Commonwealth Edison
Byron Nuclear Station
4450 North German Church Road
Byron, Illinois 61010

April 06, 1994

LTR: BYRON 94-0141
FILE: 3.03.0800 (1.10.0101)

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

Dear Sir:

The Enclosed Licensee Event Report from Byron Generating Station is being transmitted to you in accordance with the requirements of 10CFR50.73(a)(2)(i)(B).

This report is number 94-002; Docket No. 50-454.

Sincerely,

G.K. Schwartz
Station Manager
Byron Nuclear Power Station

GKS/DSK/ng

Enclosure: Licensee Event Report No. 94-002

cc: J. Martin, NRC Region III Administrator
NRC Senior Resident Inspector
INPO Record Center
CECo Distribution List

IE22
1/1

(9958R/WPF/032394/6)

SIGNATURE PAGE FOR LICENSE EVENT REPORT

LER Number
454: 94-002

Title of Event: Main Steam Safety Valves Setpoints Outside of Tolerance due to Calculation Error

Occurred: 03-10-94 / -----
Date Time

OSR DISCIPLINES REQUIRED ABG

PDR / 4/5/94
SES DATE

Acceptance by Station Review:

E D Berdin / 4/6/94
OE Date

P Rest / 4/5/94
SES Date

D Brindle / 4/5/94
RAS Date

_____ / _____
OTHER Date

Approved by: A K Schwartz / 4/6/94
Station Manager Date

(9958R/WPF/032394/1)

LICENSEE EVENT REPORT (LER)

FACILITY NAME	DOCKET NUMBER	PAGE
BYRON NUCLEAR POWER STATION	0 5 0 0 0 4 5 4	1 OF 0 4

TITLE

MAIN STEAM SAFETY VALVES SETPOINTS OUTSIDE OF TOLERANCE DUE TO CALCULATION ERROR

EVENT DATE			LER NUMBER			REPORT DATE			OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQ. NUMBER	REVISION	MONTH	DAY	YEAR	FACILITY NAMES	DOCKET NUMBER(S)
0 3	1 0	9 4	9 4	- 0 0 2	- 0 0	0 4	0 6	9 4	Byron 2	0 5 0 0 0 4 5 5
									Braidwood	0 5 0 0 0 4 5 6

OPERATING MODE		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5: (CHECK ONE OR MORE OF THE FOLLOWING)					
1		20.402(b)		20.405(e)		50.73(a)(2)(iv)	73.71(b)
POWER LEVEL		20.405(a)(1)(i)		50.36(c)(1)		50.73(a)(2)(v)	73.71(c)
1 0 0		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

NAME	TELEPHONE NUMBER
W. ALVENDIA, SYSTEM ENGINEER, EXT. 2432	8 1 5 2 3 4 - 5 4 4 1

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	
B	S B	R V	C 5 8 8	N							

SUPPLEMENTAL REPORT EXPECTED		EXPECTED SUBMISSION DATE	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).

On 03/09/94, Commonwealth Edison was notified by Furmanite America, Inc. that the trevitest performed at Byron Station on the Main Steam Safety Valves may have left them outside of the Technical Specification required setpoint tolerance of $\pm$1%. An incorrect value for mean seat area was used in the trevitest calculation to determine the setpoint. As a result, 16 valves on Byron Unit 1 and 19 valves on Byron Unit 2 fell outside the Technical Specification tolerance.

A Notice of Enforcement Discretion was requested, and granted, to permit continued operation of both units. An amendment to the Tech Specs to allow a tolerance of $\pm$3% has been requested. The valves' setpoints will be retested by May 09, 1994.

The event is reportable per 10CFR50.73(a)(2)(i)(B) as operation prohibited by Technical Specifications.

TEXT Energy Industry Identification System (EIIS) codes are identified in the text as [XX]

A. PLANT CONDITIONS PRIOR TO EVENT:

Event Date/Time 03-10-94 / ---------

Unit 1 MODE 1 - Power Operation Rx Power 100 RCS [AB] Temperature/Pressure NOT/NOP

Unit 2 MODE 1 - Power Operation Rx Power 100 RCS [AB] Temperature/Pressure NOT/NOP

B. DESCRIPTION OF EVENT:

On 03/09/94, Commonwealth Edison was notified by Furmanite America, Inc. that the trevitest performed on Byron Station Main Steam (MS) [SB] Safety Valves (MSSV's) under surveillance test 1/2BVS 7.1.1-1, "Main Steam Safety Valves Operability Test" may have left the setpoints outside the Technical Specifications required tolerance of ±1%. Additional phone calls on 03/10/94, and a letter from Furmanite indicated that an incorrect value for Mean Seat Area (MSA) was used in the trevitest calculation of Main Steam Safety Valves setpoints. Byron's MSSV's are Dresser (Consolidated) 3707R series valves. Calculations to determine the "As Left" condition of the MSSVs for each unit based on the revised mean seat area were completed at 1500 hours on 03/10/94. As a result, 16 valves for Byron Unit 1 and 19 valves for Byron Unit 2 fell outside of the Technical Specification required setpoint tolerance of ±1%.

This event is reportable per 10CFR 50.73(a)(2)(i)(B) as operations prohibited by Technical Specifications.

C. CAUSE OF EVENT:

The issue came about due to the events that occurred during Unit 2 testing at Palo Verde Station between the dates 08/19/93 and 08/21/93. Furmanite had tested a total of nine valves. Of the nine valves tested, eight were found outside of the ±1% tolerance. Seven of the eight valves were adjusted based on the trevitest results. Arizona Public Service (APS) Engineers questioned the accuracy of the trevitest results since all the valves had been tested and set at the Westinghouse test facility and were considered to be in the best possible condition. When the APS Engineers questioned the difference between the two test methods, testing was halted and the seven adjusted valves were considered inoperable. Spare valves were sent to Westinghouse to determine setpoint. Once the setpoint was determined, the valves were tested with the trevitest equipment. An offset between the two test methods was discovered. The offset was attributed to the Mean Seat Area variable. From 08/24/93 to 01/27/94, a large sample of valves were tested and the trevitest results were compared against the over-pressure results. The results from the tests indicated that the new MSA reduced the offset between trevitest and over-pressure.

As a result of changing the mean seat area, the "As Left" setpoints of the MSSV's were calculated as being further out of tolerance than the allowed ±1%.

D. SAFETY ANALYSIS:

The MSSV's were analyzed for setpoint deviations of up to ±3% in support of the change to Vantage 5 fuel. The effects of increasing the "As Found" lift setpoint tolerance on the MSSV have been examined, and it has been determined that, with the exception of the loss of load/turbine trip, the current accident analyses as presented in the UFSAR remain valid. The loss of load/turbine trip event was analyzed in order to quantify the impact of the setpoint tolerance relaxation. As is demonstrated in the evaluation (Westinghouse letter CAE-91-209/CAE-91-219) all applicable acceptance criteria for this event remain satisfied and the conclusion presented in the UFSAR remains valid. For Loss of Coolant Accidents (LOCA), neither the mass and energy release to the containment following a postulated LOCA, nor the containment response following the LOCA Analysis, credit the MSSV in mitigating the consequences of an accident. Therefore, changing the MSSV lift setpoint tolerances would have no impact on the containment integrity analysis. In addition, based on the conclusion of the transient analysis, the change to the MSSV tolerance will not affect the calculated steamline break mass and energy releases inside containment.

The effects of the ±3% MSSV setpoint tolerance on the LOCA analyses has been evaluated. Calculations performed to determine the response to a large break LOCA do not model the MSSV's since a large break LOCA is characterized by a rapid depressurization of the reactor coolant system below the pressure of the steam generator secondary. Thus, the calculated consequences of a large break LOCA are not dependent of the assumptions of MSSV performance.

The small break LOCA analyses presented in Appendix C of the Byron/Braidwood Stations Units 1 and 2 VANTAGE 5 Reload Transition Safety Report were performed using a 3% higher safety valve setpoint pressure. The standard 3% accumulation between valve actuation and full flow was also accounted for in the analyses. These analyses calculated peak cladding temperatures well below the allowed 2200° F limit as specified in 10 CFR 50.46 demonstrating that the change to the MSSV setpoint tolerance can be accommodated for small break LOCAs.

No new failure modes have been determined to exist as a result of this new analysis. The MSSV's will continue to relieve any unlikely system overpressure during all applicable operating modes. The increased setpoint tolerance has no significant negative impact on any system, operating mode, or accident analysis.

E. CORRECTIVE ACTIONS:

A notice of enforcement discretion (NOED) was requested on March 10, 1994 and was granted. The NOED permits continued operation of both units until NRC approval of an amendment request to revise the As Found Setpoints to ±3%. The proposed amendment was submitted on March 21, 1994.

The valves' setpoints will be retested by May 09, 1994 (NTS # 4541809400200-01).

F. RECURRING EVENTS SEARCH AND ANALYSIS:

Trends have been written (most recently Trend 89-01) for Main Steam Safety Valve Setpoint Drift. A Tech Spec change submittal is being written to change the As Found setpoint drift from ±1% to ±3%. There have been no previous occurrences of errors in the testing of the valves.

G. COMPONENT FAILURE DATA:

MANUFACTURER	NOMENCLATURE	MODEL NUMBER	MFG PART NUMBER
Dresser (Consolidated) Industries	Main Steam Safety Valve	3707RA	--------