

UNITED STATES
NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT
WASHINGTON, D.C. 20555

September 25, 1981

IE CIRCULAR NO. 81-13: TORQUE SWITCH ELECTRICAL BYPASS CIRCUIT FOR
SAFEGUARD SERVICE VALVE MOTORS

Background:

A common wiring discrepancy between the as-designed and as-installed valve motor control circuitry caused, at least in part, a valve malfunction at two operating boiling water reactors. In each case, an electrical bypass circuit around the valve-open torque switch on a Limitorque valve operator was not installed as designed. The intent of this bypass feature is to override the valve open or valve-close torque switch circuits to ensure that full motor torque is applied to the valve until it is near full open or full closed. This is to eliminate the chance of the valve stalling out under emergency conditions before it has completed its travel.

Description of Circumstances:

Brunswick Unit 2 - During a test of the reactor core isolation cooling (RCIC) system at this facility, in March 1978, the injection valve would not open. The valve and valve motor were checked, cycled and tested; no problems were identified. In September 1980, following a reactor scram, the same valve failed to fully open. An inspection of the valve motor control circuitry by the licensee revealed that the electrical bypass circuit wiring around the valve-open torque switch was not installed as designed. Examination of other RCIC system valves revealed that four of ten similar torque switch bypass circuits had not been installed. The missing electrical bypasses were installed.

Cooper Station - During a test of the residual heat removal (RHR) system at this facility, in December 1980, one of the RHR loop injection line isolation valves would not open. The problem was reported to be an incorrect closing torque switch setting. However, it was noted and reported, as unrelated to this event, that both Train A and Train B injection valve-open torque switch bypass circuits had not been installed in the valve motor control circuitry as designed. This discrepancy was corrected.

Recommended Action for Holders of Operating Licenses or Construction Permits:

1. Verify that all valves important to safety, which are required by the design to have torque switch bypass circuits installed, do in fact have these circuits installed.
2. Verify that all applicable electrical drawings correctly reflect these electrical bypass circuits.

3. If inspection reveals that required bypass circuits are not installed, installation should be initiated as soon as practicable after the need has been determined.
4. Establish controls to assure that torque switch bypass circuits are not inadvertently removed and that they are restored if they are removed for maintenance or test.

No written response to this circular is required; however, if discrepancies are found, a report may be required by applicable Technical Specifications or other NRC reporting requirements. If you need additional information with regard to this subject, please contact the Director of the appropriate NRC Regional Office.

Attachment:
Recently issued IE Circulars

RECENTLY ISSUED
IE CIRCULARS

| Circular No. | Subject | Date of Issue | Issued to |
|--------------|---|---------------|---|
| 81-12 | Inadequate Periodic Test Procedure if PWR Protection System | 7/22/81 | All power reactor facilities with an OL or CP |
| 81-11 | Inadequate Decay Heat Removal | 7/23/81 | All BWR facilities with OL or CP |
| 81-10 | Steam Voiding in the Reactor Coolant System During Decay Heat Removal Cooldown | 7/2/81 | All power reactor facilities with an OL or CP |
| 81-08 | Foundation Materials | 5/29/81 | All power reactor facilities with an OL or CP |
| 81-07 | Control of Radioactively Contaminated Material | 5/14/81 | All power reactor facilities with an OL or CP |
| 81-06 | Potential Deficiency Affecting Certain Foxboro 20 to 50 Milliamper Transmitters | 4/14/81 | All power reactor facilities with an OL or CP |
| 81-05 | Self-Aligning Rod End Bushings for Pipe Supports | 3/31/81 | All power reactor facilities with an OL or CP |
| 81-04 | The Role of Shift Technical Advisors and Importance of Reporting Operational Events | 4/30/81 | All power reactor facilities with an OL or near-term OL |
| 81-03 | Inoperable Seismic Monitoring Instrumentation | 3/2/81 | All power reactor facilities with an OL or CP |
| 81-02 | Performance of NRC-Licensed Individuals While on Duty | 2/9/81 | All power reactor facilities (research & test) with an OL or CP |
| 81-01 | Design Problems Involving Indicating Pushbutton Switches Manufactured by Honeywell Incorporated | 1/23/81 | All power reactor facilities with an OL or CP |

OL = Operating License
CP = Construction Permit



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA ST., N.W., SUITE 3100
ATLANTA, GEORGIA 30303

Gentlemen:

The enclosed circular is forwarded for your appropriate action. No written response to this circular is required. If you have any questions related to this matter, please contact this office.

Sincerely,

A handwritten signature in cursive script, appearing to read "James P. O'Reilly", written over a horizontal line.

James P. O'Reilly
Director

Enclosures:

1. IE Circular No. 81-13
2. List of Recently Issued
IE Circulars



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Distribution for IE Circular No. 81-13

(ACTION)

September 25, 1981

Addresses

In Reference To

- | | |
|--|--|
| 1. Alabama Power Company Attn: R. P. McDonald Vice President-Nuclear Generation Post Office Box 2641 Birmingham, AL 35291 | 50-348 Farley Unit 1 50-364 Farley Unit 2 |
| 2. Carolina Power and Light Company Attn: J. A. Jones Senior Executive Vice President and Chief Operating Officer 411 Fayetteville Street Raleigh, NC 27602 | 50-325 Brunswick Unit 1 50-324 Brunswick Unit 2 50-400 Harris Unit 1 50-401 Harris Unit 2 50-402 Harris Unit 3 50-403 Harris Unit 4 50-261 Robinson Unit 2 |
| 3. Duke Power Company Attn: L. C. Daif, Vice President Design Engineering P. O. Box 33189 Charlotte, NC 28242 | 50-491 Cherokee Unit 1 50-492 Cherokee Unit 2 50-493 Cherokee Unit 3 50-488 Perkins Unit 1 50-489 Perkins Unit 2 50-490 Perkins Unit 3 |
| 4. Duke Power Company Attn: W. O. Parker, Jr. Vice President, Steam Production P. O. Box 2178 Charlotte, NC 28242 | 50-369 McGuire Unit 1 50-370 McGuire Unit 2 50-269 Oconee Unit 1 50-270 Oconee Unit 2 50-287 Oconee Unit 3 50-413 Catawba Unit 1 50-414 Catawba Unit 2 |
| 5. Florida Power and Light Company Attn: R. E. Uhrig, Vice President Advanced Systems and Technology P. O. Box 529100 Miami, FL 33152 | 50-335 St. Lucie Unit 1 50-389 St. Lucie Unit 2 ✓50-250 Turkey Point Unit 3 ✓50-251 Turkey Point Unit 4 |
| 6. Florida Power Corporation Attn: J. A. Hancock, Assistant Vice President Nuclear Operations P. O. Box 14042, Mail Stop C-4 St. Petersburg, FL 33733 | 50-302 Crystal River Unit 3 |

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| <u>Addresses</u> | <u>In Reference To</u> |
|---|--|
| 7. Georgia Power Company Attn: J. H. Miller, Jr. Executive Vice President 270 Peachtree Street Atlanta, GA 30303 | 50-321 Hatch Unit 1 50-366 Hatch Unit 2 50-424 Vogtle Unit 1 50-425 Vogtle Unit 2 |
| 8. Mississippi Power and Light Company Attn: N. L. Stampley Vice President of Production P. O. Box 1640 Jackson, MS 39205 | 50-416 Grand Gulf Unit 1 50-417 Grand Gulf Unit 2 |
| 9. Offshore Power Systems Attn: A. R. Collier, President P. O. Box 8000 Jacksonville, FL 32211 | 50-437 FNP 1-8 |
| 10. South Carolina Electric and Gas Company Attn: T. C. Nichols, Jr., Vice President Power Production and System Operations P. O. Box 764 Columbia, SC 29218 | 50-395 Summer Unit 1 |
| 11. Tennessee Valley Authority Attn: H. G. Parris Manager of Power 500A Chestnut Street Tower II Chattanooga, TN 37401 | 50-438 Bellefonte Unit 1 50-439 Bellefonte Unit 2 50-259 Browns Ferry Unit 1 50-260 Browns Ferry Unit 2 50-296 Browns Ferry Unit 3 50-518 Hartsville Unit 1 50-519 Hartsville Unit 2 50-520 Hartsville Unit 3 50-521 Hartsville Unit 4 50-553 Phipps Bend Unit 1 50-554 Phipps Bend Unit 2 50-327 Sequoyah Unit 1 50-328 Sequoyah Unit 2 50-390 Watts Bar Unit 1 50-391 Watts Bar Unit 2 50-566 Yellow Creek Unit 1 50-567 Yellow Creek Unit 2 |
| 12. Virginia Electric and Power Company Attn: R. H. Leasburg Vice President Nuclear Operations P. O. Box 26666 Richmond, VA 23261 | 50-338 North Anna Unit 1 50-339 North Anna Unit 2 50-404 North Anna Unit 3 50-280 Surry Unit 1 50-281 Surry Unit 2 |

Addresses

In Reference To

13. Institute of Nuclear Power Operation
Attn: R. W. Pack
Lakeside Complex
1820 Waterplace
Atlanta, GA 30339
14. Southern Company Services, Inc.
ATTN: O. Batum, Manager
Nuclear Safety & Licensing
Department
P. O. Box 2625
Birmingham, AL 35202
15. Department of Energy
Clinch River Breeder Reactor
Plant Project Office
ATTN: Chief, Quality Improvement
P. O. Box U
Oak Ridge, TN 37830
16. EDS, Nuclear, Inc.
ATTN: E. H. Verdery
330 Technology Park/Atlanta
Norcross, GA 30092