



William J. Cahill, Jr.  
Chief Nuclear Officer

April 15, 1996  
JPN-96-013

U.S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Mail Station P1-137  
Washington, D.C. 20555

SUBJECT: James A. FitzPatrick Nuclear Power Plant  
Docket No. 50-333  
**Response to NRC Generic Letter 96-01**  
**Testing of Safety-Related Logic Circuits**

References:

1. NRC Generic Letter 96-01, "Testing of Safety-Related Logic Circuits," dated January 10, 1996
2. Technical Services Standing Order (TSSO) 18, "Surveillance Test (LSFT) Adequacy Review"
3. FitzPatrick Administrative Procedure (AP) 19.01, "Surveillance Testing Program"

Dear Sir:

This letter provides the Authority's response to NRC Generic Letter (GL) 96-01 (Reference 1) for the James A. FitzPatrick Nuclear Power Plant. Except for portions of the Reactor Protection System (RPS), the reviews requested by GL 96-01 are complete. Corrective actions were implemented and surveillance procedures were revised to assure that safety-related systems will function as designed. Based on this work, and the RPS reviews conducted to date, no operability concerns exist. The Authority has a high level of confidence that the systems already reviewed, and those portions of the RPS not yet reviewed are tested to a level consistent with Logic System Function Test (LSFT), as defined by the FitzPatrick Technical Specifications (TS). Additional reviews will be performed to cover remaining portions of the RPS prior to startup from the Refuel 12/Cycle 13 (R12/C13) Refueling Outage (RFO). The R12/C13 RFO is currently scheduled to begin in the Fall of 1996.

The Authority completed a program in 1994 to address issues similar to those identified in the Generic Letter. Using procedures (References 2 and 3) developed by FitzPatrick staff, the Emergency Diesel Generator (EDG) load shedding and sequencing logic and the actuation logic for the Engineered Safety Features (ESF) systems, except for portions of the RPS, were reviewed in detail. Portions of the RPS that interface with the Rod Block Monitoring (RBM) and Average Power Range Monitoring (APRM) systems were evaluated during this LSFT review with satisfactory results.

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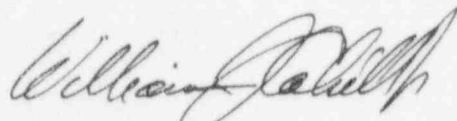
In addition, Surveillance Test Procedures for the RPS were reviewed in 1994 for completeness and accuracy. This review did not specifically check parallel logic and contact capability because RPS LSFT is not a requirement of the FitzPatrick TS.

Additional reviews will be performed to cover remaining portions of the RPS prior to start-up from the R12/C13 RFO, using Authority procedure AP-19.01 (Reference 3). A letter confirming completion of this review will be submitted to the NRC not more than 30 days after startup from the R12/C13 RFO.

Attachment 1 details the response to the requested actions in GL 96-01. Attachment 2 summarizes the commitments made in this letter.

If you have any questions, please contact Ms. C. Faison.

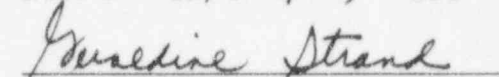
Very Truly Yours,



William J. Cahill, Jr.  
Chief Nuclear Officer

**STATE OF NEW YORK  
COUNTY OF WESTCHESTER**

Subscribed and sworn to before me  
this 15<sup>th</sup> day of April, 1996.

  
Notary Public

Attachment: As stated

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Commission Expires Jan. 27, 1998

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**Attachment 1 to JPN-96-013**

**Background**

10 CFR 50.36 states that surveillance requirements are requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within the safety limits, and that the limiting conditions of operation will be met. Surveillance requirements to assure continued operability of safety-related logic circuits are included in plant-specific Technical Specifications (TS) for FitzPatrick. Based on recent events, previously issued Information Notices (INs), complexity of the logic, and contribution to the core damage frequency, the NRC staff determined that licensees should review surveillance procedures, utilizing the guidance contained in Generic Letter (GL) 96-01 (Reference 1). This review should include the Reactor Protection System (RPS), Emergency Diesel Generator (EDG) load shedding and sequencing, and actuation logic for the Engineered Safety Features (ESF) systems. This review ensures that complete testing is being performed as required by the TS.

**Requested Action 1 of GL 96-01**

*"Compare electrical schematic drawings and logic diagrams for the reactor protection system, EDG load shedding and sequencing, and actuation logic for the engineered safety features systems against plant surveillance test procedures to ensure that all portions of the logic circuitry, including the parallel logic, interlocks, bypasses and inhibit circuits, are adequately covered in the surveillance procedures to fulfill the TS requirements. This review should also include relay contacts, control switches, and other relevant electrical components within these systems, utilized in the logic circuits performing a safety function."*

**Response to Requested Action 1**

In 1993, a surveillance coordinator was assigned at FitzPatrick to provide additional oversight and coordination of site-wide surveillance activities based on previously self-identified Logic System Function Test (LSFT) deficiencies. At that time, procedural guidance (TSSO-18) (Reference 2) for ensuring the adequacy of LSFT Surveillance Test Procedures (STPs) was developed and approved. The Authority subsequently placed procedural guidance for ensuring the adequacy of STPs into AP-19.01 (Reference 3).

In 1993, a multi-disciplinary team began a LSFT review of procedures to ensure that system logic testing meets TS requirements. This review included EDG load shedding and sequencing as well as actuation logic for the ESF systems. Discrepancies identified during LSFT reviews were documented on Deviation Event Reports (DERs) and reviewed to determine the impact on system operability and reportability. For each identified discrepancy, appropriate corrective actions were initiated and the system(s) subsequently tested. These test results were satisfactory. The review of LSFT procedures for EDG load shedding and sequencing and actuation logic for the ESF systems was completed in 1994.

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FitzPatrick LSFT review procedures require that electrical schematic and logic drawings be reviewed to ensure appropriate portions of the logic circuitry, including parallel logic, interlocks, and bypasses and inhibit circuits, are adequately covered in the surveillance procedures to fulfill the TS requirements. The LSFT review included relay contacts, control switches, and other relevant electrical components within these systems utilized in the logic circuits performing a safety function.

In 1993, the NRC reviewed (Reference 4) surveillance test deficiencies at FitzPatrick. During the same time frame, Authority personnel had started the LSFT review.

In 1994, the remainder of the TS required STP adequacy reviews including RPS, were completed at FitzPatrick. Discrepancies identified during this review were handled in a similar manner to discrepancies identified during the LSFT review. As with the LSFT review, when discrepancies were identified appropriate corrective actions were initiated and the system subsequently tested. These test results were satisfactory.

#### **RPS Reviews**

The portions of the RPS that interface with the Average Power Range Monitoring (APRM) System and the Rod Block Monitoring (RBM) System were reviewed for adequacy during the LSFT review and satisfactory results were obtained. As stated above, STPs for the RPS were reviewed in 1994 for completeness and accuracy. This review did not specifically check parallel logic and contact capability because RPS LSFT is not a requirement of the FitzPatrick TS.

The FitzPatrick Individual Plant Examination (IPE) shows that the RPS is risk significant. Therefore, additional reviews will be performed to cover remaining portions of the RPS prior to start-up from the Refuel 12/Cycle 13 Refueling Outage (RFO), using Authority procedure AP-19.01. A letter confirming completion of this review will be submitted to the NRC not more than 30 days after startup from the Refuel 12/Cycle 13 RFO.

#### **Surveillance Test Procedure Review Program**

Reviewers of LSFT procedures at FitzPatrick are aware of logic surveillance requirements. Per AP-19.01, personnel reviewing LSFTs for adequacy are required to review lessons learned during the FitzPatrick adequacy review effort prior to performing their review. The intent is for these individuals to gain an understanding of the kinds of errors and omissions, which resulted in LERs being written, and the causes of these events in order to avoid repeating these mistakes in the future.

FitzPatrick procedures require that an STP adequacy review be performed as STPs are created, or revised. The extent of subsequent adequacy reviews is consistent with the scope and nature of the changes to each STP, as determined by the Responsible Procedure Owner.

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**Requested Action 2 of GL 96-01**

*"Modify the surveillance procedures as necessary for complete testing to comply with the technical specifications. Additionally, the licensee may request an amendment to the technical specifications if relief from certain testing requirements can be justified."*

**Response to Requested Action 2**

FitzPatrick completed a STP adequacy review effort in November of 1994. This included the LSFT review which began in 1993 as well as a review of remaining TS related STPs. Procedures were revised and these portions of system logic were subsequently tested. These test results were satisfactory. Therefore, the system logic performed as designed, consistent with the FitzPatrick TS. No relief from TS was sought.

**Summary**

The actions taken by the Authority at FitzPatrick demonstrate compliance with 10 CFR 50.36 and the guidance contained in GL 96-01. Except for portions of the RPS, the reviews requested by GL 96-01 have already been completed. Corrective actions were implemented and surveillance procedures were revised to assure that safety-related systems will function as designed. Based on this work, and the RPS reviews conducted to date, no operability concerns exist. The Authority has a high level of confidence that the systems already reviewed, and those portions of the RPS not yet reviewed are tested to a level consistent with Logic System Function Test (LSFT), as defined by the FitzPatrick Technical Specifications (TS). Additional reviews will be performed to cover remaining portions of the RPS, prior to startup from the next Refueling Outage.

**References**

1. NRC Generic Letter 96-01, "Testing of Safety-Related Logic Circuits", dated January 10, 1996
2. Technical Services Standing Order (TSSO) 18, "Surveillance Test (LSFT) Adequacy Review"
3. FitzPatrick Administrative Procedure (AP) 19.01, "Surveillance Testing Program"
4. Letter from NRC to Harry P. Salmon, Jr., NRC Region I Inspection Report No. 50-333/93-16, dated February 1, 1994

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RESPONSE TO NRC GENERIC LETTER 96-01

Attachment 2 to JPN-96-013

Summary of Commitments

Number	Commitment	Due Date
JPN-96-013-01	Perform LSFT review to cover the remaining portions of the Reactor Protection System (RPS) and make any necessary procedure changes.	Prior to S/U from the R12/C13 RFO
JPN-96-013-02	Submit a response to the NRC confirming completion of the RPS LSFT review.	Not more than 30 days after startup from the R12/C13 RFO