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January 6, 1996⁷

Re: Indian Point Unit No. 2
Docket No. 50-247
LER 96-23-00

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

The attached Licensee Event Report 96-23-00 is hereby submitted in accordance with the requirements of 10 CFR 50.73.

Very truly yours,



Attachment

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

Mr. Jefferey Harold, Project Manager
Project Directorate I-1
Division of Reactor Projects I/II
US Nuclear Regulatory Commission
Mail Stop 14B-2
Washington, DC 20555

Senior Resident Inspector
US Nuclear Regulatory Commission
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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.

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TITLE (4)
Plant Operation in Condition Not Permitted by Technical Specifications

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 NAMES		DOCKET NUMBER(S)													
<u>1</u>	<u>2</u>	<u>0</u>	<u>9</u>	<u>6</u>	<u>-</u>	<u>0</u>	<u>2</u>	<u>3</u>	<u>-</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>6</u>	<u>9</u>	<u>7</u>			<u>0</u>	<u>5</u>	<u>0</u>	<u>0</u>	<u>0</u>
																				<u>0</u>	<u>5</u>	<u>0</u>	<u>0</u>	<u>0</u>

OPERATING MODE (9) <u>N</u>	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)										
POWER LEVEL (10) <u>1 0 0</u>	<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)(ii)	<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)(iii)	<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 365A)			
	<input type="checkbox"/>	20.405(a)(1)(iii)	<input checked="" type="checkbox"/>	50.73(a)(2)(ii)	<input type="checkbox"/>	50.73(a)(2)(viii)(A)					
	<input type="checkbox"/>	20.405(a)(1)(iv)	<input type="checkbox"/>	50.73(a)(2)(iii)	<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	TELEPHONE NUMBER	
	AREA CODE	NUMBER
<u>James J. Maylath, Senior Engineer</u>	<u>9 1 4</u>	<u>7 3 4 - 5 3 5 6</u>

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS

SUPPLEMENTAL REPORT EXPECTED (14)

<input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)	<input checked="" type="checkbox"/> NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR

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

On December 7, 1996, with the unit operating at 100% power, the Instrument and Control Section requested permission to replace two of the six containment pressure bistables. The procedure for replacing these bistables provided for de-energizing the bistable output logic relays. This would have resulted in precluding the trip for one channel of the containment spray initiation logic because these logic relays are designed to be energized to trip. Upon reviewing procedures prior to bistable replacement, the Watch Engineer questioned whether Technical Specification requirements for the containment pressure channels were being satisfied, and the bistable replacement was not permitted. However, it was noted that the other four containment pressure bistables were previously replaced with the bistable output logic relays de-energized. Two bistables were replaced on October 26, 1996 and two on November 2, 1996. Each replacement took approximately one hour. During these times, the Technical Specification requirements for the containment pressure channels were not being satisfied. Also, prior to July 29, 1991, when surveillance testing was permitted with the channel trip bypassed, the Technical Specification requirements for the containment pressure channels were not satisfied during routine surveillance testing.

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TEXT CONTINUATION**

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.

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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:

Plant Operation in Condition Not Permitted by Technical Specifications

EVENT DATE:

Previous Conditions Were Discovered on December 7, 1996

REPORT DUE DATE:

January 6, 1997

REFERENCES:

Condition Identification and Tracking System (CITRS) No. 96-E02727

PAST SIMILAR OCCURRENCE:

None

DESCRIPTION OF OCCURRENCE:

On December 7, 1996 at 0701 hours, with the unit operating at 100% power, the Instrument and Control Section requested permission to replace two of the six containment pressure bistables. These bistables are used for the Hi-Containment Pressure safety injection actuation and the Hi-Hi-Containment Pressure spray initiation. The procedure for replacing these bistables provided for de-energizing the bistable output logic relays. For the Hi-Containment Pressure safety injection actuation, this results in tripping the channel because the logic relays are designed to be de-energized to trip. However, for the Hi-Hi-Containment Pressure spray initiation, this results in precluding the channel from tripping because the logic relays are designed to be energized to trip. Upon reviewing procedures prior to bistable replacement, the Watch Engineer questioned whether Technical Specification requirements for the containment

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pressure channels were being satisfied. The bistable replacement was subsequently not permitted. However, it was noted that the other four containment pressure bistables were replaced with the bistable output logic relays de-energized. Two bistables were replaced on October 26, 1996 and two on November 2, 1996. Each replacement took approximately one hour. During these times, the Technical Specification requirements for the containment pressure channels were not being satisfied. Also, prior to July 29, 1991, when surveillance testing was permitted with the channel trip bypassed, the Technical Specification requirements for the containment pressure channels were not satisfied during routine surveillance testing. Prior to July 29, 1991, routine surveillance testing for the containment pressure bistables was done monthly with testing of each channel taking from about 10 to 20 minutes.

ANALYSIS OF OCCURRENCE:

This report is being made because the plant operated in a condition that is not permitted by the Technical Specifications. This occurred with each of the four bistable replacements, as well as during the previous surveillance testing described above. Each occurrence constituted an entry into Technical Specification 3.0.1. Entries into Technical Specification 3.0.1 are reportable under 10 CFR 50.73(a)(2)(i)(B).

The Hi-Hi-Containment Pressure spray initiation logic consists of two sets of two out of three logic. One output relay from each bistable is used to establish this logic. Two out of the three logic relays from both sets must trip in order to initiate containment spray. Because containment spray uses a sodium hydroxide additive, which is highly corrosive, spray initiation was designed with the dual logic requirement to preclude a spurious initiation. As a further assurance against an inadvertent spray initiation from loss of a power supply or open circuit, the spray initiation logic is designed as energized to trip.

Table 3.5-3 of the Technical Specifications requires a minimum degree of redundancy (the difference between the number of operable channels and the number of channels which when tripped will cause an automatic system trip) of one for each logic set for Hi-Hi-Containment Pressure spray initiation for power operation. Since July 29, 1991, the minimum degree of redundancy stated in Table 3.5-3 has been permitted to be reduced by one during surveillance testing. Therefore, surveillance testing of the containment pressure bistables has been in accordance with Technical Specifications since July 29, 1991. However, minimum degree of redundancy relaxation does not apply to the bistable replacements because this is a maintenance action.

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At the time of the bistable replacements, the remaining two channels of containment pressure bistables and logic relays were operable and available to provide for spray initiation if needed. In addition, for Indian Point 2, the Containment Fan Cooler Units provide for a similar safety function as Containment Spray. Also, Westinghouse analysis has considered allowable outage times for instrument channels both for test and maintenance. This analysis originally allowed an instrument channel outage of two hours for testing and one hour for maintenance. From 1989 to 1990, the NRC reviewed further Westinghouse analysis which increased the allowed outage times to four hours for testing and six hours for maintenance. Following approval of the updated Westinghouse analysis, Consolidated Edison submitted a Technical Specification amendment request to permit the minimum degree of redundancy stated in Table 3.5-3 to be reduced by one during surveillance testing (refer to October 30, 1990 letter from Consolidated Edison to the NRC, "Proposed Amendment to Technical Specifications Regarding Reactor Protection System and Engineered Safety Features Actuation Surveillance Intervals"). The NRC approved this amendment on July 29, 1991 (Amendment No. 154). However, Consolidated Edison did not request a minimum degree of redundancy relaxation for the performance of maintenance activities. The minimum degree of redundancy relaxation permitted for surveillance testing since July 29, 1991 is based on the Westinghouse analysis. Therefore, these occurrences did not have any impact on safety.

CAUSE OF OCCURRENCE:

The cause of the Technical Specification 3.0.1 occurrences prior to July 29, 1991 was incomplete knowledge of the Hi-Hi-Containment Pressure spray initiation logic design where the logic relays are energized to trip by the writer of the test procedure in the early 1970's. This design is different from the other bistable logic relays on the Reactor Protection System and Engineered Safety Features System, which are de-energized to trip. The Hi-Hi-Containment Pressure spray initiation is designed as energized to trip with the dual logic in order to assure that there will not be spurious spray initiation, while at the same time assuring (meeting the single failure criterion) that spray will be initiated when required.

Another factor in the occurrences prior to July 29, 1991 was that the test switch design for the Hi-Hi-Containment Pressure spray initiation logic was the same as the other bistable logic relays on the Reactor Protection System and Engineered Safety Features System. This design failed to recognize that the Hi-Hi-Containment Pressure spray initiation logic relays are energized to trip. This design has been in place since plant startup. The test procedure prior to July 29, 1991 had provided for de-energizing the Hi-Hi-Containment Pressure spray

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initiation logic relays on a monthly interval, for about 10 to 20 minutes on one channel at a time, since plant startup.

The cause of the Technical Specification 3.0.1 occurrences associated with the bistable replacements was that the procedure for the replacements was written based on the test procedure used prior to July 29, 1991. The procedure was written without thoroughly reviewing the impact of removing the bistable because the former test which switched the bistable out of the logic relay circuit had been considered acceptable for nearly 20 years. The authors and reviewers of the bistable replacement procedure did not recognize that the operating procedure for the failure of a containment pressure bistable provides for blocking the Hi-Hi-Containment Pressure spray initiation logic relays for the associated channel in the trip position.

CORRECTIVE ACTION:

On December 7, 1996, the Watch Engineer questioned whether Technical Specification requirements for the containment pressure channels were being satisfied with the bistable replacements. Further bistable replacement was not permitted. The bistable replacement procedure for containment pressure is presently being revised to provide for blocking the Hi-Hi-Containment Pressure spray initiation logic relays for the associated channel in the trip position. The remaining two containment pressure bistables will be replaced following approval of this revised procedure.

The requirements for performing a thorough review and analysis when developing a procedure, modification or any action, and not relying only on previous accepted practices will be emphasized in continuing training for all accredited programs. Further emphasis will be added to not accepting historical material unless adequately confirmed. Station Administrative Order 100, Section 4.7 will be revised to assure that a thorough review and analysis is performed when developing a procedure, modification or any action that is based on a previously accepted practice.