Dake Power Company Catacoba Nuclear Generation Department 4300 Cancord Road York, SC 29745 M.S. TUCKMAN Vice President (803)831-3205 Office (803)831-3425 Fax



DUKE POWER

April 1, 1993

and the second

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. Tucana by M. S. Tuckman

xc: Mr. S. D. Ebneter Regional Administrator, Region II U. S. Nuclear Regulatory Commission 101 Marietta Street, NW, Suite 2900 Atlanta, GA 30323

> R. E. Martin U. S. Nuclear Regulatory Commission Office of Nuclear Reactor Regulation Washington, D.C. 20555

Mr. W. T. Orders NRC Resident Inspector Catawba Nuclear Station

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Marsh & McLennan Nuclear 1166 Avenue of the Americas New York, NY 10036-2774

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

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NRC FORM 366 U.S. NUCLEAR REGULATORY COMMISSION						APPROVED BY OMB NO. 3150-0104 EXPIRES 5/31/95							
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R. C. Futrell, Compliance Manager						(803) 831-3665							
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YES If yes, complete EXPECTED SUBMISSION DATE)			x	NO				SUBMISSION DATE (15)					

STRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16) On March 1, 1003, Unit 1, was in Mode 1, Power Operation, pr

On March 1, 1993, Unit 1 was in Mode 1, Power Operation, and Unit 2 was in No Mode, Defueled. A Nucleai 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.

NRC FORM 366A (5-82)	U.S. NUCLEAR REGULATORY COMMISSION			APPROVED BY OMB NO. 3150-0104 EXPIRES 5/31/95					
LICENSE	ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH INFORMATION COLLECTION REQUEST 50.0 MRS. FOR COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORM AND RECORDS MANAGEMENT BRANCH (MMBB 7714), U.S. NUK REGULATORY COMMISSION, WASHINGTON, DC 20559-0001, A THE PAPERWORK REDUCTION PROJECT (\$150-0104), OFFIC MANAGEMENT AND BUDGET, WASHINGTON, DC 20503								
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# BACKGROUND

The Engineered Safety Features Actuation [EIIS:IBC] System (ESF) acts to limit the consequences of events such as small Reactor Coolant [EIIS:AB] (NC) System ruptures that exceed normal charging system makeup and requires actuation of the Safety Injection [EIIS: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 [EIIS: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 [EIIS: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

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# LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO DOMPLY 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 2055-0001, AND TO THE PAPERWORK REDUCTION PROJECT (0150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503

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NRC FORM 366A

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 oper sle.

Work Orde: 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.

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# LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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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 ACTION

### SUBSEQUENT

- CES inspected the SSPS cabinets and determined that the Train A wiring did not match the manufacturers dwrawings
- Work Orders 93017239-01 (Unit 1) and 93017327-01 (Unit 2) were initiated and completed to correct the wiring.
- 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

NRC FORM 366A U.S. NUCLEAR REGULATORY COMMISSION APPROVED BY OMB NO. 3150-0104 EXPIRES 5/31/95 ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION LICENSEE EVENT REPORT (LER) TEXT CONTINUATION AND RECORDS MANAGEMENT BRANCH IMNEB 7714LU.S. NUCLEAR REGULATORY COMMISSION, WARHINGTON, DC 20055-0001, AND TO THE FAPERWORK REDUCTION PROJECT (3150-0154), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503 FACILITY NAME (1) DOCKET NUMBER (2) LER NUMBER (6 PAGE (3) YEAR NO. PRATECTO NUMBER 05000413 05 OF 05 Catawba Nuclear Station, Unit 1 93 005 TEXT (il more spece is required, use additional copies of NRC Form 3664) (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.