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September 24, 1999

Re: Indian Point Unit No. 2
Docket No. 50-247
LER 99-14-00

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

The attached Licensee Event Report 99-14 is hereby
submitted in accordance with the requirements of 10
CFR 50.73.

Very truly yours,



Attachment

cc:

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Regional Administrator - Region I
US Nuclear Regulatory Commission
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LICENSEE EVENT REPORT (LER)

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

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FACILITY NAME (1)
Indian Point Unit No. 2

DOCKET NUMBER (2)
50-247

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TITLE (4)
Failure to Meet Technical Specification Minimum Degree of Redundancy

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIA L NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
8	25	99	99	-- 1 4	-- 00	9	24	99	FACILITY NAME	DOCKET NUMBER 05000
									FACILITY NAME	DOCKET NUMBER 05000

OPERATING MODE (9)	POWER LEVEL (10)	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)									
N	99	20.2201(b)	20.2203(a)(2)(v)	X	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)	OTHER					
		20.2203(a)(2)(iii)	50.36(c)(1)		50.73(a)(2)(v)	Specify in Abstract below or in NRC Form 366A					
		20.2203(a)(2)(iv)	50.36(c)(2)		50.73(a)(2)(vii)						

LICENSEE CONTACT FOR THIS LER (12)

NAME: Philip Griffith, Sr. Licensing Engineer
TELEPHONE NUMBER (Include Area Code): (914)734-5190

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURE R	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX

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

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

On August 25, 1999, with the unit operating at 99 percent power, a review of surveillance tests PT-Q62 "Hi Steam Flow/1st Stage Pressure Bistable" completed on February 26, 1999 and June 30, 1999 indicated the number of operable Hi Steam Flow Bistables, for both tests, did not meet the minimum degree of redundancy required by Technical Specifications Table 3.5-3 "High Steam Flow in 2/4 Steam Lines Coincident with Low T_{ave} or Low Steam Line Pressure." The as found setpoints for the High Steam Flow bistables were above the Administrative Limits specified in WCAP-13871 "Westinghouse Setpoint Methodology for Protection and Control Systems Indian Point Unit 2". On February 26, 1999 the setpoints for two channel "A" and two channel "B" bistables, each for different steam lines, were above the Administrative Limits and on June 30, 1999 all channel "B" and two channel "A" bistables in different steam lines were set above the Administrative Limits. In addition, three occasions were identified with similar setpoint issues where both bistables associated with a single steam line were above the Administrative Limit. Thus, the minimum degree of redundancy (two) required by Technical Specification Table 3.5-3 could not be established. Procedure PC-R19 for the calibration of the Turbine First Stage Pressure Computers and Hi/Lo Limiters and PT-Q62 for bistable setpoints were revised to increase the adjustment span and setpoints for the Hi Steam Flow bistables. On August 28, 1999 the High Steam Flow bistable setpoints were adjusted to within the required administrative values.

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

PLANT AND SYSTEM IDENTIFICATION:

Westinghouse 4-Loop Pressurized Water Reactor

IDENTIFICATION OF OCCURRENCE:

High Steam Flow Bistables did not meet the Technical Specification Table 3.5-3 redundancy requirement

EVENT DATE:

August 25, 1999

REPORT DUE DATE:

September 24, 1999

REFERENCES:

Indian Point 2 Condition Reporting System (CRS)No. 199906485, 199906187 and 199906137

PAST SIMILAR OCCURRENCES:

None

DESCRIPTION OF OCCURRENCE:

On August 25, 1999, with the unit operating at 99% power, while reviewing the results of surveillance test PT-Q62 "Hi Steam Flow/1st Stage Pressure Bistable" for the tests performed on February 26, 1999 and June 30, 1999 the system engineer noted that the minimum degree of redundancy was not met as required by Technical Specification Table 3.5-3, "High Steam Flow in 2/4 Steam Lines Coincident With Low T_{ave} or Low Steam Line Pressure." An investigation of the event indicated that the value of the steam flow setpoint specified in PT-Q62 was 4.0 millivolts above the WCAP-13871 Administrative limit allowing for drift. The actual setpoints were found to be within the 4.0 millivolt allowance above the Administrative limit as indicated by PT-Q62. Since the "as found" values were within the PT-Q62 limits, they were not adjusted within the Technical Specification values and consequently operation continued with less than the required degree of redundancy required by Table 3.5-3.

The High Steam Flow bistables were set to trip when the differences between the output of the Turbine first stage computers and the Hi/Lo limiters as compared to the steam flow was zero.

Because of intrinsic bias in each bistable, setting the bistable comparator to trip on zero difference provides little or no adjustment span to compensate for drift. Procedure PC-R19 for the calibration of the Turbine First Stage Pressure Computers and Hi/Lo Limiters was revised to increase the adjustment span for the Hi Steam Flow bistables. On August 28, 1999 the adjustments in the revised PC-R19 were made, providing all high steam flow bistables with sufficient margin to adjust the bistable comparators to bring all bistables within their Administrative Limits. As a result of the above procedure revisions and adjustments, High Steam Flow channel redundancy was re-established.

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ANALYSIS OF OCCURRENCE:

Turbine First Stage Pressure Computers and Hi/Lo Limiters provide a reference signal that is compared to the steam flow signal by High Steam Flow bistables. When the steam flow signal reaches a setpoint indicative of a steam line rupture the High Steam Flow bistables trip. The High Steam Flow bistables provide input to Engineered Safety Features Actuation System (ESFAS) logic for the Steam Line Break Downstream of the Main Steam Isolation Valves (MSIV), as described in section 7.2.3.2.3.3 of the Updated Final Safety Analysis Report (UFSAR). When a high steam flow condition is coincident with either low T_{ave} or low Steam Generator pressure condition, Safety Injection is initiated, mitigating a Steam Line Break accident downstream of the MSIVs.

Technical Specifications bases for section 3.5 state that "Operation with "as found" setpoints less conservative than the Trip Setpoints but within the administrative limit is acceptable since allowances have been made in the plant setpoint study to account for the applicable instrument uncertainties and the plant administrative process, including the Administrative limit, verifying that the instrument performance complies with the plant setpoint study."

As a result of the review performed by the system engineer, the High Steam Flow Bistables on five occasions were found to have the trip setpoints above Administrative Limits specified in WCAP-13871 making them inoperable. On February 26, 1999, Technical Specification minimum degree of redundancy of two was not met when two bistables in channel "A" and two in channel "B" in different steam lines were above the Administrative Limit. In addition, on June 30, 1999 a similar condition occurred with all four channel "B" and two channel "A" bistables in different steam lines were above the Administrative Limit creating a condition where Technical Specification minimum degree of redundancy of two was not met.

A review for additional past occurrences was performed to determine the extent of failures similar to the above, on three additional occasions both channels in the same steam line were noted as being above the administrative limit, thus the minimum degree of redundancy was not met.

The above cases where the minimum degree of redundancy as required by Technical Specification Table 3.5-3 was not met created a condition prohibited by Technical Specifications that is reportable under the requirements of 10 CFR 50.73(a)(2)(i)(B).

PROBABLE CAUSE SUMMARY:

The probable cause of this event was the incorrect settings and adjustments directed by two procedures, PT-Q62 Hi Steam Flow/1st Stage Pressure Bistable surveillance procedure and PC-R19 Calibration of Turbine First Stage Pressure Computers and Hi/Lo Limiters.

In 1992, the addition of 4 Millivolts to the High Steam Flow bistable setpoint, in PT-Q62, allowed the upper limit of the "as left" value to be above the Administrative Limit specified in the Westinghouse WCAP-13871. The implementation of the procedure changes also removed the span adjustment from PC-R19 and created a condition requiring the technicians to adjust for a zero difference between the Steam Flow based on Turbine First Stage Pressure reference and actual steam flow, a small value that could be masked by the bistable intrinsic bias.

The above combination of span and setpoint changes resulted in setpoints above the Administrative Limit of WCAP-13871, but within the acceptable limits as indicated in PT-Q62.

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

CORRECTIVE ACTIONS:

To correct the condition that allowed the Hi Steam Flow bistables to be above the Administrative Limit, on August 28, 1999 the following procedure revisions were made:

1. PC-R19, Calibration of Turbine first Stage Pressure Computers and Hi/Lo Limiters, was revised to provide an acceptable span of input to the Steam Flow Bistables.
2. PT-Q62, Hi Steam Flow/1st Stage Pressure Bistable, was revised to trip at a setpoint at or below the Administrative Limit.

On August 28, 1999 adjustments were made to the span and bistable setpoints to return the Hi Steam Flow Bistable setpoint values to within Administrative Limits.

A review was performed to determine if a similar condition existed with other safety related bistables using a differential input comparing a computed value and a measured parameter. There were no cases identified where the combination of span and setpoint would allow a setpoint to be above the acceptable limit of either Technical Specifications or the WCAP-13871 Administrative Limit, as applicable.

A setpoint control program will be implemented by October 29, 1999, that will prevent recurrence of similar events. The setpoint control program will provide review and control of all setpoint changes associated with safety related bistables.