NRC Form 366
(9-83)

LICENSEE EVENT REPORT (LER)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/88

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TITLE (4)

Recurrence of SDV High Level Reactor Scram Event Due to Ineffective Corrective Actions

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)
									N/A	0 5 0 0 0 0
1 2	1 5	8 6	8 6	0 1 9	0 1	0 7	0 7	8 7	N/A	0 5 0 0 0 0

OPERATING MODE (9)	4	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)				
		20.402(b)	20.405(c)	X 50.73(a)(2)(iv)	73.71(b)	
POWER LEVEL (10)	0 1 0 0	20.405(a)(1)(i)	50.36(c)(1)	50.73(a)(2)(v)	73.71(c)	
		20.405(a)(1)(ii)	50.36(c)(2)	50.73(a)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)	
		20.405(a)(1)(iii)	50.73(a)(2)(i)	50.73(a)(2)(viii)(A)		
		20.405(a)(1)(iv)	50.73(a)(2)(ii)	50.73(a)(2)(viii)(B)		
		20.405(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(x)		

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER	
	AREA CODE	
Robert G. Randall, Supervisor Technical Support	3 1 5	3 4 9 1-2 4 4 5

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

CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORTABLE TO NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORTABLE TO NPRDS	

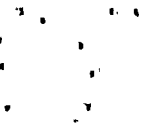| SUPPLEMENTAL REPORT EXPECTED (14)			EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE)	X NO					

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

While in cold shutdown on December 15, 1986, a reactor scram signal on a scram discharge volume (SDV) high level was received following a preplanned scram for post maintenance testing. After placing the mode switch in shutdown the Niagara Mohawk licensed operator verified that there were no active scram signals present and reset the preplanned scram without bypassing the SDV high level trip function as required by the procedure. Several seconds later the SDV high level trip and subsequent scram occurred. The intermediate cause of this event is personnel error due to the operator's failure to adhere to the scram recovery procedure. However, procedural deficiencies and the operator's lack of adequate understanding of a previous similar event, described in LER 86-01, contributed to this event. Therefore, the root cause is the ineffective implementation of corrective actions taken for the LER 86-01 event.

CORRECTIVE ACTIONS TAKEN

1.   The scram recovery procedure has been revised to clearly require that the SDV high level trip be bypassed on every scram.

2.   Training modification recommendations have been submitted to change simulator SDV system programming to better simulate actual plant responses and to upgrade training of licensed reactor operators (ROs) in 10 CFR 50.72 requirements.

3.   A "Lessons Learned" book is being prepared by the Operations department to further emphasize lessons learned through events such as this.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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

I. DESCRIPTION OF EVENT

While in cold shutdown, a preplanned scram occurred at 21:56:19 on December 15, 1986 for post maintenance testing. After the mode switch was placed in shutdown (from refuel) the Niagara Mohawk licensed operator verified that there were no active scram signals present and reset the preplanned scram at 21:58:21. However, the operator had reset the scram without placing the scram discharge volume (SDV) high level trip bypass switches in bypass, because the high level trip alarm was not received. Since all SDV vent and drain valves had not yet opened upon resetting the scram, the SDV continued draining into the Scram Discharge Instrument Volume (SDIV). Soon, thereafter, the SDV high level trip occurred and the subsequent scram at 21:58:34. All SDV vent and drain valves closed as designed, and all control rods remained fully inserted. No inoperable components or systems contributed to this event. Immediate corrective actions taken by the operator were to bypass the high level trip and reset the second scram.

The NMPC licensed operator's failure to bypass the SDV high level trip function prior to resetting the preplanned scram, as directed by the scram recovery procedure, was the immediate cause of this event. However, procedural deficiencies and the operator's lack of adequate understanding of a previous similar event described in LER 86-01 contributed to this event.

Procedural deficiencies resulted when an inadequately worded procedure change, not related to this event or the previous similar event, was made to the scram recovery procedure. This change led the operator to believe that he was not required to bypass the SDV high level trip unless the alarm was received.

Supervision was notified on December 22, 1986 of the event by Reactor Physics personnel who discovered it while examining the scram report for the preplanned scram. The NMPC licensed operator had failed to notify the Station Shift Supervisor (SSS) of the event, because he thought the SSS had seen the alarms come in while standing by the control panels. Although the SSS was in the immediate vicinity when the event occurred, his attention was diverted to the plant computer console while observing the preplanned scram sequence of events. In addition, the operator thought the SDV high level trip scram had occurred as expected, since SDV trips are expected after every scram. Thus, the SSS was not aware of the receipt of the second scram signal and, therefore, it was not reported per 10 CFR 50.72. The decision was made to report the event after supervision determined that a second scram had indeed occurred.

II. CAUSE OF EVENT

The root cause of this event is the ineffective implementation of corrective actions taken for the LER 86-01 event. The intermediate cause is personnel error.

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Although the NMPC licensed operator believed he had followed the scram recovery procedure, the inadequately worded procedure change led the operator to believe he was not required to bypass the SDV high level trip unless the alarm was received and therefore, contributed to the personnel error. Additionally, had the operator had an adequate understanding of the previous similar event, his actions (in spite of procedural deficiencies) could have prevented its recurrence.

The operator's failure to follow the procedure was a cognitive personnel error. However, the forementioned contributing factors which led to the personnel error resulted from the root cause for this event.

III.   ANALYSIS OF EVENT

No adverse safety consequences exist for this event, since the reactor was in cold shutdown with all control rods fully inserted. The Reactor Protection System (RPS) logic operated as designed.

A failure to bypass the SDV high level trip function prior to resetting a scram from full power level would not result in a significant transient. The SDV would quickly fill up with reactor water displaced by the rapid insertion of the CRDs upon a scram signal. Thus, the SDV high level trip would come in much more quickly than when all control rods are fully inserted and the SDV drains into the SDIV. Then, in order to reset the scram, the operator would have to bypass the high level trip.

IV.   CORRECTIVE ACTIONS

1.   The scram recovery procedure has been revised to require that the SDV high level trip be bypassed on every scram, even if the alarm is not received, as is the case in low density scrams (all control rods fully inserted prior to scram).

       The Independent Safety Engineering Group (ISEG) will review the revised procedure to ensure the necessary concerns resulting from this event are properly addressed prior to implementation.

2.   A Training Modification Recommendation (TMR) has been submitted to change simulator SDV vent and drain valve opening times and SDV fill times to better simulate actual plant responses and to further emphasize the scram recovery procedure steps. An additional TMR has been submitted to upgrade training of licensed reactor operators (ROs) in 10 CFR 50.72 requirements.

3.   A "Lessons Learned" book is being prepared by the Operations department to provide NMPC licensed operators detailed description of important events, their causes and corrective actions taken, such as procedural revisions, and to further emphasize the lessons learned through events such as this.

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V.   ADDITIONAL INFORMATION

A.   Identification of Components Referred to in this LER

Component	IEEE 803 EIIS Funct	IEEE 805 System ID
Scram Discharge Volume (SDV)	COL	JC
Reactor Protection System (RPS)	Not Appl.	JC
Control Rod Drives (CRD)	DRIV	AA

B.   Previous Similar Events:

LER 86-01