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January 23, 2001

Re: Indian Point Unit
No. 2
Docket No. 50-247
LER 2000-009-00
NL-01-007

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Mail Stop PI-137
Washington, DC 20555-001

The attached Licensee Event Report 2000-009-00 is hereby voluntarily submitted.

Sincerely,

A. Alan Blind

Attachment

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

Mr. Patrick D. Milano, Senior Project Manager
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NRC FORM 366 U.S. NUCLEAR REGULATORY COMMISSION
(6-1998)

LICENSEE EVENT REPORT (LER)

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

APPROVED BY OMB NO. 3150-0104 EXPIRES 06/30/2001

Estimated burden per response to comply with this mandatory information collection request: 50 hrs. Reported lessons learned are incorporated into the licensing process and fed back to industry. Forward comments regarding burden estimate to the Records Management Branch (T-6 F33), 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. If an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

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TITLE (4)
Accumulator Pressure Potentially Exceeded Analytical Limits

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
12	21	2000	2000	-009-	00	01	23	2001		05000
									FACILITY NAME	DOCKET NUMBER
										05000

OPERATING MODE (9)	N
POWER LEVEL (10)	000

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)

	20.2201(b)		20.2203(a)(2)(v)		50.73(a)(2)(i)		50.73(a)(2)(viii)
	20.2203(a)(1)		20.2203(a)(3)(i)		50.73(a)(2)(ii)		50.73(a)(2)(x)
	20.2203(a)(2)(i)		20.2203(a)(3)(ii)		50.73(a)(2)(iii)		73.71
	20.2203(a)(2)(ii)		20.2203(a)(4)		50.73(a)(2)(iv)	X	OTHER - Specify in Abstract below or in NRC Form 366A
	20.2203(a)(2)(iii)		50.36(c)(1)		50.73(a)(2)(v)		
	20.2203(a)(2)(iv)		50.36(c)(2)		50.73(a)(2)(vii)		

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (Include Area Code)
Edward Goetchius, Analysis Manager NS&L	(914) 734-5106

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX

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

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

On December 21, 2000, with the plant at hot shutdown conditions and Tavg approximately 330 degrees F, it was determined that the safety injection accumulator tank pressure may have exceeded the value assumed in the accident analysis. This condition was identified during a review of accident assumptions and inputs. It was determined that plant procedures and alarm setpoints may not control operation of the accumulators within the upper pressure limit assumed in the best estimate loss of coolant accident analysis (LOCA) analysis. Procedures and alarm setpoints were revised to ensure accumulator pressure was controlled within the required limit prior to entering a plant condition requiring operability of the accumulators. Evaluations conducted during the investigation of the issue verified that the plant had remained within its design basis. The cause for the potential operation of the plant outside the analytical limit was an incomplete implementation of Technical Specification Amendment 188 with respect to accumulator pressure limits. There were no actual or potential safety consequences as a result of this event.

This condition is being reported as a voluntary report.

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

This condition is being reported as a voluntary report.

PLANT AND SYSTEM IDENTIFICATION

Westinghouse 4-Loop Pressurized Water Reactor
Safety Injection System Accumulator Tanks

EVENT IDENTIFICATION

Accumulator Tanks Pressure - Potential Operation Outside Design Basis Due to Failure to Implement License Amendment Requirement Regarding Accumulator High Pressure Limit.

EVENT DATE

December 21, 2000.

REFERENCES

1. Condition Reporting System Number: 2000010647
2. License Amendment 188, Best Estimate (BE) Approach for Loss of Coolant Accident (LOCA) Analysis, issued March 31, 1997

PAST SIMILAR EVENTS

A review of correspondence for the last 10 years and condition reports for the last 3 years was performed. No events or conditions prior to July 13, 2000 were found involving operation outside of the design basis as a result of incomplete implementation of a license amendment. Three condition reports initiated on or after July 13, 2000 were found which identified similar issues. Corrective actions for the first of these events included development of a Station Administrative Order (SAO) to provide detailed tracking of actions necessary to implement license amendments. Since implementation of the best estimate LOCA (BE LOCA) license amendment predates the implementation of this corrective action, the process specified in the new SAO would not have prevented the condition that is the subject of this licensee event report.

Another similar condition was identified on November 28,2000 involving post LOCA containment spray duration. The Alternate Source Term (AST) license amendment, approved by the NRC on July 27, 2000, included assumptions for the operation of Containment Spray for at least 3.4 hours after a large break loss of coolant accident. The applicable emergency operating procedures (EOPs) had not been revised to include this assumption and permitted termination of containment spray after 2 hours. Early termination of containment spray may not have provided sufficient reduction in radioactive iodine to ensure offsite and control room doses remained within applicable limits. This condition was identified prior to the subject event and the EOPs were revised prior to plant operation with the new AST analysis. Therefore, there were no operability or reportability issues due to the reduced spray duration.

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

EVENT DESCRIPTION

On December 21, 2000, with the plant at hot shutdown conditions and Tavg approximately 330 degrees F, it was determined that the safety injection accumulator tank pressure may have exceeded the value assumed in the accident analysis. For the current plant startup, the condition was discovered and resolved prior to entering a plant condition that required the accumulators to be operable.

This condition was identified during a review of discrepancies found between values used in plant safety analyses and plant operational parameters. The review determined that plant procedures and alarm setpoints may not have controlled operation of the accumulators within the upper pressure limit assumed in the BE LOCA analysis.

On December 22, 2000 at approximately 1400 hours procedures were revised to ensure accumulator high pressure was maintained less than or equal to an indicated 650 pounds per square inch gauge (psig). Limiting accumulator pressure to no greater than an indicated 650 psig ensured accumulator pressure remained below the 685 psig analytical limit, taking into account consideration of instrument uncertainty. Separate logging of the accumulators' pressure at a 15 minute frequency was initiated to ensure operation within design assumptions. Subsequently on the same day, at 2042 hours, the unit was heated above 350 degrees F.

On December 24, 2000 at approximately 2200 hours, the accumulator alarm high pressure setpoint was recalibrated to provide the alarm at 658 psig. Recalibration of the accumulator high pressure setpoint to 658 psig ensured the alarm would be received prior to exceeding the 685 psig analytical limit including consideration of instrument uncertainty.

EVENT ANALYSIS

Technical Specification 3.3.A.1.c requires accumulator pressure be maintained at a minimum of 598 psig and a maximum of 685 psig. These values were used as initial conditions in the BE LOCA analysis and did not include consideration of instrument uncertainty. The BE LOCA license amendment was approved by the NRC on March 31, 1997 and required implementation within 30 days. The instrument uncertainty for the accumulator pressure instrumentation was approximately +/- 35 psig. The accumulator low pressure alarm setpoint as well as procedural limits in both the alarm response procedure (ARP) and the Central Control Room (CCR) logging procedure for accumulator low pressure were established at 640 psig prior and subsequent to the referenced amendment. The alarm setpoint and procedural controls of accumulator low pressure at the 640 psig value included sufficient conservatism to ensure accumulator pressures were maintained above the technical specification and analytical low pressure limit of 598 psig.

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

The setpoint for the accumulator high pressure alarms and procedural controls of accumulator high pressure at the 680 psig value did not include sufficient conservatism to ensure accumulator pressure remained below the analytical high pressure limit of 685 psig including consideration of instrument uncertainty. Prior to the use of the BE LOCA analysis, no technical specification or analytical limit existed for accumulator high pressure.

Operation at the procedural maximum indicated value of 680 psig could permit the associated accumulator pressure to be above 685 psig. Even with accumulator pressure below the alarm setpoint of 680 psig, the associated accumulator pressure could be above 685 psig. Specific dates and times were not ascertained, but knowledgeable personnel believe that the plant has operated briefly with at least one accumulator high pressure alarm in the alarm condition. Additionally, operation below the alarm setpoint (i.e., accumulator pressure in portions of the normal band) could have resulted in operation with accumulator pressure above the analytical limit.

The cause of this event was an informal process for implementation of license amendments that was not sufficiently rigorous or well documented prior to August, 2000.

Amendment number 188 included changes to Technical Specification 3.3.A.1.c that expanded the accumulator volume limits and lowered the accumulator low pressure limit. This amendment also added a new limit for accumulator high pressure. Since the accumulator volume lower and upper limits were expanded and the low pressure limit was reduced, changes to procedures and setpoints for these values were not made at that time because existing procedural controls and setpoints were conservative with respect to these revised technical specification limits. Although accumulator high pressure had not been a technical specification limit prior to the BE LOCA license amendment, there were procedures and alarms for maintaining accumulator pressure below 680 psig, but without consideration of instrument uncertainty. This high pressure alarm value of 680 psig was previously established to preclude lifting the accumulator relief valves set at 700 psig.

Reviews performed to establish implementation requirements of the BE LOCA license amendment did not result in either modifying the high pressure alarm setpoint or revising appropriate procedures to provide adequate control of the new accumulator high pressure technical specification and analytical limit including instrument uncertainty.

EVENT SAFETY SIGNIFICANCE

There were no actual or potential safety consequences that resulted from this event. There were no plant events that required actuation of the accumulators. Potential safety consequences were evaluated by re-analysis using a higher initial accumulator pressure. Applicable plant analyses were revised to include an initial accumulator pressure (four accumulators) of up to 720 psig. The results of these analyses indicate a small (4 degrees F) peak clad temperature (PCT) penalty (95 percentile value). PCT remained below 2200 degrees F and plant design basis requirements were met. There was no effect on the result of the containment analysis.

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CORRECTIVE ACTIONS

Prior to plant heatup above 350 degrees F the applicable procedures were revised to ensure accumulator pressure remained below the technical specification and analytical limit with consideration of instrument uncertainty. A special logging procedure was established to monitor the accumulator pressure at a 15 minute frequency until the alarm setpoints were reduced. The uncertainties associated with the alarm and indication were reviewed and recalculated to provide additional operating flexibility within technical specification and analytical limits. The alarm setpoint was subsequently reduced, utilizing the recalculated uncertainty values, to ensure operation within the Technical Specification and analytical limit and the special logging procedure was terminated.

The applicable plant analysis was revised to permit increasing the allowed operating range for accumulator high pressure to near its value prior to this event. The reanalysis used an accumulator high pressure limit of 720 psig and thus allows treatment of the technical specification limit as a nominal value. Applicable procedures and the accumulator high pressure alarm setpoint have been modified to reflect the results of the new analysis. These changes ensure accumulator operation will be consistent with the analytical assumptions and within technical specification limits.

On August 25, 2000, a new plant procedure was implemented for development, submittal and implementation of license amendments. This procedure provides improved processes for ensuring complete and timely implementation of license amendments.

A review of license amendments approved over the last two years was completed. The results of the implementation review did not identify any other conditions with the potential for operation prohibited by the technical specifications or potential operation outside the design basis.