

MIDLAND
SECOND ROUND QUESTIONS

031.38 The response to Question 031.15 indicates that the pressurizer heater controls may not be qualified as safety related equipment. However, the response to Question 031.27 states that "The Midland plant design will be revised to include Class 1E redundant pressurizer heater controls and power supplies." We require that you resolve this inconsistency and provide the information requested in Question 031.15.

031.39 (A) The response to Question 031.19 refers to FSAR Section 7.1.2.5 and Section 7.1.2.5 refers to the response to Regulatory Guide 1.118 listed in Appendix 7A of the FSAR.

The response to Regulatory Guide 1.118 appears to be in conflict with the FSAR response to Regulatory Guide 1.22. The staff has determined that the FSAR response to Regulatory Guide 1.22 is acceptable, therefore, please show that the recommendations of Regulatory Guide 1.22 are still satisfied or justify any differences.

(B) Also item (b) of the test program, specified in accordance with Regulatory Guide 1.118, states that there will be no periodic response time verification for some of the sensors. This is unacceptable to the staff.

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Position C.12 of Regulatory Guide 1.118 states:

"Response time testing of all safety system equipment per se is not required if, in lieu of response time testing, the response time of safety system equipment is verified by functional testing and/or calibration checks where it can be demonstrated that changes in response time beyond acceptable limits are always accompanied by changes in performance characteristics that are detectable during these routine periodic functional tests and/or calibration checks."

This is an acceptable way to verify response time when testing cannot be readily performed. Therefore, we require that provisions and procedures for response time verification be provided in the Midland design for all safety related systems including the sensors. Provide this information or justify any differences.

(C) The response to position C14 states that temporary test setups and jumper wires will be used for response time testing. The staff is concerned that these test methods can lead to unsafe plant conditions. When systems are modified with jumpers there is a possibility that the jumpers may not all be removed when the testing is complete. There have been several cases where jumpers were not removed and the action or safety related systems was jeopardized.

We therefore require that a procedure, with necessary drawings, be provided for each circuit and parameter where jumpers will be used for testing. This procedure should specify the provisions and the steps taken to assure that the system has been returned to the normal mode of operation and that all temporary equipment has been removed from the circuit. We also require that each circuit and

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parameter requiring jumpers be identified in a list in the FSAR.

We request a copy of the procedures, describing all circuit alterations required to test two parameters. The selected parameters should represent those requiring the most extensive modifications.

All other procedures should be made available for the staff's review during the site visit.

We also request verification that the approved procedures will be followed during normal response time testing.

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The response to Question 031.20(3) is too general to satisfy our concerns. We require that the following qualification information also be provided for each type of isolator used in the Midland design:

- a. Description of the isolator (Relay.....etc.)
- b. Manufacturer.
- c. Manufacturer's type number.
- d. Manufacturer's model number.
- e. Test plan.
- f. Test setup.
- g. Test procedures.
- h. Acceptability goals and requirements.
- i. Test results.

031.41 The response to Question 031.25 does not satisfy all of our concerns. The response states that the control room fresh air intake monitors will be environmentally qualified as discussed in FSAR Table 3-11-4, Test 17. Test 17 states that environmental testing is not considered necessary.

We require that all safety related equipment, including the fresh air intake monitors be environmental qualified, even if it is not subject to accident conditions. Provide your modified design to satisfy this position.

Also the response to question 031.25 states that test methods for seismic testing will be provided after March 1979 and the test results will not be provided until after September. We cannot complete our review until this information has been provided.

031.42 The response to Question 031.31 does not provide the requested information. It is our position that all information requested in Question 031.31 must be provided in the Midland FSAR for our review. This includes P&ID's, electrical schematic diagrams and conformance to all safety requirements such as IEEE-STD-279-1971, IEEE-STD-323, IEEE-STD-344-1975, Regulatory Guides 1.75, 1.97, 1.118 and Branch Technical Position No. 23.

031.43 Position C4d(2) of Regulatory Guide 1.95 states that "The system response time, which incorporates the detector response time, the valve closure time and associated instrument delays, should be

031.43 equal to or less than the required isolation time."

This guide also recommends that verification testing and calibration of the chlorine detector and verification testing of the system response time should be conducted at six month intervals." There is no response to these recommendations in FSAR Section 3A.

Further, the response to Regulatory Guide 1.118, Section C.12 states that no periodic response time verifications will be performed on the sensors for the toxic gas analyzers. We do not agree that this is an acceptable approach since operation of the Control Room Isolation System (CRIS) relies on these sensors to maintain a safe control room atmosphere in the event of inadvertent release of toxic gases.

We require that the applicant establish a method to be used to periodically demonstrate that the control room isolation system will perform its function within acceptable time limits.

031.44 From our review of FSAR Table 3.11-1, we have determined that the following Class 1E equipment has not been included for environmental qualification:

1. Service water, motor operated isolation valves, 2M01852 and 2M01856. These valves shown on FSAR Figure 9.2-2 are Unit 2 diesel generator cooler service water valves.

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2. Service water, motor operated isolation valve, 2M01947. Also there are no qualification tests specified for any of the other motor operated valves listed on Page 18 or FSAR table 3.11-1. These valves are shown on FSAR Figure 9.2-3.
3. Auxiliary feedwater steam supply valves, 1M0-3831, 2M0-3931, 1SCV-3831 and 2SCV-3931. These valves are shown on FSAR Figure 10.4-10 and -13.
4. Electro Hydraulic feedwater isolation valves, 1XV - 3866A1, 1XV - 3866B1, 2XV - 3966A1 and 2XV - 3966B1. These valves are shown on FSAR Figures 10.4-10 and -13.
5. Instrumentation for automatic switchover of auxiliary feedwater pump suction from the condensate storage tank to the service water system.
6. Level sensors and transmitters located in the ultimate heat sink pump pit used for protection of the service water pumps.
7. Sensors and level transmitters for the component cooling water (CCW) surge tank which are used to isolate the non-seismic portion of the CCW system.
8. Motor operate valves, 1M0 -0102-1, 1M0-0102-2, 2M0-0202-1 and 2M0-0202-2. These valves are listed on FSAR Table 3.11-1 Sheet 2 but no qualification test has been specified.
9. Reactor building pressure transmitters 1PT7200 A, B, C and D shown on FSAR Figure 7.3-2.

031.44 Describe the qualification program used to verify that this equipment will perform its safety function when required. See Question 031.13 for specific details required by the staff.

031.45 Describe the instrumentation and controls used for automatic switchover of the auxiliary feedwater pump suction from the condensate storage tank to the service water system. The description should discuss how this equipment conforms to all safety requirements such as IEEE-279-1971, IEEE-308-1974, IEEE-323-1971 and IEEE-344-1975. The response should include all electrical drawings.

031.46 The response to Question 031.36 is not acceptable to the staff. The response states "should problems arise which are not anticipated, administrative action will be taken to curtail the use of such equipment in all but the most essential situations in the affected areas."

Radio frequency interference (RFI) may cause equipment to stop or start at any time and administrative action may not be sufficient to prevent exceeding safety limits. Therefore, we require that the applicant provide a basis for establishing the areas where two way communication devices may be used in the Midland plants. We also require that the procedures, the results of tests or a description of other means used to demonstrate that safety related systems will not be compromised by RFI, be included in the FSAR. Provide this information.

031.47 FSAR Section 3.11.5, Section 6.1, Table 3.11-2 and Table 3.11-3 indicate that pH is the only chemical parameter of concern for environmental qualification of safety related equipment. Provide justification that this is the only chemical parameter which may degrade Class 1E equipment. This justification should include environments both inside and outside of the containment following all DBA (Design basis accidents). If other chemical parameters are identified then we require that they be included in the environmental qualification program. Describe how the all chemical effects have been implemented in the Midland environmental qualification program.

031.48 Question 031.13 identified groups of Class 1E equipment for which specific environmental qualification information was requested. Please add the following equipment to this list:

- (a) connectors
- (b) terminal blocks and
- (c) fans

031.49 Some types of safety related instrumentation and control equipment rely on a hermetic seal for protection against moisture. Moisture can enter the component through a defective hermetic seal when the component is subjected to a highly humid environment. These seals are subject to damage during installation and maintenance r ation.

We require that the Midland design include a monitoring program to assure that all safety related components, protected by hermetic seals will continue to function throughout the life of the plant and during all accident conditions. Provide a description of this monitoring program.

031.50 The response to Question 031.30 is not acceptable for the following reasons:

- (a) it is a staff position that all recorders required for post accident monitoring must be qualified to operate within acceptable limits before and after a seismic event. This is a requirement to satisfy IEEE Standard 279-1971 specified in Branch Technical Position No. 23 listed in Appendix 7A of the Standard Review Plan. Provide a commitment to this position.
- (b) Listed below are key parameters which should be included for post accident monitoring:
 - (1) Condensate storage tank level
 - (2) High pressure injection flow

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- (3) Low pressure injection flow
- (4) Pressurizer pressure
- (5) Pressurizer level
- (6) Reactor coolant temperature
- (7) Reactor building emergency sump level
- (8) The enabling alarm and the transient pressure alarm for the overpressure protection system for low temperature operations indication
- (9) Post-LOCA "Dump-to-Sump" flow
- (10) Reactor building temperature
- (11) Reactor building emergency sump water temperature
- (12) Fan cooler flow rate and associated cooling water flow rate; and
- (13) Valve position for all power operated containment isolation valves (See FSAR Table 6.2-28).

It is the staff's position that these parameters be included for post accident monitoring. Provide this information. If parameters have been excluded, provide the basis for not including them.

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The response to Question 031.23 states that ultrasonic flow transmitters will be used in the reverse feedwater flow monitoring system. The use of ultrasonic flow transmitters to initiate actuation of safety related systems is unique. We therefore require that the applicant provide a complete description and justification for use of this method of flow detection.

031.51 The description should include vendors literature, specifications, and information used to establish the adequacy of these devices. The description should completely describe the principles of operation.

We also require that the applicable revisions of all referenced standards and regulatory guide be specified, in the description.

031.52 The response to Question 031.17 is unacceptable. We require the Midland plant satisfy items B1 and B4 of Branch Technical Position ICSB No. 4. Provide your modified design to satisfy this position.

031.53 A recent OIE Circular (No 78-19) identified a concern about a manual override (By Pass) feature, incorporated in the design of safety related system circuits. We request that the applicant review all safety related circuits in the Midland design and identify all circuits that incorporate a manual override feature. For each case identified, we request that the results an analysis be provided to demonstrate that the override feature does not cause the bypass of any other safety actuation signal and a description identifying how the design satisfies the requirements of IEEE 279-1971. We also request a description of the alarm system used to notify the operator of the bypass status and a description of the procedures and administrative controls required by the operator to maintain the plant in a safe condition.