:4/30/98			
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2. After initial testing was performed at Wyle Laboratories, field representatives from Dresser Industries disassembled the valve and inspected the internals. Preliminary discussion with the valve vendor indicated that no mechanical conditions existed which could have caused this failure.

Planned:

1. The vendor procedure that controls the test conditions at Wyle Laboratories is being revised. The procedure change will attempt to better match the calibration and test conditions to the temperature environment these PCSRVs are subjected to in operation. This change should provide more consistent set point testing, calibration and increase test repeatability. Oconee will evaluate the results from this vendor procedure revision after the as-left set point and the as-found set point has been tested using this revised procedure.
2. The PCSRV 1RC-67 (S/N BL-8889) has been reworked, calibrated and will be tested with the revised test procedure for certification.
3. Oconee is in the process of changing Technical Specification 3.4.10 for the PCSRV setpoint tolerance from the current +/-1% to +/-3% as permitted by ASME Section III. This change will be for all three units.

There are no NRC commitments contained in this LER.

SAFETY ANALYSIS

The primary function of the pressurizer code safety relief valves (PCSRV) is to maintain the Reactor Coolant System (RCS) pressure below the transient pressure safety limit of 2750 psig during normal operation or anticipated operational occurrences. During normal operation and most plant transients, the PCSRV setpoint is not challenged because of the normal pressure control mechanisms. The pressurizer spray valve opens at approximately 2205 psig, introducing a cooler RCS water spray, which quenches pressurizer steam and reduces RCS pressure. If the pressure reaches approximately 2355 psig, the Reactor Protection System (RPS) [EIIIS:JC] receives a trip signal which shuts down the reactor and reduces

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heat input to the RCS. The PCSRVs alone can not prevent overpressure; they act in conjunction with the RPS to prevent overpressure. If pressure increases to 2450 psig, the pilot operated relief valve would open and relieve RCS pressure. The PCSRVs are necessary only during plant transients in which the normal pressure control functions are insufficient.

The startup accident is the limiting design basis event with respect to peak RCS pressure. The startup accident has been reanalyzed with the as-found PCSRV drift settings. The startup accident peak RCS pressure with the as-found PCSRV drift settings is predicted to be 2729 psig. This is less than the acceptance criterion of 2750 psig. Therefore, the PCSRV would have performed its intended safety function and prevented overpressurization of the RCS.

ADDITIONAL INFORMATION

PSCRV 1RC-67 (S/N BL-8889) had been tested three times in the past four years. This valve had failed twice, with a passed test in between the failed tests. Both failed tests had the as-found lift pressure at 104% of RCS design pressure. Inspection of the valve after each of the previous tests revealed that no mechanical or valve leakage conditions existed which could have caused these failures.

Oconee has tested both PSCRVs every refueling outage while the ASME Section III requires only one to be tested. We have recognized that the environmental test conditions may affect the results of the tests and are requiring the vendor to revise their test procedure. The PCSRVs are refurbished with new springs, bellows and other new parts whenever there are any questions about their physical condition.

There were no LERs reporting pressurizer code safety relief valves (PCSRV) setpoint being out of tolerance in the past four years. Prior to implementation of the Improved Technical Specifications (ITS) on March 27, 1999, PSCRVs were required to be "operable". PSCRVs outside "Tolerance" required an operability evaluation to demonstrate that the valves would have performed their function of maintaining RCS less than 2750 psig for all accidents.

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This condition did not result in personnel injuries, radiation overexposures, or releases of radioactive materials. Therefore, it did not pose any threat to public health and safety.