NRC Form 366 (9-83)

U.S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT (LER)

APPROVED OMB NO. 3150-0104
EXPIRES - 8/31/85

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Indian Point Unit No. 2	0 5 0 0 0 2 4 7	1 OF 0 4

TITLE (4)

Accumulator Tank Level Instrument Calibration Level Error

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)
1 2	0 8	8 7	8 7	0 1 9	0 0	0 1	0 7	8 8		0 5 0 0 0
										0 5 0 0 0

OPERATING MODE (9): N

POWER LEVEL (10): 0 0 0

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)	50.73(a)(2)(iv)	73.71(b)
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)	X 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)
Jude G. Del Percio, Manager, Regulatory Affairs	9 1 4 5 2 6 5 1 2 7

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
B	BP	ACC		N					

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)

Indian Point 2 was at cold shutdown for a refueling outage. The safety injection accumulator tank level transmitters were being replaced with upgraded equipment. During the engineering review of the calibration for the new transmitters it was noted that the calibration of the old transmitters was in error. As a result the plant has been operated within an actual accumulator water volume range that is 30.3 cubic feet higher than the Technical Specification allowable range. However, parametric studies of accumulator water volume done in support of the present emergency core cooling system (ECCS) analysis showed that the acceptance criteria of 10CFR50.46(b) are met even with the greater accumulator water volume. The new transmitters are being calibrated to the proper level/volume correlation.

The health and safety of the public were not affected.

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

Plant and System Identification

Westinghouse 4 loop Pressurized Water Reactor

Identification of Occurrence

Engineering calculations done in support of calibration of the new accumulator tank level transmitters determined that the calibration basis for the previous transmitters was in error such that the indicators were under registering the water volume by 30.3 cubic feet.

Event Date: December 8, 1987

Report Due Date: January 7, 1988

Reference

Con Edison Calculation No. CI-I-10.1-01, Accumulator Level Transmitter Calibration.

Past Similar Events

No past similar events were reported at Indian Point 2. However, there was a similar occurrence recently at the Trojan plant which is a Westinghouse 4 loop pressurized water reactor of similar vintage to Indian Point 2.

Description of Occurrence

The accumulator tank level transmitters were being replaced with more accurate and reliable transmitters during the current refueling outage with the unit at cold shutdown. A detailed engineering review was performed for the calibration of the new transmitters. It was determined that previous calibrations were based on an engineering data sheet indicating that a tank water volume of 707.5 cubic feet corresponded to a certain plant elevation.

Actions were taken to re-create the above data point. Tank volume calculations were made using the vendor drawings. Tank dimensions and elevations were confirmed by field surveys that included ultrasonic measurements of shell thickness and were found to match the drawings within tolerance limits.

The resulting calculation showed the level/volume correlation previously used to calibrate the transmitters to be in error by 30.3 cubic feet. As a result, the plant has been operated in an actual accumulator water volume range that is 30.3 cubic feet higher than the Technical Specification allowable range. For the current Technical Specifications this means that the accumulator water volume has been maintained within a range of 844.8 to 859.8 cubic feet versus a Technical Specification allowable range of 814.5 to 829.5 cubic feet.

Cause of Occurrence

The error was caused by basing past calibrations on erroneous data correlating accumulator water volume to plant elevation. The basis for the miscorrelation could not be determined.

Analysis of Occurrence

Operating the accumulator water tanks with a greater water volume than allowed by Technical Specification 3.3.A.1.c displaces some of the nitrogen that is required as a driving head for accumulator water injection following a large break loss of coolant accident (LOCA). The ECCS analysis assumed that a nominal nitrogen volume of 278 cubic feet at 600 psig was available. Because of the error, the actual nitrogen volume may have been as low as 240.2 cubic feet. However, the plant is operated with an accumulator pressure of between 625 and 660 psig, so the increased pressure partly offset the decreased volume. A check of plant operating logs showed that accumulator pressure is typically in the 645 to 650 psig range.

The present worst case LOCA analyzed is a double ended cold leg guillotine (DECLG) rupture using a Moody discharge coefficient of 0.4. The ECCS analysis demonstrates substantial margin against the acceptance criteria of 10CFR50.46(b) even for this worst case break as shown below:

Parameter	Criteria	IP2 Results
Peak Cladding Temperature (degrees F)	2200	1944
Maximum Cladding Oxidation (Fraction)	.17	.0417
Maximum Hydrogen Generation (Fraction)	.01	.003

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Parametric studies of accumulator water volume done in support of the present ECCS analyses showed that the acceptance criteria of 10CFR50.46(b) are met even with the greater accumulator water volume and no credit for the elevated nitrogen pressure. As such, a safety concern did not exist. The accumulators have not been called upon to function in their accident mode at any time during plant operation and the health and safety of the public were not affected.

The operability requirements for accumulator water volume are given in Technical Specification 3.3.A.1.c. Since the accumulator water volume has been maintained outside that requirement, this event is reportable per 10CFR50.73(a)(2)(i)(B).

Corrective Action

The new transmitters have been properly calibrated. The new calculation and plant survey document the correctness of the new calibration and provide a basis to assure correctness of future changes.

Additional Information

The accumulator tanks were manufactured for Westinghouse by the Delta Southern Company.

Con Edison
Consolidated Edison Company of New York, Inc.
Indian Point Station
Broadway & Bleakley Avenue
Buchanan, New York 10511-1099

January 7, 1988

Re: Indian Point Unit No. 2
Docket No. 50-247
LER 87-019-00

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

The attached Licensee Event Report LER-87-019-00 is hereby submitted in accordance with the requirements of 10 CFR 50.73.

Very truly yours,

Stephen B. Bram
Vice President
Nuclear Power

attachment

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