

WOLF CREEK

NUCLEAR OPERATING CORPORATION

Otto L. Maynard
Vice President Plant Operations

April 18, 1996

WO 96-0068

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

Reference: Letter WO 95-0181, dated December 13, 1995, to USNRC
from O. L. Maynard
Subject: Docket No. 50-482: Response to Generic Letter 96-01,
"Testing of Safety Related Logic Circuits"

Gentlemen:

The attachment to this letter provides Wolf Creek Nuclear Operating Corporation's (WCNOC) 60 day response to Generic Letter 96-01. This information is being provided in accordance with the reporting requirements of the Generic Letter.

The Reference made a commitment to convert to the Improved Standard Technical Specifications. This commitment has been factored into WCNOC's response.

If you should have any questions regarding this submittal, please contact me at (316) 364-8831, extension 4450, or R. D. Flannigan at extension 4500.

Very truly yours,



Otto L. Maynard

OLM/jra

Attachment

cc: L. J. Callan (NRC), w/a
W. D. Johnson (NRC), w/a
J. F. Ringwald (NRC), w/a
J. C. Stone (NRC), w/a

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STATE OF KANSAS)
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COUNTY OF COFFEY)

Otto L. Maynard, of lawful age, being first duly sworn upon oath says that he is Vice President Plant Operations of Wolf Creek Nuclear Operating Corporation; that he has read the foregoing document and knows the content thereof; that he has executed that same for and on behalf of said Corporation with full power and authority to do so; and that the facts therein stated are true and correct to the best of his knowledge, information and belief.

By *Otto L. Maynard*
Otto L. Maynard
Vice President
Plant Operations

SUBSCRIBED and sworn to before me this 18th day of April, 1996.

 MARY E. GIFFORD
Notary Public - State of Kansas
My Appt Expires 12/09/1999

Mary E. Gifford
Notary Public

Expiration Date 12/09/1999

Response to Generic Letter 96-01
"Testing of Safety-Related Logic Circuits"

INTRODUCTION

Wolf Creek Generating Station (WCGS) is a four-loop Westinghouse Pressurized Water Reactor. The Reactor Protection System (RPS) and Engineered Safety Features (ESF) use the Westinghouse 7300 Process System and Solid State Protection System (SSPS). Balance of the plant (BOP) Engineered Safety Features Actuation System (ESFAS) and Load Shedder and Emergency Load Sequencer (LSELS) Systems were designed and provided by Consolidated Controls Corporation.

REQUESTED ACTIONS

On January 10, 1996, the NRC issued Generic Letter 96-01. The Generic Letter requested the following actions:

- (1) Compare electrical schematic drawings and logic diagrams for the reactor protections system, emergency diesel generator (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 Technical Specification 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.
- (2) 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.

REQUIRED RESPONSE

The Generic Letter required the following responses:

- (1) Within 60 days of the date of this Generic Letter, a written response indicating whether or not the addressee will implement the actions requested above. If the addressee intends to implement the requested actions, submit a schedule for completing implementation. If an addressee chooses not to take the requested actions, submit a description of any proposed alternative course of action, the schedule for completion the alternative course of action (if applicable), and the alternative course of actions.
- (2) Within 30 days of completion of the requested actions, a response confirming completion.

WCNOC RESPONSE

Wolf Creek Nuclear Operating Corporation (WCNOC) intends to implement the requested actions for logic system testing as discussed and clarified below:

CONVERSION TO STANDARD TECHNICAL SPECIFICATIONS

WCNOC, in conjunction with three other utilities, is in the process of converting to the Improved Standard Technical Specifications (ISTS). WCNOC plans to submit in late 1996 for NRC approval, a license amendment requesting this conversion. In accordance with the guidance provided in the Generic Letter workshop, March 19, 1996, the Generic Letter reviews will be based on the ISTS. In the event the submittal date for the Technical Specification Conversion amendment request is delayed beyond January 10, 1997, the review will still be completed to the ISTS.

IDENTICAL SAFETY TRAINS

The systems and components within the scope of this Generic Letter are typically identical redundant trains or channels and therefore use essentially identical, but separate procedures for the individual train or channel. It is WCNOC's intent to group these similar procedures and to perform review of one of the common groups. If there are differences between the trains or channels, these differences, as a minimum will be reviewed in the applicable procedures. If deficiencies are noted in the reviewed procedure, then the remainder of the procedures in that group will be reviewed for existence of that deficiency and revised as necessary to comply with the Technical Specifications. This is consistent with the NRC response to question #11 from the workshop.

SCHEDULE

The proposed completion of these actions is by March 31, 1998. Completion will be accomplished in conjunction with the proposed implementation of the ISTS. This schedule provides for an orderly and efficient review of surveillance procedures in conjunction with the implementation activities of the ISTS. The schedule has been developed to support the four plant effort for ISTS conversion. Four utilities; Pacific Gas and Electric Co. (Diablo Canyon Power Plant), TU Electric (Comanche Peak Steam Electric Station), Union Electric Co. (Callaway) and WCNOC (Wolf Creek Generating Station), have entered into a combined effort to convert to the ISTS. This group of utilities has committed to submit amendment requests to the NRC, with a target date of December 1996. To support this submittal, a schedule was developed with the NRC for the review and implementation of the conversion. The completion of the Generic Letter request has been developed in order to be consistent with the conversion plan and schedule and to allow for additional cooperative efforts between the four utilities. This schedule will facilitate this joint collaboration on both projects.

SCOPE

Listed below are the current Technical Specification requirements. These sections have been provided for information purposes. The actual Generic Letter review will be completed in accordance with the equivalent sections of the ISTS. The reactor protection system, EDG load shedding and sequencing, and actuation logic for the ESF systems are currently contained in the Technical Specifications sections 3.3.1, 3.8.1.1, and 3.3.2 respectively. For the RPS and ESF logics, current Technical Specifications required testing is bounded by testing of Table 4.3-1 and 4.3-2 defined as Actuation Logic Test Trip Actuation Device Operation Test (TADOT), Master Relay Test and Slave Relay Test. EDG load shedding and sequencing testing required by current Technical Specifications is defined by Surveillance Requirements 4.8.1.1.2g.4), 4.8.1.1.2g.5), 4.8.1.1.2g.6), 4.8.1.1.2g.7), 4.8.1.1.2g.9), 4.8.1.1.2g.10) and 4.8.1.1.2g.12). WCNOC intends to perform review of logic testing to the equivalent sections of the ISTS.

CREDIT FOR PREVIOUS REVIEW EFFORTS

WCGS's Technical Specifications are a relatively current version within the industry and were used to develop the current surveillance procedures. The significant development of these procedures occurred in the early 1980s to support licensing of the plant, and took advantage of Industry Operating Experience at the time. Additionally, relevant Industry Operating Experiences have been incorporated in procedure revisions. At this time, WCNOC believes that the following areas have been adequately reviewed in accordance with the intent of the Generic Letter:

- Westinghouse 7300 Process Instrument Loops: Although only the bistable inputs to the SSPS are within the scope of the Generic Letter (workshop Questions #12 and #20), the entire process loops have been confirmed to be adequately tested. The design and testing methodology have been well developed and documented by Westinghouse and are described in Updated Safety Analysis Report (USAR) Sections 7.2 and 7.3. The USAR, vendor technical manuals and schematics, and site specific interconnect drawings were used to develop the surveillance procedures. The actuation of the bistables and the inputs to the SSPS are confirmed by the surveillance procedures.
- Westinghouse SSPS: The design of the SSPS includes semiautomatic testing of the logic. The design and testing methodology have been well developed and documented by Westinghouse and are described in USAR Sections 7.2 and 7.3. The USAR, vendor technical manuals and schematics, and site specific interconnect drawings were used to develop the surveillance procedures. The procedures for logic tests overlap the 7300 process instrument tests and test through the master relays and coil continuity of the slave relays.

- Westinghouse Slave Relays: These relays are designed with a test feature to individually actuate the relays. The design and testing methodology have been well developed and documented by Westinghouse and are described in USAR Section 7.3. The USAR, vendor technical manuals and schematics, and site specific drawings were used to develop the surveillance procedures. The procedures for slave relay tests actuate the testable actuation devices to the extent possible and use contact continuity for the remaining testable actuation devices.
- BOP ESFAS and LSELS: The Consolidated Controls Corporation design of ESFAS and LSELS includes an Automatic Test Insertion (ATI) System to automatically and continuously inject test signals to verify the functional integrity of critical ESFAS and LSELS circuits. Test signals are generated during specific time intervals or "steps" (42 steps for ESFAS, 85 steps for LSELS). During each step the actual response to the test signal is compared to the expected response which is stored in a non-volatile memory (PROMs). If actual and expected responses do not agree - the ATI System will annunciate the comparison failure, and display the failed step number. The ATI System is identified in Section 7.3 of the USAR and serves to prove functionality of logic circuitry internal to the ESFAS and LSELS cabinets. The ATI table in the vendor technical manuals for these systems show that all logic combinations, including sequence timing, are tested. This testing overlaps other calibrations and integrated test procedures.

If additional portions of the reviews within the scope of the Generic Letter are later identified to already have been performed consistent with the Generic Letter intent, they will be discussed in the response due within 30 days of completion of the requested actions.