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DUKE POWER

April 1, 1993

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

Subject: Catawba Nuclear Station
Docket No. 50-413
LER 413/93-005

Gentlemen:

Attached is Licensee Event Report 413/93-005, concerning TECHNICAL SPECIFICATION TEST DEFICIENCY DUE TO MANUFACTURER FABRICATION.

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

Very truly yours,

M.S. Tuckman
M. S. Tuckman *M.S. Tuckman*

xc: Mr. S. D. Ebner
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Catawba Nuclear Station

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NRC FORM 366 (5-92)		U.S. NUCLEAR REGULATORY COMMISSION			APPROVED BY OMB NO. 3150-0104 EXPIRES 5/31/95			
<h2 style="margin: 0;">LICENSEE EVENT REPORT (LER)</h2> <p style="margin: 5px 0 0 20px;">(See reverse for required number of digits/characters for each block)</p>								
FACILITY NAME (1) <div style="text-align: center;">Catawba Nuclear Station, Unit 1</div>					DOCKET NUMBER (2) <div style="text-align: center;">05000 413</div>		PAGE (3) <div style="text-align: center;">1 OF 05</div>	
TITLE (4) <div style="text-align: center;">TECHNICAL SPECIFICATION TEST DEFICIENCY DUE TO MANUFACTURER FABRICATION</div>								
EVENT DATE (5)			LER NUMBER (6)		REPORT NUMBER (7)		OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR
03	01	93	93	005	00	04	01	93
							FACILITY NAME <div style="text-align: center;">CNS, Unit 2</div>	
							DOCKET NUMBER <div style="text-align: center;">05000 414</div>	
OPERATING MODE (9) <div style="text-align: center;">1</div>			THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more) (11)					
POWER LEVEL (10) <div style="text-align: center;">100</div>			20.402(b)		20.405(c)		50.73(a)(2)(iv)	
			20.405(a)(1)(i)		50.36(c)(1)		50.73(a)(2)(v)	
			20.405(a)(1)(ii)		50.36(c)(2)		50.73(a)(2)(vii)	
			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)(ix)	
			OTHER (Specify in Abstract below and in Text, NRC Form 366A)					
LICENSEE CONTACT FOR THIS LER (12)								
NAME <div style="text-align: center;">R. C. Futrell, Compliance Manager</div>						TELEPHONE NUMBER (include Area Code) <div style="text-align: center;">(803) 831-3665</div>		
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)								
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDOS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER
SUPPLEMENTAL REPORT EXPECTED (14)								
YES (If yes, complete EXPECTED SUBMISSION DATE)					X NO		EXPECTED SUBMISSION DATE (15)	
							MONTH DAY YEAR	
ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16) <p>On March 1, 1993, Unit 1 was in Mode 1, Power Operation, and Unit 2 was in No Mode, Defueled. A Nuclear Regulatory Commission Resident Inspector notified Component Engineering that Solid State Protection System (SSPS) wiring errors had been found at facilities with similar equipment. On March 2, at 1200 hours, it was determined that wiring for the SSPS Train A, Phase B Containment Isolation logic test circuit for both units was incorrect although the manufacturer documentation was correct. Unit 1 entered the 24 hour action statement under Technical Specification 4.0.3, Limiting Conditions For Operation And Surveillance Requirements. Work requests were initiated to correct the wiring and to verify operability of the logic circuits. Unit 1 SSPS was corrected and tested by 1645 hours. Unit 2 was corrected and tested on March 9 at 1415 hours. The manufacturer's representative has distributed an information notice to address these wiring problems. This event was attributed to a manufacturer fabrication deficiency.</p>								

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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 (MNB 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.

FACILITY NAME (1)		DOCKET NUMBER (2)		LER NUMBER (6)			PAGE (3)
Catawba Nuclear Station, Unit 1		05000413		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	02 OF 05
				93	005	00	

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

BACKGROUND

The Engineered Safety Features Actuation [EIS:IBC] System (ESF) acts to limit the consequences of events such as small Reactor Coolant [EIS:AB] (NC) System ruptures that exceed normal charging system makeup and requires actuation of the Safety Injection [EIS:BQ] (NI) System. The ESF System also actuates in order to limit any significant release of radioactive material by initiating Phase A and Phase B containment isolation. The function of Phase A is to prevent fission product release by isolating containment penetrations that are not essential to reactor protection. Phase B actuates on HI-HI Containment Pressure and isolates all but the NI System lines and the Containment Spray [EIS:BE] (NS) System lines to containment following a loss of reactor coolant accident (LOCA) and a steam line break or a feedwater line break inside containment. Phase B also actuates upon a manual actuation of NS.

The primary requirements for the ESF System is to receive input signals from sensors monitoring the various reactor plant processes, such as the 7300 Process Control [EIS:JD] (EIA) System, and automatically provide timely and effective signals to actuate ESF components when conditions exceed predetermined setpoints. The ESF System has provisions for manual actuation from the Control Room.

Technical Specification (T/S) 4.3.2, Engineered Safety Features Actuation System Instrumentation Surveillance Requirements, states that each ESF Actuation System channel, interlock, automatic actuation logic, and the associated relays shall be demonstrated to be operable by performance of the surveillance tests as specified.

The T/S required surveillance testing is performed for the Phase B Automatic Actuation Logic and Actuation Relays on a staggered monthly basis (each train is tested at least once per 62 days) when the unit is in Mode 1, Power Operation; Mode 2, Startup; and Mode 3, Hot Standby. The surveillance is performed by Instrument And Electrical (IAE) personnel using IP/1(2)/A/3200/02A(B), Solid State Protection System (SSPS) Train A(B).

EVENT DESCRIPTION

On March 1, 1993, Catawba Nuclear Station (CNS) Component Engineering (CES) personnel received information that a wiring error within the SSPS at an undisclosed nuclear facility had prevented Phase B Isolation logic circuit testing as required by T/S 4.3.2. The facilities SSPS wiring matched the manufacturer documentation which was in error. CNS CES investigated the

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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FACILITY NAME (1)		DOCKET NUMBER (2)		LER NUMBER (6)			PAGE (3)
				YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Catawba Nuclear Station, Unit 1		05000 413		93	005	00	03 of 05

TEXT (If more space is required, use additional copies of NRC Form 365A) (17)

plant specific documentation for CNS and verified that the wiring diagrams and associated wiring tables were correct.

On March 2, McGuire Nuclear Station (MNS) personnel informed CNS CES personnel about the MNS SSPS wiring problems. CNS CES inspected the Train A and Train B SSPS cabinets and found that the Train A, Phase B logic test circuit was wired wrong. Train B was verified to be correct.

At 1200 hours, Unit 1 SSPS Train A, Phase B circuit was declared inoperable. Work order 93017239-01 was initiated to correct and test the SSPS Containment Spray and Phase B Isolation logic test circuit.

At 1645 hours the Unit 1 SSPS wiring was corrected and the logic circuit was tested. The circuit was declared operable.

Work Order: 93017327-01 was initiated to correct the wiring and to test the logic circuit for Unit 2 Train A Phase B. On March 9, at 1415 hours, the SSPS logic test circuit wiring was corrected and tested.

CONCLUSION

This event has been attributed to a manufacturer fabrication deficiency in that the Train A SSPS cabinet logic testing circuit was wired wrong at the manufacturer facility and did not match the supplied documentation. There has been no plant corrective maintenance or modification to these circuits which would have required manipulation of the associated wiring.

The wiring error involved the test circuit used to verify operability of the Train A Phase B Containment Isolation Logic that initiates the Phase B assigned actuations upon HI-HI Containment Pressure conditions. Prior to correcting the wiring, the T/S required monthly testing did not verify that the Train A logic circuit output for Phase B Containment Isolation upon HI-HI Containment Pressure conditions was functioning as required. The wiring error caused the Spray Actuation logic circuit output to be verified twice which satisfied the test circuit giving the appearance of a successful test. There were no indications that the test circuit was miswired. This circuit is not normally energized. Wiring errors within circuits that are normally energized would be more readily detected.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Catawba Nuclear Station, Unit 1	05000 413	93	005	00	04 OF 05

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

The IAE group was able to correct the wiring with a work order only. The correction did not require a modification due to the fact that the manufacturer supplied wiring diagrams were correct. Testing of the circuits following the corrections verified that the affected logic circuits were operable.

The manufacturer of the SSPS equipment has distributed an information notice to alert other facilities about these wiring problems.

A review of the Operating Experience Program (OEP) Data Base for the past 24 months revealed no events involving missed T/S surveillance due to manufacturer fabrication deficiency or missed surveillance involving the SSPS Phase B Containment Isolation logic circuits. Therefore, this event is not considered to be recurring.

CORRECTIVE ACTIONSUBSEQUENT

- 1) CES inspected the SSPS cabinets and determined that the Train A wiring did not match the manufacturers drawings
- 2) Work Orders 93017239-01 (Unit 1) and 93017327-01 (Unit 2) were initiated and completed to correct the wiring.
- 3) Westinghouse representative prepared an information notice to alert other facilities about the wiring problems discovered within the SSPS cabinets.

PLANNED

None

SAFETY ANALYSIS

The SSPS System is designed to function following a Design Basis event in order to provide actuations that mitigate the consequences of a LOCA, steamline or feedwater line break within containment. The circuit affected by the wiring error involved the SSPS Train A Phase B Containment Isolation logic test circuit only. Due to the fact that past ESF Response Time Testing performed during refueling outages, and that the circuit functionally tested satisfactorily

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

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FACILITY NAME (1)		DOCKET NUMBER (2)		LER NUMBER (6)			PAGE (3)
Catawba Nuclear Station, Unit 1		05000413		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	05 of 05
				93	- 005 -	00	

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

following the wiring correction, the circuit is considered to be past operable. The actual Phase B Containment Isolation actuation signal output would have occurred as designed prior to correction of the wiring error. Although the T/S required testing for this specific circuit was not effectively testing the logic output, the circuit was functionally operable and would have actuated the Phase B isolation as designed. Train B was unaffected by this wiring error and would have acted independently to actuate the Phase B isolation requirements. In addition to the T/S required monthly testing, ESF Response Time Testing effectively tests the operation and output of the logic circuits.

During the period between initial unit operation, and the time that the wiring errors were discovered, there have been no conditions or combination of conditions that would have required the Phase B isolation to actuate.

The health and safety of the public were not affected by this incident.