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 FACIL:50-305 Kewaunee Nuclear Power Plant, Wisconsin Public Service 05000305
 AUTH.NAME AUTHOR AFFILIATION
 NELSON,R.L. Wisconsin Public Service Corp.
 SCHROCK,C.A. Wisconsin Public Service Corp.
 RECIPIENT NAME RECIPIENT AFFILIATION

SUBJECT: LER 91-009-00:on 910909,error in calibr of safety injection accumulator level transmitters identified.Cause unknown.Low level alarm setpoints set above level required by specification.W/911115 ltr.

DISTRIBUTION CODE: IE22T COPIES RECEIVED:LTR 1 ENCL 1 SIZE: 6
 TITLE: 50.73/50.9 Licensee Event Report (LER), Incident Rpt, etc.

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	AEOD/ROAB/DSP	2 2	NRR/DET/ECMB 9H	1 1
	NRR/DET/EMEB 7E	1 1	NRR/DLPQ/LHFB10	1 1
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	NRR/DST/SRXB 8E	1 1	REG FILE 02	1 1
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EXTERNAL:	EG&G BRYCE, J.H	3 3	L ST LOBBY WARD	1 1
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WISCONSIN PUBLIC SERVICE CORPORATION

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November 15, 1991

10 CFR 50.73

U. S. Nuclear Regulatory Commission
Document Control Desk
Washington, D.C. 20555

Gentlemen:

Docket 50-305
Operating License DPR-43
Kewaunee Nuclear Power Plant
Reportable Occurrence 91-009-00

The attached Licensee Event Report for reportable occurrence 91-009-00 is being submitted in accordance with the requirements of 10 CFR 50.73, "Licensee Event Report System."

Sincerely,

C. A. Schrock
Manager-Nuclear Engineering

RLN\jms

Attach.

cc - INPO Records Center
Mr. Patrick Castleman, US NRC
US NRC, Region III

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) **Kewaunee Nuclear Power Plant** DOCKET NUMBER (2) **0 5 0 0 0 3 0 5 1** OF **0 5** PAGE (3)

TITLE (4) **Error in Safety Injection Accumulator Level Indication Caused by Not Compensating For Effects of Nitrogen Density During Calibration**

EVENT DATE (8)			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	9	0	9	9	1	9	1	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0
										N/A		0	5	0	0	0	0	0	0	0	0	0

OPERATING MODE (6) **0 9 9**

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

<input type="checkbox"/> 20.402(b)	<input type="checkbox"/> 20.406(c)	<input type="checkbox"/> 50.73(a)(2)(iv)	<input type="checkbox"/> 73.71(b)
<input type="checkbox"/> 20.406(a)(1)(iii)	<input type="checkbox"/> 50.36(c)(1)	<input type="checkbox"/> 50.73(a)(2)(v)	<input type="checkbox"/> 73.71(c)
<input type="checkbox"/> 20.406(a)(1)(ii)	<input type="checkbox"/> 50.36(c)(2)	<input checked="" type="checkbox"/> 50.73(a)(2)(vi)	<input checked="" type="checkbox"/> OTHER (Specify in Abstract below and in Text, NRC Form 366A)
<input type="checkbox"/> 20.406(a)(1)(iii)	<input type="checkbox"/> 50.73(a)(2)(i)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)	Potential Generic Interest
<input type="checkbox"/> 20.406(a)(1)(iv)	<input type="checkbox"/> 50.73(a)(2)(ii)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)	
<input type="checkbox"/> 20.406(a)(1)(v)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)	

LICENSEE CONTACT FOR THIS LER (12)

NAME **Robert L. Nelson - Nuclear Consultant - Special Projects** TELEPHONE NUMBER **4 1 4 3 8 8 - 2 5 6 0**

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDs	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDs

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE) NO

EXPECTED SUBMISSION DATE (15)

MONTH	DAY	YEAR

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

On September 9, 1991, with the plant at 99% power, an error in the calibration of the safety injection accumulator level transmitters was identified. The error was caused by the failure to consider the effects of the nitrogen density at 750 psig on the ITT Barton Model No. 384/352 differential pressure transmitters used for level measurement. The level transmitters are used to measure liquid level in the accumulators over a twenty-eight (28) inch span and provide an indication of 0-100% level. Without compensation for the effects of nitrogen density at 750 psig, the level error, which is linear over the measured span, is 5.52% high at 0% actual level and 0% error at 100% actual level.

The root cause for the event could not be conclusively determined. The methodology for determining the calibration reference values was developed prior to initial plant startup and had remained unchanged until the identification of this event.

As an interim measure, to ensure that the Technical Specification for minimum accumulator water volume is satisfied, the low level alarm setpoints have been set at 6.5% above the level required by the specification. During the 1992 refueling outage the transmitters will be recalibrated to compensate for the level error due to the nitrogen density. The decision to not recalibrate the transmitter during at-power conditions was based on the prudence of maintaining personnel radiation exposure as-low-as-reasonably-achievable (ALARA).

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

Description of Event

On September 9, 1991 with the plant at 99% power, an error in the calibration of the safety injection [BQ] Accumulator [ACC] Level Transmitters [LT] was identified. The differential pressure transmitters, ITT Barton Model No. 384/352, measure the differential pressure across a 28 inch span of accumulator level and provide a level indication of 0-100%. The error was identified when a transmitter was restored to service and a static shift of approximately 2.5 mA occurred. Investigation into the cause of the shift revealed that the effects of nitrogen density at 750 psig had not been considered in the calibration procedure. It was determined that the effect of the nitrogen density causes an error in the indicated level; the error is linear over the measured span and is 5.52% at 0% actual level, an 0% at 100% actual level.

Prior to the identification of the error, the setpoints for the low and high alarm bistables were at indicated levels of 26% and 50%, respectively. The level error would result in the actual levels to be non-conservative by 4.1% at the low level alarm, and conservative by 2.76% at the high level alarm. Following identification of the nitrogen density error, the low level alarm setpoint of the bistables was increased to 32% indicated level, because of the conservatism at the high level alarm setpoint it remains at 50% indicated level.

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

A review of the shift instrument channel check logs for the period of January 1, - September 15, 1991, was conducted to determine if the level in either accumulator had exceeded the Technical Specification limits. The review revealed that while the reactor was critical there was level indication, after correction for the error, which showed that the limits of $1250 \pm 25 \text{ ft}^3$ for accumulator water volume had been met.

Cause of The Event

The root cause for the event could not be conclusively determined. The methodology for determining the calibration reference values was developed prior to initial plant startup and had remained unchanged until the identification of this event.

Analysis of Event

The event was of minimal safety significance. The transmitters provide level indication and high and low level alarms. The transmitters do not provide any automatic actions. Accumulator level indication is used by the operators to ensure that accumulator volume meets the Technical Specification requirement of $1250 \text{ ft}^3 \pm 25 \text{ ft}^3$. To ensure compliance with the Technical Specification plant practice is to increase level in the accumulators prior to receiving the low level alarm, which actuates above 1225 ft^3 . To ensure that this practice was being implemented, the shift instrument channel check logs for the period of January 1, - September 15, 1991 were

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reviewed. The review accounted for the instrument error described in this report and found that while the reactor was critical a sufficient volume of water had been maintained in the accumulators. The review, albeit not for the entire period of plant operation, does provide assurance that accumulator level had been maintained within the Technical Specification requirement and the safety analysis assumptions. The high alarm setpoint is not a concern since the error due to the nitrogen density results in a conservative drift of the alarm.

Although this event is not reportable in accordance with 10CFR50.73, this event is being reported as an item of potential generic interest.

Corrective Actions

To compensate for the induced pressure error and to ensure that the Technical Specification lower limit for accumulator water volume is satisfied, the low level alarm setpoint has been reset to 6.5% above the required level. The high level alarm setpoint was not changed because the calibration error will cause the alarm to occur at an actual level lower than the setpoint. Due to ALARA considerations, recalibration of the transmitters, which are located in the containment, will not be performed until the 1992 refueling outage. Prior to the outage, the calibration procedure for the transmitters will be revised to compensate for the error caused by nitrogen density.

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Although this event is not reportable in accordance with 10CFR50.73, this event is being reported as an item of potential generic interest.

Additional Information

Equipment Failures: None.

Similar Events: None.