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DUKE POWER

February 5, 1996

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

Subject: Catawba Nuclear Station
Docket No. 50-413
LER 413/96-001

Gentlemen:

Attached is Licensee Event Report 413/96-001, concerning UNIT SHUTDOWN REQUIRED BY TECHNICAL SPECIFICATIONS.

This event was considered to be of no significance with respect to the health and safety of the public.

Very truly yours,

Mark E. Patrick for

W. R. McCollum, Jr.
Site Vice President
Catawba Nuclear Station

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U. S. Nuclear Regulatory Commission
February 5, 1996
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bx:	B. L. Walsh	- EC11C
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	SREC	
	J. W. Glenn (PIP File)	- CN05SR (with Enclosures)
	K. E. Nicholson (Reg Compl) -	- CN01RC (with Enclosures)
	SRG	- CN05SR (with Enclosures)
	Electronic Library	- EC050 (with Enclosures)
	Master File	- CN02DC CN-815.04 (with Enclosures)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Catawba Nuclear Station	DOCKET NUMBER (2) 05000413	PAGE (3) 1 of 5
----------------------------------------------	-------------------------------	--------------------

TITLE (4)
UNIT SHUTDOWN REQUIRED BY TECHNICAL SPECIFICATION

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 NAME	DOCKET NUMBER(S)
01	05	96	96	001	00	02	05	96	N/A	05000
										05000

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) 100	<input type="checkbox"/>	20.402(b)	<input type="checkbox"/>	20.405(c)	<input type="checkbox"/>	50.73(a)(2)(iv)	<input type="checkbox"/>	73.71(b)		
	<input type="checkbox"/>	20.405(a)(1)(i)	<input type="checkbox"/>	50.36(c)(1)	<input type="checkbox"/>	50.73(a)(2)(v)	<input type="checkbox"/>	73.71(c)		
	<input type="checkbox"/>	20.405(a)(1)(ii)	<input type="checkbox"/>	50.36(c)(2)	<input type="checkbox"/>	50.73(a)(2)(vi)	<input type="checkbox"/>	OTHER (Specify in		
	<input type="checkbox"/>	20.405(a)(1)(iii)	<input checked="" type="checkbox"/>	50.73(a)(2)(i)	<input type="checkbox"/>	50.73(a)(2)(vii)(A)	<input type="checkbox"/>	Abstract below and		
	<input type="checkbox"/>	20.405(a)(1)(iv)	<input type="checkbox"/>	50.73(a)(2)(ii)	<input type="checkbox"/>	50.73(a)(2)(vii)(B)	<input type="checkbox"/>	in Text, NRC Form		
<input type="checkbox"/>	20.405(a)(1)(v)	<input type="checkbox"/>	50.73(a)(2)(iii)	<input type="checkbox"/>	50.73(a)(2)(x)	<input type="checkbox"/>	366A)			

LICENSEE CONTACT FOR THIS LER (12)								TELEPHONE NUMBER			
NAME D. P. Kimball, Safety Review Group Manager								AREA CODE (803)		831-3743	

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)

Unit Status: Unit 1- Mode 1 (Power Operation) at 100 percent power.

Event Description: On January 5, 1996, at 1720 hours, Unit 1 entered Mode 3 (Hot Standby) as required by Technical Specifications (T/S) 3.3.1 and 3.3.2. During routine surveillance testing of Train A Reactor Trip Breaker (RTA), voltage across the contacts of a non-safety relay, which initiates a runback of the Main Feedwater Pumps on a reactor trip, indicated greater than the surveillance procedure's upper limit value. Procedure changes necessary to allow isolation of the relay and restoration of RTA were not completed in time to preclude the unit from having to enter Hot Standby. RTA was declared operable at 1930 hours.

Event Cause: The root cause of this event is attributed to a knowledge based error in that some key, available information was not known during the initial procedure change process to establish the upper limit for the allowable indicated voltage.

Corrective Action: Procedure changes will be made which raise the upper limit value that allows procedure completion without requiring an engineering evaluation. Any voltage above this limit will be evaluated by engineering and appropriate actions will be taken to restore the reactor trip breaker to operability. This event will be covered with the individuals involved to ensure their understanding of the importance of using reliable sources of information and invoking a questioning attitude during process implementation involving changes to technical procedures.

**LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION**

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		YEAR 96	SEQUENTIAL NUMBER 001	REVISION NUMBER 00	

BACKGROUND

Technical specification (T/S) 3.3.1 requires two trains of Reactor Trip Breakers [EIS:52] operable in Modes 1, Power Operation, and 2, Startup; and in Modes 3, Hot Standby, 4, Hot Shutdown, and 5, Cold Shutdown if the breakers are closed and capable of rod [EIS:ROD] withdrawal. The applicable T/S Action statement allows one train to be bypassed for up to 2 hours for surveillance testing per 4.3.1.1, provided the other train is operable.

IP/1/A/3200/08A, Train A Reactor Trip Breaker Actuating Device Functional and Operational Test, is performed to meet T/S 4.3.1.1 and 4.3.2 surveillance requirements. IP/1/A/3200/02A, Solid State Protection System (SSPS) Train A Periodic Testing, also fulfills T/S 4.3.1.1 and 4.3.2 surveillance requirements and is routinely performed in conjunction with IP/1/A/3200/08A. When performing these tests, SSPS Train A is placed in TEST, and bypass breaker BYA is placed in the "connect" position and closed.

The Reactor Trip Switchgear [EIS:SWGR] consists of two Reactor Trip Breakers, RTA (Train A) and RTB (Train B), and two Reactor Trip Bypass Breakers, BYA (Train A) and BYB (Train B). The Reactor Trip Breakers provide for an interruptible source of power to maintain the Control Rods at their withdrawn position during unit operation. When a reactor trip signal is received, the Trip Breakers open allowing the Control Rods to gravity insert into the core, shutting down the reactor [EIS:RCT]. The Reactor Trip Bypass Breakers are used during testing of their respective, train related Reactor Trip Breakers. Each of the four breakers is installed in its own breaker cubicle (cell). A breaker mounted mechanical switch, "52 cell switch", provides input to a circuit that provides reactor trip indication to the Digital Feedwater Control System (DFCS). This is accomplished by energizing an electro-mechanical "X" relay [EIS:RLY] for each Trip Breaker that operates. When the logic for reactor trip indication is satisfied, the DFCS receives this indication and responds by running the Main Feedwater [EIS:SJ] (CF) Pumps [EIS:P] back to minimum speed. The "X" relay relies on spring action to release the electrical contacts once the relay's electrical coil is de-energized.

Following a Catawba Unit 2 reactor trip event on April 27, 1995, as reported in LER 414/95-004, applicable surveillance procedures for both units were revised to ensure that the contacts for the "X" relay were open prior to returning a Reactor Trip Breaker to service. This status check of the contacts ensures that no false Main Feedwater Pump runback signal is present. This is accomplished by measuring for voltage across the contacts. The allowable range chosen for this status check was 0 to 1 volt.

EVENT DESCRIPTION

January 5, 1996

0925 hours Reactor Trip Breaker, RTA and Solid State Protection System (SSPS) Train A were made inoperable for surveillance testing.

1020 hours In preparation for return to operable following surveillance, IAE Technicians measured voltage across the contacts of the non-safety "X" relay. A fluctuating voltage of 0.5 to 4.2 volts was measured. The peak voltage exceeded the upper limit of 1 volt allowed by procedure.

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- 1030 hours The higher than allowed voltage reading was confirmed by the IAE Supervisor. Engineering was notified as required by the surveillance procedure, if any voltage reading is unacceptable. Operations was also notified that the 2 hours allowed by Technical Specifications 3.3.1 and 3.3.2 for testing may be exceeded.

- 1125 hours Unit 1 entered Action Statements requiring the unit to be in Mode 3, Hot Standby within 6 hours.

- 1325 hours Engineering completed an evaluation and proposed that the relay be isolated by opening a sliding link, thus allowing restoration of RTA and SSPS Train A to operable. The Plant Operations Review Committee (PORC) recommended that the procedure be changed to provide for implementation of the proposed actions for cases when measured voltage exceeds 1 volt. Unit 1 began a shutdown to be in Mode 3 by 1725 hours.

- 1720 hours Unit 1 entered Mode 3, Hot Standby, using normal operating procedures. Surveillance procedure changes were approved shortly thereafter.

IAE returned with the changed procedure and began restoration of RTA and SSPS Train A to operable. When they measured across the relay, the voltage was 0.07 volts. Since the fluctuating voltage was not present, they completed the procedure to restore RTA and SSPS Train A to operable without being required to implement the provisions of the procedure changes.

- 1930 hours RTA and SSPS Train A were declared operable. The unit exited all applicable Action Statements for Technical Specifications 3.3.1 and 3.3.2.

- ~ 2030 hours Management conferred on the issue of the absence of the previously indicated fluctuating voltage. It was decided that no component repairs or replacements were necessary prior to unit startup.

CONCLUSION

The root cause of this event is attributed to a knowledge based error in that some key, available information was not known during the initial procedure change process to establish the upper limit for the allowable indicated voltage. The upper limit value was established considering that some voltage indication, induced by the portable test instrument, could exist, but no technical information was used to determine an upper limit that would be high enough to account for other induced voltages and still be low enough to ensure that a valid voltage signal to the relay did not exist.

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On the day of the Unit 1 shutdown, engineering evaluated the magnitude of the indicated voltage and the fact that the relay's function was non-safety related, and proposed a means of isolating the relay. Management made a conservative decision to perform a 10CFR50.59 evaluation for the relay's isolation, and develop procedure changes for the task. This ensured that the technical information provided and the integration of that information into performance steps would receive all appropriate levels of evaluation and review.

Following the return of RTA and SSPS Train A to operable, Management conferred regarding the absence of the small fluctuating voltage when IAE returned to complete the procedures. Since the nature of the voltage did not suggest a failure or degradation of the relay, it was decided that no replacement or repairs were required. It was however decided to place the other affected procedures for both unit 1 and 2 on Administrative Hold pursuant to approval of procedure changes.

A review of reportable events for the 24 months prior to the Unit1 forced shutdown on January 5, 1996, indicated that there have been no forced shutdowns of either unit. Therefore this event is not recurring.

CORRECTIVE ACTIONS

IMMEDIATE

- 1) Unit 1 was placed in Mode 3, Hot Standby, at 1720 hours, as required per Action Statements for T/S 3.3.1 and 3.3.2.

SUBSEQUENT

- 1) Procedures IP/1/A/3200/02B, IP/1/A/3200/08B, IP/2/A/3200/02A, IP/2/A/3200/08A, IP/2/A/3200/02B, and IP/2/A/3200/08B were placed on Administrative Hold pending changes to provide enhanced guidance to IAE if stray voltages in excess of the acceptance criteria are encountered.

PLANNED

- 1) IP/1/A/3200/02A, IP/1/A/3200/08A, IP/1/A/3200/02B, IP/1/A/3200/08B, IP/2/A/3200/02A, IP/2/A/3200/08A, IP/2/A/3200/02B, and IP/2/A/3200/08B will be changed to provide for procedure completion if indicated voltage is less than or equal to 35 volts, without requiring an engineering evaluation.
- 2) Engineering will evaluate feasibility of providing procedural and process guidance for reactor trip breaker restoration to operable and procedure completion for cases where indicated voltage exceeded 35 volts.
- 3) This event will be covered with the individuals involved to ensure their understanding of the importance of using reliable sources of information and invoking a questioning attitude during process implementation involving changes to technical procedures.

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SAFETY ANALYSIS

Unit operation for surveillance testing is bounded by the requirements of applicable T/S. For Reactor Trip Breaker testing and SSPS testing, T/S 3.3.1 and 3.3.2 apply. When it became apparent that completion of surveillance testing for the Reactor Trip Breaker and the SSPS train could not be completed in time, shutdown commenced to achieve Mode 3. During the shutdown, redundant functional units for the inoperable equipment remained operable. The unit entered Mode 3 within the timeframe of the applicable Action Statements for T/S 3.3.1 and 3.3.2.

Since the unit was operated within the requirements of T/S throughout this event, the health and safety of the public were not affected.

ENCLOSURE 8.1

LIST OF ENCLOSURES

- 8.1 List of Enclosures
- 8.2 Safety Review Group Signatures
- 8.3 Cause Code Assignments
- 8.4 Corrective Action Schedule
- 8.5 References
- 8.6 Personnel referenced

ENCLOSURE 8.2

Safety Review Group Signatures

Prepared By: Dennis J. Phillips

Date: January 26, 1996

Reviewed By: Dennis J. Phillips

Date: 1-26-96

J. W. Glenn

Date: 1-31-96

Henry J. Fichter

Date: 01/31/96

David L. Miller

Date: 01/31/96

Mark E. Patrick

Date: 2/2/96

Approved By: D. P. Kimball
SRG Manager

Date: 2-2-96

ENCLOSURE 8.3

Cause Code Assignments

Root Cause

B4b

Technical Inaccuracies

Contributing Cause

None

ENCLOSURE 8.4

Corrective Action Schedule

<u>Corrective Action</u>	<u>Assigned To</u>	<u>Due Date</u>
1	IAE	7/3/96
2	ESE	7/3/96
3	ESE	2/19/96

ENCLOSURE 8.5

References

Catawba FSAR,
Catawba T/S 3.3.1 and 3.3.2
TSAIL
IP/1/A/3200/02A, IP/1/A/3200/08A
IP/1/A/3200/02B, IP/1/A/3200/08B
IP/2/A/3200/02A, IP/2/A/3200/08A
IP/2/A/3200/02B, IP/2/A/3200/08B
SWM Logbook

ENCLOSURE 8.6

Personnel Referenced

John M. Stackley	ENGG SUPV II
Matthew L. Griffin	NUC MAINT SUPV
Michael R. McCulley	B-Nuc I&E Spc
Frank R. McClean	B-Nuc I&E Spc
Edwin L. Nivens	B-Nuc I&E Spc
Jerry W. White	Tech Spc II
Timothy W. Deese Jr.	Sr Tech Spc- Dp
Richard S. Bondurant	Sr ENG