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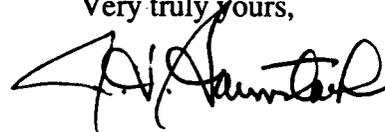
October 5, 1998

Re: Indian Point Unit No. 2
Docket No. 50-247
LER 98-14-00

Document Control Desk
US Nuclear Regulatory Commission
Mail Station P1-137
Washington, DC 20555-0001

The attached Licensee Event Report LER 98-14-00 is hereby submitted in accordance with the requirements of 10 CFR 50.73.

Very truly yours,



Attachment

C: Mr. Hubert J. Miller
Regional Administrator-Region I
US Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, PA 19406

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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 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.

FACILITY NAME (1)

Indian Point No. 2

DOCKET NUMBER (2)

0 5 0 0 0 2 4 7 1 OF 0 4

PAGE (3)

TITLE (4)

Residual Heat Removal Valves HCV-638 and -640 Positioned In a Non-Conservative Manner.

Table with columns: EVENT DATE (5), LER NUMBER (6), REPORT DATE (7), OTHER FACILITIES INVOLVED (8). Includes sub-columns for MONTH, DAY, YEAR, SEQUENTIAL NUMBER, REVISION NUMBER, FACILITY NAMES, DOCKET NUMBER(S).

Table for regulatory requirements (11) with columns for Operating Mode (9), Power Level (10), and various CFR references (20.402(b), 20.405(a)(1)(i-v), 20.405(c), 50.36(c)(1-2), 50.73(a)(2)(i-iv), 50.73(a)(2)(vii)(A, B), 73.71(b, c)).

LICENSEE CONTACT FOR THIS LER (12) table with columns: NAME, TELEPHONE NUMBER, AREA CODE. Contact: Richard T. Louie, Senior Engineer, 914 734-5678.

Table for component failures (13) with columns: CAUSE, SYSTEM, COMPONENT, MANUFACTURER, REPORTABLE TO NPRDS.

SUPPLEMENTAL REPORT EXPECTED (14) and EXPECTED SUBMISSION DATE (15) table. Includes YES/NO options and date 123198.

ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16). On September 3, 1998, with the plant in hot shutdown, it was determined that the "as-left" valve positions for 21 and 22 Residual Heat Removal (RHR) heat exchanger outlet valves HCV-638 and -640 respectively, had been set in a non-conservative direction. Specifically, a change to the requirements of test procedure PT-V24D, "Residual Heat Removal Check Valves," had been made during the 1995 refueling outage without having performed a 50.59 safety evaluation. This change resulted in a reduction of "as-left" flow which challenged the minimum low head flow assumptions used in the Emergency Core Cooling System analyses, as well as design basis flow assumptions for the recirculation phase of a Loss of Coolant Accident (LOCA) analysis. However, a review of the current LOCA analysis of record verified that the minimum low head flow assumptions were satisfied.

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

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FACILITY NAME (1) Indian Point No. 2	DOCKET NUMBER (2) 0 5 0 0 0 2 4 7	LER NUMBER (6)			PAGE (3)	
		YEAR 9 8	SEQUENTIAL NUMBER - 0 1 4	REVISION NUMBER - 0 0	2 OF 0 4	

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

PLANT AND SYSTEM IDENTIFICATION:

Westinghouse 4-Loop Pressurized Water Reactor.

IDENTIFICATION OF OCCURRENCE:

Residual Heat Removal Valves HCV-638 and -640 Positioned In a Non-Conservative Manner.

EVENT DATE:

September 3, 1998

REPORT DUE DATE:

October 5, 1998

REFERENCES:

Condition Reporting System (CRS) No. 199807694

PAST SIMILAR OCCURRENCE:

None

DESCRIPTION OF OCCURRENCE:

On September 3, 1998, with the plant in hot shutdown, it was determined that the "as-left" valve positions for 21 and 22 Residual Heat Removal heat exchanger outlet valves, HCV-638 and -640 respectively, had been set in a non-conservative direction. Specifically, a change to the requirements of test procedure PT-V24D, "Residual Heat Removal Check Valves," had been made during the 1995 refueling outage without having performed a 50.59 safety evaluation. This change resulted in a reduction of "as-left" flow which challenged the minimum low head flow assumptions used in the Emergency Core Cooling System (ECCS) analyses, as well as design basis flow assumptions for the recirculation phase of a Loss of Coolant Accident (LOCA) analysis. However, a review of the current LOCA analysis of record verified that the minimum low head flow assumptions were satisfied. These minimum ECCS low head injection flow assumptions are based upon the Best Estimate LOCA (BELOCA) analysis. For conservatism, the low head injection flows assumed in the BELOCA analysis are 90% of the injection flow requirements previously used in the 10 CFR 50 Appendix K analysis. The calculated "as-left" flows as a result of PT-V24D were determined to be greater than the BELOCA assumptions.

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		YEAR 9 8	SEQUENTIAL NUMBER - 0 1 4	REVISION NUMBER - 0 0	3	OF 0 4

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

ANALYSIS OF OCCURRENCE:

This report is provided pursuant to the requirements of 10 CFR 50.73(a)(2)(ii) because a condition was discovered while the reactor was shut down that, had it been found while the reactor was in operation, would have resulted in the plant being in an unanalyzed condition.

Butterfly valves HCV-638 and -640 are installed downstream of the RHR heat exchangers to control RHR pump flow rate. A mechanical stop is used to prevent the valves from opening beyond a selected point. Test procedure PT-V24D is used to set the maximum valve opening position to prevent excessive RHR pump flow. The procedure limits the total RHR pump flow to 3000 gpm (+ 0 gpm / - 60 gpm). This includes flow to the four reactor coolant cold legs and to the common RHR pump miniflow. The flow distribution is approximately 2650 gpm to the cold legs and 350 gpm to the miniflow. The miniflow line has no auto-closure feature and remains open during the injection phase of a design basis accident to protect the RHR pumps.

The original calculation of record for the low head safety injection (LHSI) flows used pre-operational test data to set the butterfly valve position. This pre-operational testing set the throttle valve positions with both RHR pumps running at a total discharge flow of 6000 gpm, and the common miniflow line manually isolated. When a single RHR pump was run with the common miniflow line open, the cold leg flow was 3140 gpm. With instrument uncertainty this was modeled as 2960 gpm to set the throttle valve resistance in the calculations. The butterfly valve position set in PT-V24D resulted in higher header resistance than that used in the calculation of record. The net result was a decrease in LHSI flows.

Following the discovery of this condition, a review of the current LOCA analysis of record was performed. For conservatism, the flows used in the Best Estimate LOCA analysis assume 90% of the injection flow requirements previously used in 10 CFR 50 Appendix K analysis. The LHSI flows assumed in the Best Estimate LOCA analysis was compared with calculated delivered flows based on the PT-V24D "as-tested" system. The minimum LHSI flow rates vs. pressure, based on the as-tested system, exceed those identified in the Best Estimate LOCA analysis. Based upon the determination that the minimum LHSI flow rates used in the current Best Estimate LOCA analysis were satisfied, the "as-left" valve positions for HCV-638 and -640 were acceptable, although set in a non-conservative position.

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		9 8	- 0 1 4	- 0 0	4	OF	0 4

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

CAUSE OF OCCURRENCE:

Per 10 CFR 50.59, changes to the facility as described in the safety analysis report may be conducted without prior NRC approval provided the change does not involve an unreviewed safety question. This occurrence is described as the implementation of a non-conservative change to test procedure PT-V24D, "Residual Heat Removal Check Valves." This change was made during the 1995 refueling outage without performing a 50.59 safety evaluation. The cause of this occurrence is under investigation and will be provided in a supplement to this report.

CORRECTIVE ACTION:

The immediate corrective action taken upon the discovery of this condition was to review the current LOCA analysis of record to verify that the minimum LHSI flow rates assumed were satisfied. Based upon the determination that the minimum LHSI flow rates used in the current Best Estimate LOCA analysis were met, the "as-left" valve positions for HCV-638 and -640 were acceptable, although set in a non-conservative position. The hydraulic model for the recirculation system was revised to address the reduced flows. A review of the previous LOCA analysis of record has been initiated to determine past operability. The results from this review will be provided in a supplement to this report.