Indian Point 3
Nuclear Power Plant
P.O. Box 215
Buchanan, New York 10511

914-736-8000

New York Power Authority

August 24, 1992
IP3-NRC-92-065

Docket No. 50-286
License No. DPR-64

Document Control Desk
Mail Station PI-137
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Sir:

The attached is a voluntary Licensee Event Report LER 92-012-00. The event may have generic interest to the nuclear power industry.

Very truly yours,

Joseph E. Russell
Resident Manager
Indian Point Three Nuclear Power Plant

jer/whs/rj
Attachment

cc: Mr. Thomas T. Martin
Regional Administrator
Region 1
U.S. Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, Pennsylvania 19406

INPO Records Center
Suite 1500
1100 Circle 75 Parkway
Atlanta, Georgia 30339

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NRC Form 366
(9-83)

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

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Indian Point Unit 3	0 5 0 0 0 2 8 6	1 OF 0 4

TITLE (4)
Pressurizer Temperature Transients

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 4	1 8	9 2	9 2	0 1 2	0 0	0 5	2 4	9 2		0 5 0 0 0
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OPERATING MODE (9)	N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)			
POWER LEVEL (10)	0 0 0	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)	X 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)	Voluntary Report
		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
William H. Sorrell, Plant Engineer II	AREA CODE 9 1 4 7 3 6 - 8 0 4 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	

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 April 18, 1992 Indian Point Unit 3 was in the process of cooling down the Reactor Coolant System (RCS) (AB) to the cold shutdown condition for the start of the cycle 8/9 refueling outage. During the cooldown, two separate incidents of RCS fluid insurges into the pressurizer resulted in short duration temperature transients in the pressurizer. One insurge occurred during a normal depressurization coincident with a power-operated relief valve actuation. The other occurred during the collapsing of the pressurizer steam "bubble". The insurges of cooler fluid reduced temperature initially and then recovered from the hot pressurizer metal and possibly heaters. A Reasonable Assurance of Safety (RAS), RAS 92-03-175 PZR, was completed on July 16, 1992 and concluded no adverse impact resulted to the pressurizer. A detailed fatigue and fracture evaluation for effects on the design life and long term operation of the pressurizer will be completed by October 30, 1992. Because this operational event may be of generic interest or concern, this voluntary LER is being submitted. These type of events fall outside the realm of the original plant heatup/cooldown specifications which address continuous heatup and cooldowns over long periods of time, not irregular temperature "spikes" of short duration and rapid turnaround.

DESCRIPTION OF THE EVENT

Indian Point Unit 3 was shut down on April 18, 1992 for the cycle 8/9 refueling outage. During the normal cooldown and depressurization process from hot shutdown to cold shutdown, two events of RCS insurges to the pressurizer occurred.

Plant cooldown was initiated at 0820 on April 18, 1992 in accordance with procedure POP-3.3, Plant Cooldown Hot to Cold Shutdown. At 1355 the Overpressurization Protection System (OPS) armed and actuated. The OPS actuation was reported in a 30 day report, letter IP3-NRC-92-032 dated May 18, 1992. After stabilization from the OPS actuation, the cooldown and depressurization were continued. The depressurization and OPS actuation produced an insurge of relatively cooler fluid into the Pressurizer Vessel. The stabilization after the OPS actuation allowed the water in the pressurizer to heat up from vessel latent heat and possibly pressurizer heaters. The insurge period produced a 170 degree F decrease in water temperature over 29 minutes and the subsequent heatup of 131.2 degrees F in water temperature in 12 minutes.

The second event occurred when taking the RCS water solid and collapsing the pressurizer steam "bubble". Again an insurge and subsequent heatup of the water in the pressurizer produced a 142 degree F decrease in water temperature in 35 minutes and 111 degrees F increase in water temperature in 11 minutes, respectively.

The Indian Point 3 Technical Specifications restrict heatup and cooldown rates for the pressurizer to limit the allowable total stress to the vessel. The specification limits the heatup and cooldown rates averaged over one hour but does not address quick up and down transients. Calculations for every 60 minute interval in which these transients occurred identified the greatest average heatup rate to be 57.8 degrees F per hour and greatest average cooldown rate to be 175.5 degrees F per hour. These values are less than Technical Specification section 3.1.B.4, "Pressurizer heatup and cooldown averaged over one hour shall not exceed 100 degrees F per hour and 200 degrees F per hour, respectively".

A Reasonable Assurance of Safety (RAS), RAS 92-03-175 PZR Rev 0, was completed and presented to the Plant Operating Review Committee (PORC) on July 16, 1992. The RAS, which PORC approved, concluded that the transients did not damage the structural integrity of the pressurizer and that continued operation is acceptable. Nuclear Engineering (NED) and Nuclear Operations Groups continue to work with Westinghouse on a detailed Fatigue and Fracture Evaluation for the effects on the design life and long term operation of the pressurizer. The detailed analysis is expected to be finalized and issued by October 30, 1992.

ANALYSIS OF THE EVENT

The Indian Point 3 Technical Specification restrict heatup and cooldown rates for the pressurizer to limit the allowable total stress to the vessel. The specification limits the heatup and cooldown rates averaged over one hour but does not address quick up and down transients. The Authority recognizes and practices maintaining heatup/cooldown rates uniform. These type of events fall outside the realm of the original plant heatup/cooldown concerns. Calculations for every 60 minute interval in which these transients occurred identified the greatest average heatup rate to be 57.8 degrees F per hour and greatest average cooldown rate to be 175.5 degrees F per hour. These values are less than Technical Specification section 3.1.B.4, "Pressurizer heatup and cooldown averaged over one hour shall not exceed 100 degrees F per hour and 200 degrees F per hour, respectively"

CAUSE OF THE EVENT

As these events were not considered in the original plant heatup/cooldown concerns, the staff was not aware the plant interface design/equipment condition existed.