



UNITED STATES DEPARTMENT OF COMMERCE  
National Bureau of Standards  
Gaithersburg, Maryland 20899

Please Note: New Telephone Numbers

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May 18, 1988

Mr. Theodore S. Michaels  
Project Manager  
Standardization and Non-Power  
Reactor Project Directorate  
Division of Reactor Projects III, IV,  
V and Special Projects  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Dear Mr. Michaels:

Enclosed please find the additional information you requested in your letter of December 17, 1987, relating to the request by NBS for an amendment to the NBSR Technical Specifications.

If I can be of any further assistance in the expeditious resolution of this matter, please call me.

Sincerely,

*Robert S. Carter*

Robert S. Carter  
Chief, Reactor Radiation Division

Enclosures

Subscribed to before me this 18<sup>th</sup> day of May 1988.

*Patricia A. Bach (Notary Public)*  
*Andover County*  
*My Commission Expires July 1, 1990.*

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RESPONSE TO NUCLEAR REGULATORY COMMISSION QUESTIONS OF DECEMBER 17, 1987

1. Requested information. An analysis which shows how the isolation valves will meet the leakage requirement for the confinement as specified in the Technical Specifications.

Response:

Each valve is designed to be vacuum tight. The valve seals will be vacuum O-ring type. The leak rate is expected to be orders of magnitude below that allowed for the confinement building. More important, no change in the allowable leak rate as specified in the Technical Specifications was requested. Thus, the confinement building must meet existing allowable leak rates as confirmed by surveillance tests, otherwise the reactor cannot be operated.

2. Requested information. With regard to the confinement building control system, as related to the isolation valves, provide the following:
  - a. Show how all controls will be redundant up to the motor starters or final solenoid valve for each isolation valve.
  - b. How will the isolation valves be actuated by sensing instruments (radiation and pressure detectors) and master relays and how these instruments and relays will be duplicate and independent.
  - c. How sufficient indication and control will be available in the emergency control center to indicate the status of each vital component and to allow manual control should its automatic control malfunction. This manual backup shall be in addition to the redundant automatic controls.

Response:

- a. The isolation valves are opened pneumatically against gravity as discussed in the earlier NBS submittal. The isolation valves are closed by opening solenoid valves that vent the pneumatic cylinders (See Fig. 1). Each cylinder has two solenoid valves either of which will vent the cylinder thereby providing redundancy. The signals to open the solenoid valves to close the isolation valves in the case of a major scram will be the same as those currently used (and previously reviewed by NRC) to initiate the other building closure mechanisms.
- b. The sensing instruments, relays, and signals used to activate the new valves are part of the major scram system already used to close existing valves and doors. Thus, the initiating signals for the new, isolation valves will have the same level of reliability as the existing major scram system.
- c. A valve closed indication and a manual closure switch will be provided in the Emergency Control Station. This will give the status of the valves and provide for manual closure in case automatic control malfunctions.

3. Requested information. A discussion of surveillance procedures that help assure the capability of the isolation valves.

Response:

A test of the operability of the confinement closure system is conducted quarterly. Major scrams are also tested before each startup following a reactor shutdown greater than 24 hours. An integrated leak rate test of the confinement building is performed annually. Additions, modifications, or maintenance to the confinement building or its penetrations are tested to verify that the building can maintain its leak tightness. All of the above are currently included in the technical specifications.

4. Requested information. A diagram and discussion of valve response in the event of a need for emergency actuation.

Response:

Since the time to initiate the closure signal (the type of information that might be contained in a diagram) is much shorter than the actual mechanical closure time of the valves, a diagram is not needed. The total closure time from the initiation of the major scram to complete sealing will be less than one minute and is comparable to that of other components in the system.

# SCHEMATIC FOR GUIDE TUBE SHUTTERS

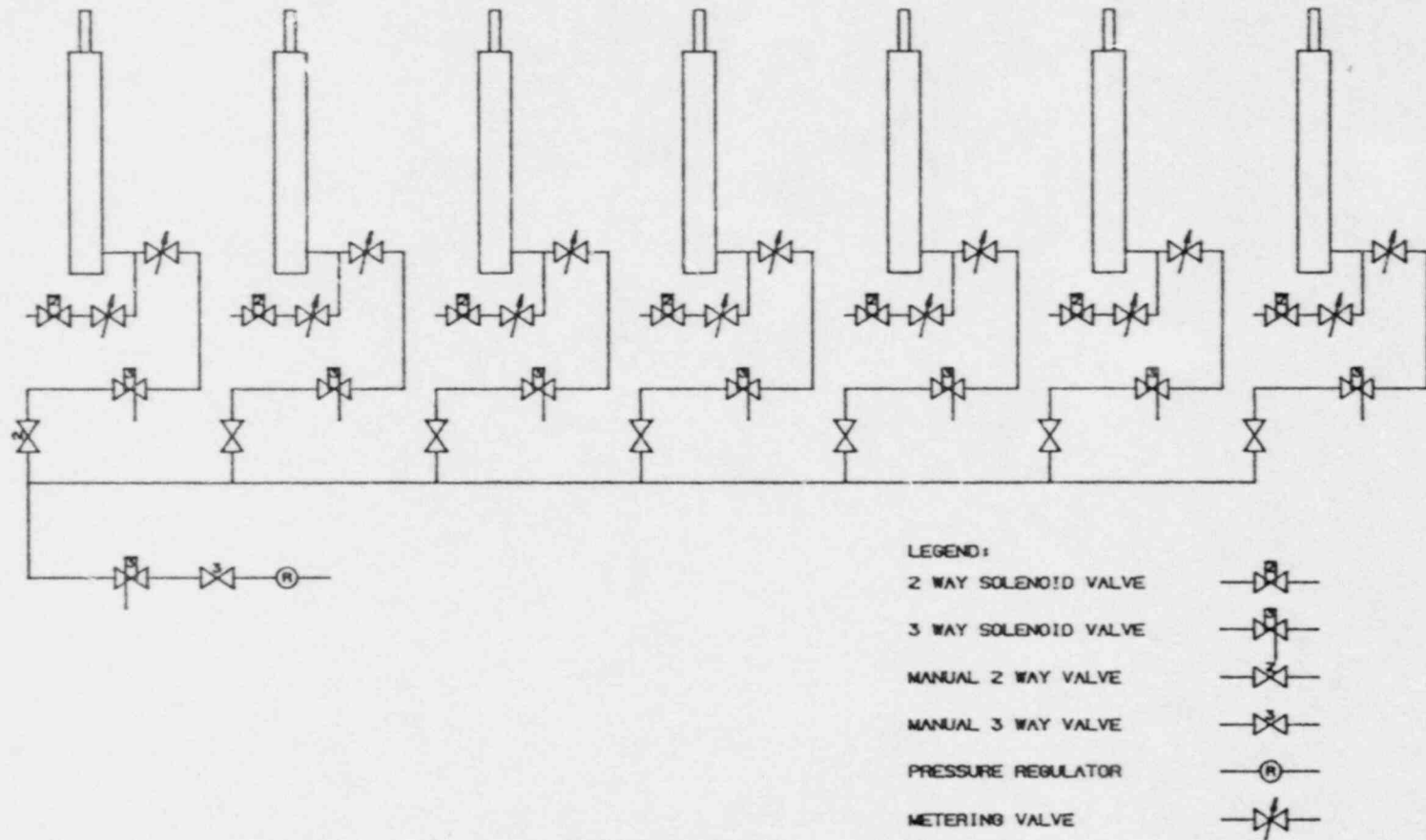


Figure 1