



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

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MAR 5 1984

MEMORANDUM FOR: R. W. Houston, Assistant Director for Reactor Safety
Division of Systems Integration

FROM: Faust Rosa, Chief, Instrumentation & Control Systems Branch
Division of Systems Integration

SUBJECT: RE-REVIEW OF GRAND GULF TECHNICAL SPECIFICATIONS

Reference: Memorandum from F. Rosa to C. Thomas, dated
October 31, 1983, Subject: Grand Gulf-Unit 1 ;
ICSB Review of Technical Specifications.

The Instrumentation and Control Systems Branch (ICSB) has re-reviewed the Grand Gulf technical specifications to verify that the technical specifications were properly derived from the analyses and evaluation included in the FSAR as reviewed in the staff's SER. As Enclosure 1, I am providing our comments and recommendations for changes resulting from our review. As Enclosure 2, I am providing a list of the technical specifications reviewed by the ICSB.

Of the 14 items included in Enclosure 1, 13 were previously identified in the referenced memorandum. Items numbered 3, 4 and 9 have been modified to reflect additional information received subsequent to the issuance of the referenced memorandum. It is our understanding that the 13 items are currently being reviewed by the licensee, however, none have been resolved and/or included in the Grand Gulf Technical Specifications to date. Item number 14 is new, having evolved from our review of a technical specification change requested by the applicant.

With the exception of the items identified in Enclosure 1, the ICSB has determined that the Grand Gulf-Unit 1 Technical Specifications are acceptable.

Faust Rosa

Faust Rosa, Chief
Instrumentation & Control Systems Branch
Division of Systems Integration

Enclosures:
As stated

cc: R. Capra

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ICSB COMMENTS AND RECOMMENDED CHANGES FOR
THE GRAND GULF-UNIT 1
TECHNICAL SPECIFICATIONS

1. By memorandum dated December 30, 1982, from R. Mattson to D. Eisenhut the ICSB proposed technical specification changes to address the operability of the remote shutdown systems required under the provisions of 10 CFR 50.19. These changes impose limiting conditions for operation and surveillance requirements on transfer switches, control circuits and both channels of monitoring instruments for the remote shutdown system. It was recommended in the December 30, 1982, memorandum that these changes be implemented immediately on OL reviews. Therefore, Section 3/4.3.7.4 of the Grand Gulf-Unit 1 Technical Specifications should be modified to include these recommendations.
2. By memorandum dated October 12, 1983, from R. Mattson to D. Eisenhut the ICSB proposed technical specification changes to address the operability of the post accident monitoring instrumentation required under the provisions of NUREG-0737 Supplement #1. These changes update the Standard Technical Specifications to reflect the Regulatory Guide 1.97, Revision 2 graded approach to operability requirements depending on the importance to safety of the measurement of a specific variable. It was recommended in the October 12, 1983, memorandum that these changes be implemented immediately on OL reviews. Therefore, Sections 3/4.3.7.5 and 6.8.3 of the Grand Gulf-Unit 1 Technical Specifications should be modified to include these recommendations.

3. Current surveillance requirements for the reactor protection system (i.e., reactor trip, engineered safety features actuation and supporting features) and the reactor core isolation cooling system specify testing of the final actuation logic (i.e., the AND function of the one-out-of-two taken twice logic: A or C AND B or D) at refueling outage intervals. This actuation circuitry (including the circuits associated with supporting features) should be tested more frequently (e.g., semi-annually) commensurate with the importance of the safety functions performed by these systems.

By letter dated October 13, 1983 from A. Schwencer (NRC) to J. P. McGaughey (MP&L) the NRC staff requested additional information regarding the frequency of testing actuation circuitry. By letter dated February 17, 1984 from G. F. Dale (MP&L) to H. Denton (NRC) the licensee proposed to provide additional information on test intervals by March 2, 1984.

The completion of the ICSB's review of the technical specifications is pending receipt and review of this information.

4. The ICSB has identified deficiencies in the method used to establish the protection system trip setpoints and allowable values contained in the technical specifications for recent BWR OLs. The licensee is currently participating in a BWR Owners Group study on instrument setpoints and will be providing a setpoint methodology position state-

ment. At this time we have identified one deficiency in the setpoint methodology used for Grand Gulf involving the treatment of trip unit drift. The numerical difference between the technical specification's trip setpoints and allowable values should be that quantity of the instrument uncertainty allotted for the trip unit drift and calibration accuracy. The numerical difference between the trip setpoints and allowable values for Grand Gulf include both trip unit drift and sensor drift. This insufficient drift allowance at the allowable value could permit continued operation with instrument channels that would not actuate safety systems to terminate transients or mitigate accidents within the bounds specified in the FSAR analyses. Therefore, the Grand Gulf-Unit 1 Technical Specification's trip setpoints and allowable values should be revised to include an allowance for only the drift associated with that portion of the instrument channel tested at 31 day intervals (i.e., trip unit) and an allowance for trip unit calibration inaccuracy between the trip setpoint and the allowable value. Additional changes to the Grand Gulf-Unit 1 Technical Specifications may be required following our review of the licensee's methodology position statement.

5. By letter dated October 11, 1983 from J. McGaughy (MP&L) to H. Denton (NRC) the licensee proposed changes to the Grand Gulf-Unit 1 Technical Specifications that address the RCIC actuation instrumentation. We have reviewed the proposed changes and found them acceptable. A discussion on the proposed changes is contained in the ICSB input to Supplement No. 5 of the SER. The Grand Gulf-Unit 1 Technical Specifications should be revised accordingly.

6. By letter dated October 14, 1983 from L. Dale (MP&L) to H. Denton the licensee committed to propose revisions to the Grand Gulf-Unit 1 Technical Specifications. The proposed changes will require more frequent calibrations of components in the containment isolation actuation instrumentation. We have reviewed the proposal and found it acceptable. A discussion on the proposal is contained in the ICSB input to Supplement No. 5 of the SER. The Grand Gulf-Unit 1 Technical Specifications should be revised accordingly.

3/4.3.2

7. The Bases Section for Specification 3/4.3.1 entitled "Reactor Protection System Instrumentation" includes the following statement: "The system meets the intent of IEEE 279 for nuclear power plant protection systems". We recommend that this statement be deleted. A detailed discussion on the conformance of the Grand Gulf-Unit 1 design to the NRC's regulatory requirements is contained in the SER.

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Bases

8. Technical Specification 3/4.3.8 entitled "Plant Systems Actuation Instrumentation" includes the requirements applicable to the containment spray system. By letter dated September 12, 1983, from L. Dale to H. Denton the licensee identified a potential problem with regard to the minimum operable channels requirements of the Grand Gulf-Unit 1 Technical Specifications that address this system. It appears that the requirements

address only one-half of the instruments provided. The licensee has stated that the worst case single failure would be limited to the disabling of the initiation of one spray loop when operating with one-half of the instruments provided. The system has been designed such that any single failure within the actuation instrumentation will not prevent actuation at the systems level when all of the actuation instruments provided are operable. Therefore, to enhance plant safety we recommend that the minimum channels operable requirement for the drywell pressure high, containment pressure high and reactor vessel low actuation signals be revised from the present one per trip system to two per trip system and that an appropriate action statement be developed to address operation with one or more channels per trip system inoperable.

9. Specification 3/4.3.1 entitled "Reactor Protection System Instrumentation" and Specification 3/4.9.1 entitled "Reactor Mode Switch" address the operability requirements and surveillance requirements for the reactor mode switch. The requirements address only those circuits associated with the shutdown and refuel position. The mode switch is provided to select the protective functions appropriate for each mode of reactor operation - shutdown, refueling, startup and power operations. In addition to the protective functions of reactor trip (six trip inputs) and primary containment isolation (one trip input) the mode switch enables/bypasses

control rod blocks, operation of the suppression pool makeup system, refueling interlocks and monitoring functions which are provided to control operations within prescribed bounds. Therefore, we recommend that the Grand Gulf-Unit 1 Technical Specifications include limiting conditions for operation and surveillance requirements that include consideration of the other safety-related functions accomplished by the mode switch.

10. Specification 3/4.7.1 entitled "Service Water Systems" addresses the surveillance requirements for the standby service water (SSW) system. These requirements include a periodic demonstration of the operability of the circuits that automatically reposition valves servicing safety-related equipment. The SSW system (including the SSW pumps, SSW cooling tower fans and automatic system valves) is initiated automatically upon occurrence of a LOCA or startup of any of the ESF systems it serves. In addition, the SSW system is initiated automatically on a loss of offsite power through the associated load sequencing circuits. Currently the Grand Gulf-Unit 1 Technical Specifications address only those circuits associated with the SSW system's valves. To ensure the operability of the automatic actuation of the SSW system pumps and cooling tower fans we recommend that Specification 4.7.1.1 be revised to include periodic testing of the actuation circuitry for these components.

11. Specification 3/4.6.3 entitled "Suppression Pool" addresses the operability requirements and surveillance requirements for the suppression pool. This specification does not address the suppression pool make-up system. The suppression pool makeup system provides water from the upper containment pool to the suppression pool by gravity flow after a LOCA and is classified as an ESF system at Grand Gulf. The system is automatically initiated 30 minutes after a LOCA is detected or on a low-low suppression pool level following a LOCA. The suppression pool makeup system consists of two independent and redundant subsystems. The actuation logic for each subsystem is a one-out-of-two arrangement of level sensors. We recommend that appropriate Grand Gulf-Unit 1 Technical Specification limiting conditions for operation and surveillance requirements be developed to address this ESF system.

12. Specification 3/4.7.3 entitled "Reactor Core Isolation Cooling System" addresses the operability of the reactor core isolation cooling system (RCIC). The design of the RCIC system includes protective features to automatically shut down the turbine by tripping the trip and throttle valve closed if any of the following conditions are detected: turbine overspeed, high turbine exhaust pressure, RCIC isolation signal from logic A or B, or low pump suction pressure. To ensure the reliability of these features, the availability of RCIC system and to enhance plant

safety these features should be included in the operability and surveillance requirements.

13. The high pressure/low pressure system interlocks prevent overpressurization of the low pressure systems that connect to the reactor coolant pressure boundary. Specification 3/4.4.3.2 entitled "Reactor Coolant System Leakage" address the operability of the isolation valves with respect to leak-tight integrity and the instrumentation provided to monitor valve leakage, however, this specification does not address the valve interlocks. The following valves are interlocked to prevent valve opening until pressure permissives are satisfied: E12-F009, E12-F008, E12-F053, E12-F023, E12-F087, and E38-F001. To ensure the reliability of these features and to enhance plant safety we recommend that appropriate limiting conditions for operation and surveillance requirements be included in the Grand Gulf-Unit 1 Technical Specifications.

14. By letter dated September 12, 1983 from A. Schwencer (NRC) to J. McGaughey (MP&L) the NRC staff requested additional information to resolve concerns regarding the minimum number of operable instrument channel requirements contained in the Grand Gulf Technical Specifications, and additional information regarding the licensee's interpretation of the definition of the terms "trip functions", "channel" and "trip systems" contained in the Grand Gulf technical specifications. By letter dated September 12, 1983 from L. F. Dale (MP&L) to H. Denton

3/4.3.1
THRU
3/4.3.6

GRAND GULF - UNIT 1 TECHNICAL SPECIFICATIONS
SECTIONS REVIEWED BY ICSB

1.0	Definitions
2.2.1	Reactor Protection System Instrumentation
3/4.1.3.5	Control Rod Position Indication
3/4.1.4.2	Rod Pattern Control System
3/4.3.1	✓ Reactor Protection System Instrumentation
3/4.3.2	Isolation Actuation Instrumentation
3/4.3.3	✓ Emergency Core Cooling System Actuation Instrumentation
3/4.3.4	Recirculation Pump Trip Actuation Instrumentation
3/4.3.5	✓ Reactor Core Isolation Cooling System Actuation Instrumentation
3/4.3.6	Control Rod Block Instrumentation
3/4.3.7.4	Remote Shutdown Monitoring Instrumentation
3/4.3.7.5	Accident Monitoring Instrumentation
3/4.3.7.6	Source Range Monitors
3/4.3.7.7	Traversing In-Core Probe System
3/4.3.8	Plant Systems Actuation Instrumentation
3/4.6.3.1	Suppression Pool
3/4.7.1	Service Water Systems
3/4.7.3	Reactor Core Isolation Cooling System
3/4.4.3	Reactor Coolant System Leakage
3/4.4.2.2	Safety Relief Valves Low-Low Set Function
3/4.9.1	Reactor Mode Switch
6 8 3	Procedures + Programs