

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.

FACILITY NAME (1) Prairie Island Nuclear Generating Plant Unit 1										DOCKET NUMBER (2) 0 5 0 0 0 2 8 2				PAGE (3) 1 OF 4	
TITLE (4) Nuclear Instrumentation System Power Range Channels Miscalibrated Due to Use of Improper Test Lead															
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)		
0 2	0 5	9 3	9 3	0 0 3	0 0 0 3	0 8	9 3						0 5 0 0 0		
OPERATING MODE (9) N		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5. (Check one or more of the following) (11)													
POWER LEVEL (10) 1 0 0		20.402(b)		20.405(a)(1)(i)		20.405(c)		50.73(a)(2)(iv)		73.71(b)					
		20.405(a)(1)(ii)		50.36(c)(1)		50.73(a)(2)(v)		50.73(a)(2)(vi)		73.71(c)					
		20.405(a)(1)(iii)		50.36(c)(2)		50.73(a)(2)(vii)		50.73(a)(2)(viii)(A)		OTHER (Specify in Abstract below and in Text, NRC Form 366A)					
		20.405(a)(1)(iv)		X 50.73(a)(2)(i)		50.73(a)(2)(ii)		50.73(a)(2)(iii)(B)							
		20.405(a)(1)(v)		50.73(a)(2)(iii)		50.73(a)(2)(iv)		50.73(a)(2)(v)							
LICENSEE CONTACT FOR THIS LER (12)															
NAME Arne A Hunstad										TELEPHONE NUMBER AREA CODE 6 1 2 3 6 8 - 1 1 2 1					
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)															
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC						
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)

On February 4, 1993, Unit 1 was at 100% power. Surveillance procedure SP1007, Nuclear Power Range Functional Test, was in progress. The instrument technician found that the lower detector flux signal from all four Nuclear Instrumentation System (NIS) power range channels was significantly (about 10%) outside of the acceptance criterion. Investigation showed that on January 22, 1993, after the Unit 1 restart from refueling, SP1006B, NIS Power Range Axial Offset Calibration, had been performed using an improper test lead. Preliminary engineering review on February 5, 1993, indicated that the miscalibration could have resulted in some nonconservatism in the flux difference information provided to the overpower and overtemperature delta T protection channels. Based on this review, the event appeared to be reportable. All the Unit 1 NIS power range channels were recalibrated and the surveillance procedure completed satisfactorily. Procedures will be revised to preclude recurrence. Test lead labeling was improved.

9303110219 930305
PDR ADOCK 05000282
S PDR

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), 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.

FACILITY NAME (1)		DOCKET NUMBER (2)		LER NUMBER (6)			PAGE (4)
Prairie Island Unit 1		05000 282		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2 OF 4
				93	003	00	

TEXT (If more space is required, use additional copies of NRC Form 365A) (17)

EVENT DESCRIPTION

On February 4, 1993, Unit 1 was at 100% power. Surveillance procedure SP1007, Nuclear Power Range Functional Test, was in progress. The instrument technician found that the lower detector flux signal from Nuclear Instrumentation System (NIS) power range channel 1N-41 was significantly (about 10%) outside of the acceptance criterion. The system engineer was notified. Work on the surveillance procedure was suspended and a Work Request was written to correct what appeared to be calibration drift of an isolation amplifier. Based on the magnitude of the apparent drift, a decision was made to replace the isolation amplifier and investigate the suspected drift in the shop. A replacement isolation amplifier was installed and calibrated satisfactorily.

Later in the day, the surveillance procedure was resumed. The instrument technician found that the lower detector flux signal from NIS power range channel 1N-42 was also about 10% outside of the acceptance criterion. Again, the system engineer was notified. Work on the surveillance procedure was suspended and a Work Request was written to allow recalibration of channel 1N-42 and the other two power range channels, 1N-43 and 1N-44, since it was anticipated that the other two channels may also be found outside their acceptance criteria. Channels 1N-43 and 1N-44 were indeed found outside their acceptance criteria by a similar amount. Testing and recalibration of all the power range channels were performed expeditiously.

Investigation showed that on January 22, 1993, after the Unit 1 restart from refueling, SP1006B, NIS Power Range Axial Offset Calibration, had been performed. An interview with the technician involved in that calibration showed that adjustments to the subject isolation amplifiers had been made at that time. The measurements in question were made using permanently installed test leads to permit viewing the test point voltage levels while adjusting the isolation amplifiers. At the time of the calibration, test lead NIS-2 did not work, so test lead NIS-3 was substituted. Unknown to the technician was that test lead NIS-3 has a surge suppression network built in. The effect of this surge suppression network was to lower the indicated lower detector flux signal by about 10%. This effect was confirmed by testing.

Late the same day, all the Unit 1 NIS power range channels had been recalibrated and SP1007 completed.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), 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.

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
Prairie Island Unit 1	05000 282	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	3 OF 4
		93	- 003 -	001	

TEXT (If more space is required, use additional copies of NRC Form 365A) (17)

Investigation showed that Unit 2 power range channels had also been calibrated on January 22, but the proper test lead was used on Unit 2.

Preliminary engineering review on February 5, 1993, indicated that the miscalibration could have resulted in some nonconservatism in the flux difference information provided to the overpower and overtemperature delta T protection channels. Based on this review, the event appeared to be reportable.

CAUSE OF THE EVENT

Cause of the event was use of an improper test lead to calibrate the power range channels on January 22, 1993.

Contributing causes were:

- The improper test lead was not labeled to indicate it contains a surge suppression network.
- The technician involved had never been informed that the test lead contained a surge suppression network.
- The technician involved should have questioned the need for making large adjustments to satisfy the acceptance criteria. Adjustment of isolation amplifiers is rarely needed.

ANALYSIS OF THE EVENT

Detailed engineering analysis performed later verified that the overpower and overtemperature delta T setpoints would not have been reduced as specified in Technical Specifications 2.3.A.2.d and 2.3.A.2.e. The Technical Specifications require that for each percent that the magnitude of flux difference exceeds +9%, the delta T trip setpoint shall be automatically reduced by an equivalent of 2.5 percent of rated thermal power. Actual penalty would have been applied starting at a flux difference of about +15%.

Plant operating records were reviewed over the time that the nonconservative settings existed to verify that actual plant conditions never exceeded a flux difference of 9%. Maximum indicated flux difference throughout the period was 7.67%. (This indication was unaffected by the miscalibration of the power range channels.) Target flux difference during the period was 3.31% plus or minus 5%. Technical Specifications 3.10.B.5 and 3.10.B.6 require operator action to restore flux difference to the target band when operating above 50% power.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBS 7714), 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.

FACILITY NAME (1)		DOCKET NUMBER (2)		LER NUMBER (6)			PAGE (3)
Prairie Island Unit 1		05000 282		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	4 OF 4
				93	003	00	

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

Since Unit 1 operated with a flux difference of less than +9% throughout the period, no core safety limit was exceeded and all safety analyses remain applicable. Health and safety of the public were unaffected.

Since the flux difference input to overpower and overtemperature delta T trip setpoints was nonconservative, a limiting safety system setting was exceeded. This condition is reportable pursuant to 10CFR50.73(A)(2)(i)(B).

CORRECTIVE ACTION

When the discrepant conditions were identified, work on the surveillance procedure was stopped and Work Requests written to correct the discrepancies.

Investigation found the cause of the discrepant conditions.

All the Unit 1 NIS power range channels were recalibrated and the surveillance procedure completed satisfactorily.

Actions to preclude recurrence include:

Permanent labels were installed to alert the technician of the surge suppression network in the NIS-3 test leads for both units.

The event was discussed with technicians emphasizing the need for self-checking and the need for questioning a calibration shift outside of the acceptance criteria. This will be documented in a Section Work Instruction requiring notification of a supervisor or system engineer prior to making an adjustment.

SP1006B will be revised to perform only a calibration check of the isolation amplifiers. This change will in effect disallow adjustment of the isolation amplifiers without notification of a supervisor or system engineer. These amplifiers are calibrated at refueling and typically do not require adjustment during the quarterly axial offset calibration.

FAILED COMPONENT IDENTIFICATION

None.

PREVIOUS SIMILAR EVENTS

NIS miscalibration events have been reported as AO 75-24, and RO's 80-19 and 83-31. None of these events involved use of improper test leads.