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 AUTH. NAME      AUTHOR AFFILIATION  
 MCDUFFIE, M.A.      Carolina Power & Light Co.  
 RECIP. NAME      RECIPIENT AFFILIATION  
 DENTON, H.R.      Office of Nuclear Reactor Regulation, Director

SUBJECT: Forwards revised response to draft SER Open Item 136 re loss of component cooling water to reactor coolant pumps. Flow diagram re component cooling water sys also encl.

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UNITED STATES DEPARTMENT OF JUSTICE

INVESTIGATION OF THE ACTS AND OMISSIONS OF THE UNITED STATES DEPARTMENT OF JUSTICE IN CONNECTION WITH THE MURDER OF MARTIN LUTHER KING, JR.

W. J. RAY, Defendant

SA [Name] ( )

SA [Name] ( )

SA [Name] ( )

TO: DIRECTOR, FBI

FROM: SAC, [Location]

SUBJECT: MURDER OF MARTIN LUTHER KING, JR. - CIVIL RIGHTS

RE: [Name] ( )

[Name] ( )

12/15/68

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Carolina Power & Light Company

APR 09 1984

SERIAL: NLS-84-146

Mr. Harold R. Denton, Director  
Office of Nuclear Reactor Regulation  
United States Nuclear Regulatory Commission  
Washington, DC 20555

SHEARON HARRIS NUCLEAR POWER PLANT  
UNIT NO. 1 - DOCKET NO. 50-400  
LOSS OF COMPONENT COOLING WATER

Dear Mr. Denton:

Carolina Power & Light Company hereby submits a revised response to the Shearon Harris Nuclear Power Plant Draft Safety Evaluation Report (DSE) Open Item 136 concerning loss of component cooling water to the reactor coolant pumps. This revised response provides additional details of the design modifications to be completed in response to this item. This information is being submitted in response to a verbal request from the Auxiliary Systems Branch reviewer.

If you require additional information on this subject, please contact our staff.

Yours very truly,

M. A. McDuffie  
Senior Vice President  
Nuclear Generation

JHE/ccc (9791JHE)  
Attachment

- |                                 |                            |
|---------------------------------|----------------------------|
| cc: Mr. B. C. Buckley (NRC)     | Mr. Wells Eddleman         |
| Mr. G. F. Maxwell (NRC-SHNPP)   | Dr. Phyllis Lotchin        |
| Mr. J. P. O'Reilly (NRC-RIL)    | Mr. John D. Runkle         |
| Mr. N. Wagner (NRC-ASB)         | Dr. Richard D. Wilson      |
| Mr. Travis Payne (KUDZU)        | Mr. G. O. Bright (ASLB)    |
| Mr. Daniel F. Read (CHANGE/ELP) | Dr. J. H. Carpenter (ASLB) |
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Shearon Harris Nuclear Power Plant  
Draft SER Open Item 136 (410.13)  
Revised Response

Figure 9.2.2-3 indicates that a single active failure (e.g., spurious closure of a containment isolation valves) can result in loss of component cooling water flow to the reactor coolant pumps (RCP). Loss of cooling to the RCPs must not result in unacceptable damage to RCP motor bearings which could result in fuel damage. We require that you demonstrate compliance with one of the following alternatives:

- (1) Demonstrate with test data that the RCPs can withstand a complete loss of cooling water for 20 minutes and that instrumentation, designed in accordance with IEEE 279, that alarms in the control room is provided to detect a loss of cooling water to ensure a period of 20 minutes is available so that the operator would have sufficient time to initiate manual protection of the plant; or
- (2) Provide instrumentation designed in accordance with IEEE 279 to initiate automatic protection of the plant upon loss of cooling water to a pump.

(Operator action is acceptable if it can be demonstrated that the proper operator action can be taken within 10 minutes).

Revised Response

Loss of component cooling water to the oil coolers of the reactor coolant pump motors will be detected by redundant safety grade flow instrumentation, which will be designed in accordance with IEEE 279 (see attached diagram). Low flow alarms will be provided in the control room to alert the operator. Procedures will be provided to initiate manual protection of the affected reactor coolant pump(s) if component cooling water cannot be restored within ten minutes. Additional protective actions will be based on the Technical Specification requirements for operability of Reactor Coolant Loops.

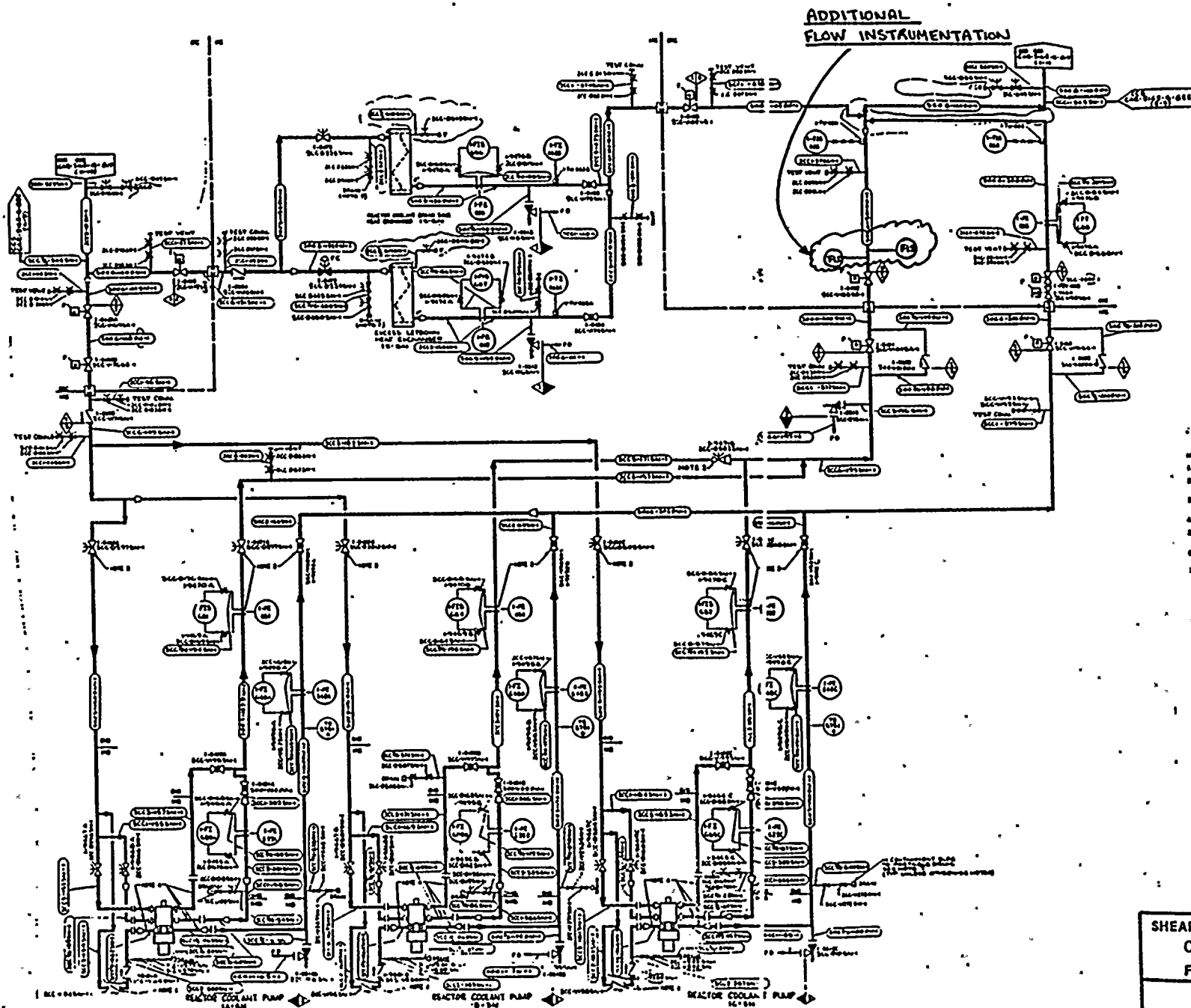
Other alarms/indicators are also available to the operator to alert him of single active failures (e.g., spurious closure of a containment isolation valve) and to determine which pump(s) should be tripped:

- (a) CCW containment isolation valve position indicators.
- (b) CCW flow alarms for each of the RCP motor oil coolers return lines (upper and lower oil cooler common return).
- (c) CCW temperature alarm for the common return lines from all RCP motor oil coolers.
- (d) RCP motor upper thrust shoe, lower thrust shoe and upper guide bearing temperature alarms. (These bearings are served by the upper oil cooler).
- (e) RCP motor lower guide bearing temperature alarm. (This bearing is served by the lower oil cooler).

(f) RCP motor winding temperature alarm.

The component cooling water lines supplying the RCP motor oil coolers are ASME Class 3 and seismic Category I. During normal operation manually operated isolation and throttle valves on these lines do not require adjustment. Therefore to preclude inadvertent operator action, these valves will be locked in the throttled position. Also, RCP motor vibration detectors and alarms are available to the operators if excessive vibration were to occur.

Instantaneous seizure of a RCP motor due to a loss of CCW to the oil coolers is not considered to be a credible event. However, an evaluation of a locked rotor scenario has been completed for Shearon Harris (FSAR 15.3.3), and the radiological consequences are less than the 10 CFR 100 guideline values.



- OPER:
1. SPRING LOADED CHECK VALVE.
  2. LEAKAGE IN BALLS OR BEYOND SECONDARY BALLS AND ISOLATION BALL.
  3. ALL CHECK VALVES IN THIS DRAWING ARE SHOWN IN THEIR NORMALLY CLOSED POSITION.
  4. LEAKAGE FROM PIPES DUE TO PUMP FOR MAINTENANCE.
  - 5.
  - 6.
  7. BEARING HOUSING COOLING SYSTEMS, COOLANT FROM THE BEARING HOUSING COOLING SYSTEMS OF EACH RCP IS SUPPLIED TO THE BEARING HOUSING COOLING SYSTEMS.

SHEARON HARRIS NUCLEAR POWER PLANT  
 Carolina Power & Light Company  
 FINAL SAFETY ANALYSIS REPORT

FLOW DIAGRAM - COMPONENT  
 COOLING WATER SYSTEM

FIGURE 9.2.2-3



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