WOLF CREEK
NUCLEAR OPERATING CORPORATION

John A. Bailey
Vice President
Nuclear Operations

March 5, 1990

NO 90-0064

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Mail Station P1-137
Washington, D. C. 20555

Reference: Letter ET 88-0082 dated June 13, 1988 from
J. A. Bailey, WCNOC, to Document Control Desk, NRC

Subject: Docket No. 50-482: Licensee Event Report 88-007-01

Gentlemen:

The Reference submitted Licensee Event Report 88-007-00 pursuant to 10 CFR 50.73 (a)(2)(i) concerning a violation of Technical Specifications. Subsequent review of the situation determined that the surveillance test procedure had satisfied Technical Specification 2.2.1. The Reference is being supplemented as a voluntary report to clarify the method of setting the trip setpoints.

Very truly yours,

John A. Bailey

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Vice President
Nuclear Operations

JAB/aem

Attachment

cc: E. J. Holler (NRC), w/a
R. D. Martin (NRC), w/a
D. V. Pickett (NRC), w/a
M. E. Skow (NRC), w/a

IE22
1/1

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)
Wolf Creek Generating Station	0 5 0 0 0 4 8 2	1 OF 0 5

TITLE (4)

Methodology Of Reactor Trip System Setpoint Calibration

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 5	1 3	8 8	8 8	0 0 7	0 1	0 3	0 5	9 0		0 5 0 0 0
										0 5 0 0 0

OPERATING MODE (9)	1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)			
POWER LEVEL (10)	1 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)	
		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
Merlin G. Williams	3 1 6 — 3 6 4 - 8 8 3 1

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)

At 1230 CDT on May 13, 1988, while reviewing the surveillance test methodology, the utility Reactor Engineering supervisor and a utility Instrument and Control (I&C) supervisor determined conservatively that the procedures for setting the trip point for Overpower Differential Temperature (OPdT) and Overtemperature Differential Temperature (OTdT) instrument loops did not comply with Technical Specifications 2.2.1, Action Statement "a", by not requiring the trip points to be reset to the conservative side of the required setpoint. Based on this conservative determination, the affected procedure was revised, and the trip setpoints were adjusted accordingly.

In August of 1989, upon further review of this situation and a formal evaluation and definition of calibration accuracy, it has been concluded that the previous version of the procedure had complied with the requirements of the Technical Specification. Consequently the procedural revision was unnecessary and it is intended to restore the procedures to the original methodology. The original Licensee Event Report is being supplemented as a voluntary report to clarify the method of setting the trip setpoints.

INTRODUCTION

At 1230 CDT on May 13, 1988, while reviewing the surveillance test methodology, the utility Reactor Engineering supervisor and a utility Instrument and Control (I&C) supervisor conservatively determined that the procedures for setting the trip point for Overpower Differential Temperature (OPdT) and Overtemperature Differential Temperature (OTdT) instrument loops [JC-AS] contained an error. It was then determined that the surveillance test procedure for the Analog Channel Operational Test of the 7300 Process Instrumentation [JC-IA] did not comply with Technical Specifications 2.2.1, action statement "a", which states:

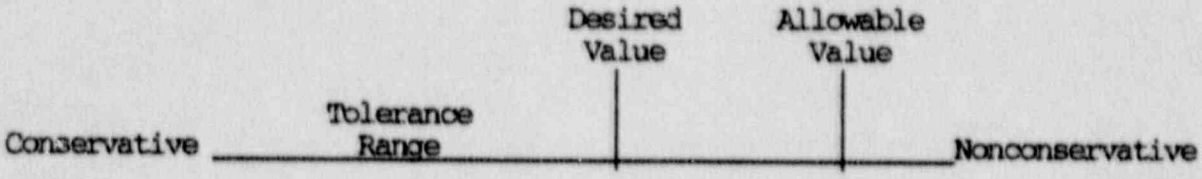
"a. With a Reactor Trip System Instrumentation or Interlock Setpoint less conservative than the value shown in the Trip Setpoint column but more conservative than the value shown in the Allowable Value column of Table 2.2-1, adjust the Setpoint consistent with the Trip Setpoint value."

The unit was operating in Mode 1, Power Operation, at 100 percent power when this problem was identified. Revision 0 of this Licensee Event Report (LER) was submitted pursuant to 10CFR 50.73(a)(2)(i)(B), as a violation of Technical Specification 2.2.1, based on the above determination. Upon further review of the situation in August, 1989, it was determined that the surveillance test procedure had satisfied Technical Specification 2.2.1, Action Statement 'a' prior to May, 1988. The original Licensee Event Report is being supplemented as a voluntary report to clarify the method of setting the trip setpoints.

DESCRIPTION

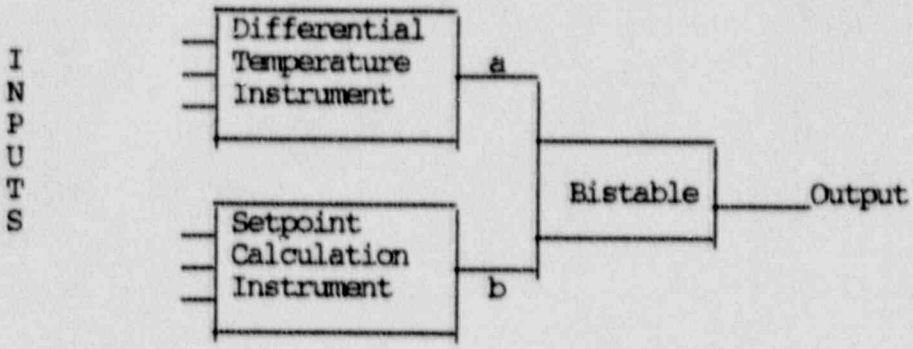
The subject surveillance test procedure tests the setpoint for each of the reactor trip signals generated by the 7300 Process Instrumentation. The general methodology used therein is to inject a test signal at the detector and to note the trip point of the applicable bistable. For each trip function, there is listed a desired value, a tolerance range and an allowable value. The relationship of these three are shown in Figure 1. The desired value corresponds to the Trip Setpoint of Technical Specifications, Table 2.2-1; the tolerance range is conservative with respect to the desired value and the allowable value of the procedure corresponds to the Allowable Value Column of Table 2.2-1. During calibration the trip point of each bistable is reset to the tolerance range unless it is found already in the tolerance range.

FIGURE 1



Because of the complexity of the OPdT and the OTdT instrument loops the procedure calibrated each instrument loop in three sections. Figure 2 provides a simplified block diagram of one instrument loop. The bistables for the OPdT and OTdT instrument loops have two inputs; one corresponding to the differential temperature and the other corresponding to a calculated trip setpoint. The surveillance test procedure calibrated the OPdT and OTdT bistables by supplying a test signal at the two inputs to the bistables (labeled "a" and "b" on Figure 2) and setting the trip in the normal manner. Each of the input instruments feeding the bistable was calibrated to a plus or minus tolerance on either side of the nominal value.

FIGURE 2



MAY 1988 ANALYSIS

In May of 1988, it was believed that the procedure assumed that a perfect signal would be supplied at "a" and "b" and set the bistable trip point accordingly. It was further concluded that the procedure failed to recognize that instrument error in the two input instruments would affect the instrument loop trip point. The resultant error for the instrument loop is the sum of the bistable error plus the error in each input instrument. Since the resultant error could be nonconservative, this procedure allowed the instrument loop trip setpoint of OPdT and OTdT instruments to be less conservative than the value shown in the Trip Setpoint columns of Technical Specifications Table 2.2-1, resulting in violation of action statement "a".

AUGUST 1989 ANALYSIS

Upon further review of the situation in August, 1989, it was recognized that the Bases for Technical Specification 2.2.1 states that "The Setpoint for a Reactor Trip System or interlock function is considered to be adjusted consistent with the nominal value when the 'as measured' setpoint is within the band allowed for calibration accuracy".

The calibration accuracy has been evaluated and specifically defined. It provides a tolerance range encompassing the Trip Setpoint value. Therefore, following performance of the calibration procedure, the bistable setpoint should be left at the Trip Setpoint value plus or minus the calibration accuracy for compliance with this Technical Specification 2.2.1, Action Statement "a".

Consequently it is planned to revise the method of calibration to the original method.

ADDITIONAL INFORMATION

This surveillance test procedure is done monthly when the unit is in Mode 1 (Power Operation) or Mode 2 (Startup). There are four OPdT instrument loops and four OTdT instrument loops that are calibrated each time the surveillance test procedure is accomplished.

It should be pointed out that the specific setpoint has always been within the Trip Setpoint value column of Technical Specifications Table 2.2-1. The OPdT and OTdT instrument loops are very stable. The amount of drift noted during the monthly surveillance test has never been enough to require any adjustment. Therefore, the instruments were always considered operable. If a condition had occurred that required these instruments to trip, they would have done so within the values analyzed in the Accident Analysis. Therefore, there was no adverse safety significance as a result of this event. There was no damage to plant equipment or release of radioactivity as a result of this event. At no time did conditions develop that may have posed a threat to the health and safety of the public.

ACTION TAKEN

Following the original determination that an error existed, the most recently completed surveillance test procedure was examined to determine which instruments were left with nonconservative trip points. It was determined that two OPdT and three OTdT instrument loops were affected. New setpoints were then calculated and a temporary procedure was approved for resetting the bistable trip setpoint for each of these. The affected

APPROVED OMB NO. 3150-0104
EXPIRES: 4/30/92

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.

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

bistable trip setpoints were properly adjusted by 2056 CDT on May 13, 1988. All procedures that verified the other setpoints of Technical Specifications Table 2.2-1 were reviewed to ensure this error did not exist in other setpoints. The surveillance test procedures were revised to prevent further occurrences.

Based on the formal definition of calibration accuracy, it has been determined that this procedural revision was unnecessary and it is intended to revise the procedure accordingly.