



**CENTERIOR
ENERGY**

PERRY NUCLEAR POWER PLANT

10 CENTER ROAD
PERRY, OHIO 44081
(216) 259-3737

Mail Address:
PO. BOX 97
PERRY, OHIO 44081

Robert A. Stratman
VICE PRESIDENT - NUCLEAR

April 8, 1994
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U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, D. C. 20555

Perry Nuclear Power Plant
Docket No. 50-440
LER 94-008-00

Gentlemen:

Enclosed is Licensee Event Report 94-008-00 concerning Unexpected Safety Relief Valve Openings Due to Inadequate Procedures.

If you have questions or require additional information, please contact Henry Hegrat - Regulatory Affairs at (216) 280-5606.

Very truly yours,

for Robert A. Stratman

RAS:DAH:sc

Enclosure: LER 94-008-00

cc: NRC Project Manager
NRC Resident Inspector Office
NRC Region III

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:TR ADCK 05000440
S PDR

Operating Companies
Cleveland Electric Illuminating
Toledo Edison

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LICENSEE EVENT REPORT (LER)

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 7214), 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.

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

FACILITY NAME (1) Perry Nuclear Power Plant, Unit 1	DOCKET NUMBER (2) 05000 440	PAGE (3) 1 OF 5
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TITLE (4)
Unexpected Safety Relief Valve Openings due to Inadequate Procedures

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
02	25	94	94	008	00	04	08	94		05000
										05000

OPERATING MODE (9) 5	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)	20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)
PR LE 000		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)	<input checked="" type="checkbox"/> OTHER
		20.405(a)(1)(iii)	50.73(a)(2)(i)	50.73(a)(2)(viii)(A)	(Specify in Abstract below and in Text, NRC Form 360A)
		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)(ix)	Voluntary

LICENSEE CONTACT FOR THIS LER (12)

NAME Denzel A. Housley, Compliance Engineer	TELEPHONE NUMBER (Include Area Code) (216) 280-5520
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COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE)	<input checked="" type="checkbox"/> NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
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ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

On February 25 and 26, 1994, during the performance of channel calibration surveillance instructions (SVI), two safety relief valves (SRV) unexpectedly opened a total of eight times. When the unexpected SRV opening was identified, the SVI was terminated, the SRV was closed, and an investigation of the event was initiated.

The root cause of this event was inadequate instructions that resulted in inadvertent openings of two SRVs. The preparation and review process of the last revision of the affected SVIs was inadequate to ensure that the seal-in logic was reset to preclude the opening of the SRVs. Also contributing to this event was inattention to detail by the control room operators of one shift for failing to recognize the SRV openings as an unexpected result of the SVIs.

As a result of this event, the affected SVIs have been revised. Additional corrective actions will include training of licensed operators on this event and a review of the preparation and review process for instructions to identify appropriate enhancements.

This event is being submitted as a voluntary report due to the generic interest and lesson learned from the information contained herein.

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

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FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Perry Nuclear Power Plant, Unit 1	05000 440	94	008	00	2 OF 5

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

I. Introduction

On February 25 and 26, 1994, during the performance of channel calibration surveillance instructions (SVI), two safety relief valves (SRV) [RV] unexpectedly opened a total of eight times. At the time of this event, the plant was in Operational Condition 5 during a refueling outage. The reactor pressure vessel (RPV) was at atmospheric pressure with the reactor head removed and a reactor coolant temperature of 88 degrees Fahrenheit. Main steam line plugs were installed on all four main steam lines which isolated the SRVs from the reactor vessel.

The SRV openings are not considered actuations of an engineered safety feature (ESF); therefore, this event does not meet any reporting requirement under 10CFR50.72 or 10CFR50.73. However, a courtesy notification to the NRC Operations Center was made on February 26 at 0505 following the identification of the unexpected SRV openings. This event is being submitted as a voluntary report due to the generic interest and lesson learned from the information contained herein.

II. Description of Event

On February 26, 1994 at 0118, during the performance of surveillance instruction (SVI) B21-T0370A, "SRV Pressure Actuation Channel Calibration for 1B21-N068A and 1B21-N068E," step 5.1.4.4, it was identified that SRV 1B21-F0051C had unexpectedly opened. The performance of the SVI was terminated and the SRV was closed.

Investigation of this event identified that a total of eight SRV openings had occurred on February 25 and 26 during the performance of SVI-B21-T0370A and SVI-B21-T0370B, "SRV Pressure Actuation Channel Calibration for 1B21-N068B and 1B21-N068F." Both SVIs were deficient in that they did not contain steps to reset the low-low set function seal-in as required to prevent the opening of SRVs 1B21-F0051C and 1B21-F0051D during testing.

SVI-B21-T0370B was started at approximately 1400 on February 25 and continued through the operations crew shift turnover (1500 to 1600). At 1617, the first opening of a SRV occurred. Although an annunciator ("SRV OPEN SIGNAL RECEIVED") was received for the SRV opening, the control room operators incorrectly believed that the annunciator was an expected result of the SVI and that it did not indicate an actual SRV opening. During this SVI, there were four SRV openings.

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		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Perry Nuclear Power Plant, Unit 1	05000 440	94	008	00	3 OF 5

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SVI-B21-T0370A was started at approximately 19:45 and SRV 1B21-F0051D opened three times prior to the operations crew shift turnover (2300 to 2400). At 0118 during the performance of section 5.1.4 of SVI-B21-T0370A, SRV 1B21-F0051C opened. The control room operator on this shift (0000 to 0800) recognized the opening of the SRV and identified that it was not an expected result of the SVI. At this time the SVI was terminated.

A review of the SVIs identified that SVI-B21-T0370A & B had been revised since their last performances. The SVI revisions became effective on July 2, 1992. This was a complete revision that divided the testing into four sections. During this revision, sequencing of the calibration checks had been changed and steps to reset the seal-in logic had been inadvertently omitted.

III. Cause of Event

The root cause of this event was inadequate instructions that resulted in inadvertent openings of two SRVs. The preparation and review process of the last revision of the affected SVIs was inadequate to ensure that the seal-in logic was reset to preclude the opening of the SRVs.

Also contributing to this event was inattention to detail by the control room operators of one shift for failing to recognize the SRV openings as an unexpected result of the SVIs. The control room operator on the following shift recognized the unexpected SRV opening on the first occurrence.

IV. Safety Analysis

Nineteen SRVs are located on the four main steam lines between the RPV and the inboard main steam isolation valves (MSIV) to provide overpressure protection for the RPV. Eight of the SRVs are associated with the Automatic Depressurization System (ADS). In order to reduce the number of SRVs that reopen following a reactor isolation event, six of the SRVs have a low-low set function. This function is armed whenever any SRV opens in the relief mode. When the low-low set function is armed, the normal setpoints for the affected SRVs are overridden by the low-low setpoints. For two of the 6 SRVs (1B21-F0051C and 1B21-F0051D), the low-low set function lowers both the open and close setpoints. For the other four valves, only the close setpoint is lowered.

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FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (4)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Perry Nuclear Power Plant, Unit 1	05000 440	94	008	00	4 OF 5

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SVI-B21-T0370A & B are required to be performed once every 18 months and must be performed in Operational Condition 4 (Cold Shutdown) or 5 (Refueling) when the SRVs and the associated low-low set function are not required to be operable. The SRVs opened as designed when the logic was completed. During refueling activities, main steam line plugs are installed and the reactor cavity is flooded above the main steam lines. The main steam line plugs isolate the SRVs from the reactor vessel during this time. Since this surveillance is only performed with the plant shutdown and the affected components performed as designed, this event was not safety significant.

However, this report is being submitted due to the contained operational experience since this event involved the revision of a SVI that resulted in unexpected opening of a SRV and the failure to recognize the unexpected opening of the SRV during the performance of the SVI.

V. Similar Events

On January 16, 1989 at 2105, an unexpected Reactor Core Isolation Cooling (RCIC) system containment isolation occurred during the performance of SVI-E31-T5395A (See LER 89-003). The cause of this event was a procedural deficiency resulting from inattention to detail during the procedure revision process. Additionally during this event, the RCIC Out of Service annunciator was not recognized as being unexpected during the performance of the SVI, and the RCIC isolation went unnoticed until 2245. The review of this event did not identify a generic concern and corrective actions taken at that time were based on the single event that had occurred.

VI. Corrective Actions

As a result of this event, the following corrective actions have been or will be performed.

1. SVI-B21-T0370A & B were temporarily placed on Administrative Hold until procedural changes were implemented. Both SVIs have been corrected. On March 3, 1994, the corrected SVI-B21-T0370A was successfully completed.
2. A Human Performance Enhancement System (HPES) evaluation has been performed to identify causal factors involved in this event.

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FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (5)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Perry Nuclear Power Plant, Unit 1	05000 440	94	008	00	5 OF 5

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3. All control room operations crews were initially informed of this event by a Daily Instruction. Additionally, this event was discussed with the licensed operators to highlight this event and the Operations Policy "Control Room Response to Annunciators."
4. Calibration SVIs revised since the last refueling outage have been reviewed to identify those SVIs which had not yet been performed. Similar SVIs revised as a group were examined to ensure at least one of the group had been successfully performed. Seven SVIs were identified that had not been validated by performance. These seven SVIs will be validated/verified prior to their performance.
5. The review process for the preparation and revision of instructions will be examined for weaknesses that contributed to this event. As a result of this review, appropriate enhancements to the review process will be incorporated into the procedure for preparation and review of instructions.
6. All licensed operators will receive training on this event. This training will include a re-emphasis on the need to identify unexpected alarms when they occur and to promptly take appropriate corrective actions.

Energy Industry Identification System (EIIS) codes are identified in the text as [XX].