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November 1, 1999

Re: Indian Point Unit No. 2
Docket No. 50-247
LER 99-011-01

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

The attached Licensee Event Report LER 99-011-01 is hereby submitted in accordance with the requirements of 10 CFR 50.73.

Very truly yours,

A. Alan Blind

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
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US Nuclear Regulatory Commission
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NRC FORM 366 (6-1998) U.S. NUCLEAR REGULATORY COMMISSION

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.

LICENSEE EVENT REPORT (LER)

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

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TITLE (4)

OVERLOAD OF MCC BREAKER CAUSES LOSS OF ROD POSITION INDICATION AND TURBINE RUNBACK.

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
06	16	1999	1999	-- 011 --	01	09		1999		05000
									FACILITY NAME	DOCKET NUMBER
										05000

OPERATING MODE (9)	N
POWER LEVEL (10)	99

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

	20.2201(b)		20.2203(a)(2)(v)	X	50.73(a)(2)(i)
	20.2203(a)(1)		20.2203(a)(3)(i)	X	50.73(a)(2)(ii)
	20.2203(a)(2)(i)		20.2203(a)(3)(ii)		50.73(a)(2)(iii)
	20.2203(a)(2)(ii)		20.2203(a)(4)		50.73(a)(2)(iv)
	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)

	50.73(a)(2)(viii)
	50.73(a)(2)(x)
	73.71
	OTHER

Specify in Abstract below or in NRC Form 366A

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (Include Area Code)
Ingvar Kjellberg, Senior Engineer	(914) 734-5567

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)

At 0211 on June 16, 1999, with Indian Point No. 2 (IP2) operating at 99 percent power, the supply breaker to Motor Control Center (MCC) 24 tripped open. This caused loss of power to all loads on MCC 24. Loss of power to the Rod Position Indication System (RPIS) initiated a turbine runback. The turbine automatically ran back and reduced reactor power level by approximately 4.2 percent. The expected power reduction from a dropped rod runback is approximately 15 percent. Due to loss of power to the RPIS, the plant entered Technical Specification 3.0.1 for circumstances in excess of those addressed in Technical Specification 3.10.6.2 for inoperable RPI channels. The operators determined a few minutes into the event, by using alternate instrumentation to rod position indication (Excore Nuclear Instrumentation System (NIS) indication and RCS temperature), that there was no evidence of an actual rod drop event. The immediate corrective action was to restore power to the RPIS. After approximately 19 minutes power was restored to the RPIS. With RPIS operational Technical Specification 3.0.1 was exited. Pursuant to 10 CFR 50.72 (b)(1)(ii)(B) the NRC was notified. Over the next few hours important loads on MCC 24 were reestablished and power was reduced to 85 percent to prevent another turbine runback transient from occurring during circuit troubleshooting efforts. The apparent cause of the trip of MCC 24 was overload of its supply breaker.

There was no danger to the health and safety of the public or plant personnel due to this event. There was no indication of control rod misalignment prior to or following the restoration of MCC-24.

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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: OVERLOAD OF MCC BREAKER CAUSES LOSS OF ROD POSITION INDICATION AND TURBINE RUNBACK

EVENT DATE: June 16, 1999

REPORT DUE DATE: July 16, 1999

REFERENCES: Condition Reporting System (CRS) No. 199904747 & 199904748

PAST SIMILAR OCCURRENCE: LER 96-09 & LER 96-22

DESCRIPTION OF OCCURRENCE:

At 0211 on June 16, 1999, with Indian Point No 2 (IP2) operating at 99 percent power, the supply breaker to Motor Control Center (MCC) 24 tripped open, resulting in a loss of power to all loads on MCC 24. Loss of power to the Rod Position Indication System (RPIS), which is supplied from MCC 24, initiated a turbine runback. The turbine automatically ran back and reduced reactor power level by approximately 4.2 percent. The expected power reduction from a dropped rod runback was approximately 15 percent. Due to loss of power to the RPIS, the plant entered Technical Specification 3.0.1 for circumstances in excess of those addressed in Technical Specification 3.10.6.2 for inoperable RPI channels. The Control Room Operators reviewed indications from alternate instrumentation and found no indication of any dropped or misaligned rods. The immediate corrective action was to restore power to the RPIS. Power was restored to the RPIS approximately 19 minutes into the event and Technical Specification 3.0.1 was exited. Pursuant to 10 CFR 50.72 (b)(1)(ii)(B) the NRC was notified. Since 22 Main Transformer Auxiliaries were powered from MCC 24, due to maintenance of their normal supply, power to 22 Main Transformer Auxiliaries was also lost when MCC 24 tripped. The tagout to the normal power supply to 22 Main Transformer Auxiliaries was cleared and power was restored within 30 minutes to protect 22 Main Transformer from overheating.
Over the next few hours important loads on MCC 24 were reestablished and reactor power was manually reduced to 85 percent. The apparent cause of the trip of MCC 24 was overload of its supply breaker.

ANALYSIS OF OCCURRENCE:

Major loads on MCC 24 consist of Main Turbine-Generator Turning Gear 21, Main Transformer Auxiliaries, Isophase Bus Fans, 22 Stator Cooling Water Pump (SCWP), Rod Position Indication System (RPIS) and Turbine Hall Roof and Wall Fans. It has been determined that the MCC 24 supply breaker can not carry the maximum possible load on MCC 24. 22 Main Transformer Auxiliary loads are normally supplied from MCC 29. They are automatically transferred to MCC 24 if the power to MCC 29 is lost. 22

ANALYSIS OF OCCURRENCE (continued):

SCWP is also automatically connected to MCC 24 if power to 21 SCWP is lost. At 1330 on June 15, 1999, approximately 13 hours prior to the event, 22 SCWP was energized. This is a 100-ampere load and one of the larger loads on MCC 24. Normally all loads are not connected simultaneously to MCC 24, however the present design allows for automatic or manual transfer to occur, which can cause an overload condition. A few hours before the event the Auxiliaries for 22 Main Transformer, the largest load on MCC 24, were transferred from MCC 29 to MCC 24. MCC 24 was now fully loaded, causing an overload of the MCC 24 supply breaker, which tripped 2.5 hours later. Loss of power to the RPIS brought up the "Turbine Runback Actuated" alarm annunciator in the control room. The turbine automatically ran back and reduced reactor power approximately 4.2 percent which was not the expected 15 percent power reduction. Control rods were automatically inserted from 220 steps to 195 steps during the runback. The rod control system was then placed in manual. Due to loss of power to the RPIS the plant entered Technical Specification 3.0.1. The operators reviewed available instrumentation and alarms to determine the alarm cause. Since RPI was unavailable they reviewed alternate instrumentation to RPIS such as the Nuclear Instrumentation System (NIS) and the Reactor Coolant System (RCS) temperature indicators to estimate rod positions. They found no indications that a rod drop event had occurred. They determined the cause of the turbine runback and the associated alarm was due to loss of power to the RPIS. The operators are trained to manage loss of a power supply although loss of MCC-24 specifically has not been part of the training. Training on the RPIS includes a discussion of the power source and effects of its loss. The immediate corrective action performed verified that MCC 24 was stripped of all loads and then power was restored to the RPIS, which took approximately 19 minutes. With the RPIS now being operational Technical Specification 3.0.1 was exited.

During this event the turbine automatically ran back and reduced reactor power approximately 4.2 percent which was about 10 percent less reduction than expected. Because there was no indication that an actual dropped rod condition did exist and that the guidance for a power reduction is contained in the procedure for a dropped rod, the operators determined that the runback to 85 percent power was not required. The dropped rod turbine runback control system is not relied upon to mitigate any design basis accident. The original safety intent was to reduce the turbine load in response to a dropped rod(s) to approximately match the reduced reactor power as a result of the reactivity decrease from the dropped rod. Subsequently, a specific analysis, documented in section 14.1.4.2 of the UFSAR, was performed to demonstrate turbine runback was not required for IP2. The turbine runback feature, which is initiated for a dropped rod via the RPI bistables, was kept as a control system to aid the operator in reducing turbine load to match reactor power following a dropped rod incident.

During the event review process questions were raised as to the adequacy of procedural guidance and compliance concerning the runback. A thorough review of Operations Administrative Directives, Abnormal Operating Instructions, and Alarm Response Procedures was conducted and crew interviews were performed. Since the runback was not due to a dropped rod or a loss of feedwater event, no runback was procedurally directed. Therefore, station management did not view the lack of a manual runback as a procedure compliance issue since the need for a runback was verified not to exist. While there was no specific procedural requirement to complete the automatic runback, the station management's expectation was, and remains, that the runback should have been completed following the initial stabilization of the plant.

The overloaded MCC condition was due to an inadequate load analysis performed during the 1986 installation of the General Electric Generator and its associated support loads and to an inadequate load analysis for a modification done on MCC-24 in 1990. The modification process was improved since 1986 and now requires a load analysis for the addition and deletion of any load. In 1990 only a load change analysis was performed, which was inadequate in that the base load on the MCC was not properly assessed. A detailed load study is being performed to verify the base load on each MCC.

The early termination of the runback was traced to the fact that actual turbine control oil pressure at 100 percent power was higher than the assumed value. A set-point modification was performed which increased the time delay of the runback trip relays to compensate for the pressure difference. This allows sufficient time for the runback to be terminated at the proper control oil pressure.

ANALYSIS OF OCCURRENCE (continued):

All loads on MCC 24 were meggered and verified to be satisfactory. The breaker coordination on that MCC was examined. The supply breaker is rated at 600 amperes on drawing A249956-11. The breaker itself (MCC 24-1A) was an 800 ampere breaker, with its overload trip set at 578 amperes. The breaker had tripped on thermal overload. The time delay between the addition of the 22 Main Transformer Auxiliaries electrical load on MCC 24 to the time of the supply breaker trip is an expected condition based on the time delay characteristics of the overload device.

An extent of condition evaluation was performed which reviewed the other MCC distribution systems for their potential to create overload conditions. MCC 27 was the only other MCC where a loading issue was identified. The concern with MCC 27 applies only to outage periods when all refueling equipment along with normal MCC 27 loads were energized simultaneously.

During this event there was no danger to the health and safety of the public. There was no indication of control rod misalignment prior to or following the restoration of MCC-24.

CAUSE OF OCCURRENCE:

The overload condition of MCC 24 was due to an inadequate load analysis, performed during the 1986 installation of the General Electric Generator, when additional loads were added to MCC 24. An opportunity to correct the load analysis was missed for the modification which replaced the supply breaker to MCC 24 in 1990.

CORRECTIVE ACTIONS:

AOI-16.1.1 has been clarified to preclude its use in the event of a power loss to the RPIS.

The expectation that reactor power runbacks will be performed, manually if required, to the expected endpoint has been presented to the Shift Managers and will be reinforced with all control room crews by November 15, 1999.

ARP SEF Window 3-8 (Turbine Runback Actuated) has been revised to require the completion of any runback to the expected endpoint.

A load coordination study will be performed on MCC 24 and MCC 27. This study is scheduled for completion by November 30, 1999. As an interim measure administrative controls are in place to limit loading of MCC 24 and MCC27 to an acceptable level.

Caution Tags are presently used for load management controls of MCC 24 and MCC 27. A review was performed to determine if a load management procedure needs to be developed for MCC 24 and MCC 27. The review resulted in revisions to appropriate System Operating Procedures.

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CORRECTIVE ACTIONS (continued):

Rod Position Indication was evaluated to determine if it should be moved to another power supply. A survey has been conducted of the Rod Control Systems Users Group and the results are now under evaluation. The completion date for this review has been rescheduled to December 30, 1999. The reason for this change was the involvement by Engineering during the recent unscheduled plant outage.

A review of the current plant load studies will be performed to verify their adequacy. Appropriate load management procedures will be implemented as required. The completion date for this review has been rescheduled to December 30, 1999. The reason for this change was the involvement by Engineering during the recent unscheduled plant outage.