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April 14, 1983

Mr. James P. O'Reilly, Regional Administrator
U. S. Nuclear Regulatory Commission
Region II
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30303

Subject: McGuire Nuclear Station
Docket Nos. 50-369 and 50-370

Reference: RII:WHM
50-369 / 83-12, 50-370/83-16

Dear Mr. O'Reilly:

Please find attached responses to the five deviation items identified in Appendix A of IE Inspection Report 50-369/83-12 and 50-370/83-16. Duke Power Company does not consider any information contained in this report to be proprietary.

Very truly yours,

H.B. Tucker /BC

Hal B. Tucker

WHM/php
Attachment

cc: Mr. W. T. Orders
NRC Senior Resident Inspector
McGuire Nuclear Station

Duke Power Company
McGuire Nuclear Station

Response to IE Inspection Report 50-369/83-12, 50-370/83-16

Deviation Item 369/83-12-01, 370/83-16-01

McGuire Nuclear Station Fire Protection Review (FPR) revised January 1979, Section E.3.(c) states that the automatic sprinkler systems at McGuire conform to the applicable National Fire Protection Association (NFPA) standards. NFPA-13, Sprinkler Systems, Section 1-8 and 5-3 require sprinkler system components to be approved for fire service and the sprinkler piping and electrical power and control circuits to be supervised.

Contrary to the above, the automatic sprinkler systems provided for the annulus areas of the Reactor Buildings do not conform to the provisions of NFPA-13 in that the sprinkler system control valves and appurtenances are not approved for fire service and the sprinkler piping and electrical power and control circuits are not supervised.

The deviation is applicable to both units.

Response

Under certain plant design situations, it has become necessary to specify a valve in a fire protection system with more stringent design requirements than can be met by a certified fire protection valve product. Typically, these situations appear due to special requirements for seismic integrity of the valve or conflict between NRC guidelines and Fire Protection Codes. In the latter case, we have taken the more conservative position which is compliance with the NRC Regulatory Guide 1.29.

The valves in question are ASME Section III, Class II 600 lb., carbon steel gate valves. To provide a comparison between an ASME valve and a UL/FM listed valve, it is best to consider the integrity of the final products. Factors important to a fire protection valve include adequacy of design, functional integrity, workmanship and quality control. ASME III design and qualification requirements are the most stringent ones that exist for valve designs. Special requirements associated with ASME III valves, not required for fire protection valves, include radiographic examination, material traceability, stress analysis, designed to withstand the effects of a seismic event, and material tests for strength.

NFPA 13 Section 1-3 defines "approved" as "acceptable to the authority having jurisdiction". The NFPA does not approve equipment or materials nor does it approve or evaluate testing laboratories. Therefore, it is left to "the authority having jurisdiction" to determine the acceptability of equipment or materials based on compliance with appropriate standards. Testing laboratories such as UL and FM do not include seismic requirements in their qualification tests of approval. The sprinkler system supply pipe, including the control valve, that penetrates the Reactor Building walls from the Auxiliary Building, require seismic qualifications. In order to meet the qualifications, an ASME Class III valve is necessary.

From the comparisons conducted, in regard to quality and functionability, the ASME III valve exceeds that of a UL/FM listed valve.

NFPA 13, Section 3-14.1.1 states that listed non-indicating valves may be used in supply pipes to sprinklers if accepted by the authority having jurisdiction. "Listed" equipment is that which is noted by an organization concerned with product evaluation and whose listing states either that the equipment or materials meets appropriate standards or has been tested and found suitable for use in a specified manner. As previously stated, due to seismic requirements which UL and FM do not address, an ASME Class III valve is necessary.

Section 3-14.1.1(c) further states that a non-indicating valve is acceptable when the control valve assembly has a reliable position indication connected to a remote supervisory station. The annulus control valves consist of two limit switches and an indicator which travels between them. By location of the indicator, one can visually note the position of the valve. The valve position is also electrically supervised with indication to a local panel and alarmed and annunciated in the control room.

We conclude that this arrangement meets the intent of the code.

The following changes will be made in the valve actuation circuits to provide complete supervision:

Automatic supervision circuits will be added to the local control panels in order to supervise the power cables from the station 125VDC batteries to the local control panels. Two circuits will also be added to automatically supervise the valve actuation cables and the electrical solenoid location at the valves themselves. The link from the fire detection data gathering panels to the valve local control panels will be modified with extra circuitry in order to provide automatic supervision capability. Supervision alarms will be fed to the fire protection alarm panel in the control complex.

The sprinkler system piping will be supervised by installing a pressure switch downstream of the closed control valve. The control valve will be opened to pressurize the system and then closed. The pressure switch will be set to alarm at loss of pressure.

The circuit and components to be utilized will be comparable to the existing fire protection circuitry used in the plant as described in the FSAR. The noted supervision circuits will be added by the end of the first major outage after March 1, 1984 on Unit 1 and prior to commercial operation on Unit 2.

Deviation Item 369/83-12-02

FPR Section E.4 states that periodic tests are conducted on the Halon systems in the diesel generator and auxiliary feedwater pump rooms in accordance with NFPA requirements. NFPA-12A, Halon 1301 systems, Section 1-11, requires all Halon systems, including the automatic actuation circuits and fire detectors, to be thoroughly inspected and tested for proper operation at least annually.

Contrary to the above, records are not available to indicate that the automatic fire detection devices which activate the Halon systems in the diesel generators and auxiliary feedwater pump rooms have been inspected and tested.

This deviation applies to Unit 1.

Response

As required by NFPA-12A the fire suppression automatic actuation circuits for the diesel generator and auxiliary feedwater pump rooms have been included in the Halon system preventive maintenance program since implementation of the program. The Halon system preventive maintenance program has been revised to include the fire detectors for these rooms. Testing and inspection of the automatic fire detection devices which activate the Halon system in these rooms was performed on March 17, 1983. This preventive maintenance program includes the inspection and testing of this equipment at least annually.

Deviation Item 370/83-16-05

FPR Section C states that a fire protection quality assurance program will be applied to the design, installation and test of the fire protection features provided after January 1, 1978, to meet the guidelines of NRC Branch Technical Position 9.5-1.

Contrary to the above, the emergency lighting units installed to meet the fire protection commitment of FPR Section D.5 and which were designed in 1982 were not designed, installed or tested under a quality assurance or control program.

This deviation is applicable to Unit 2.

Response

During the design process, an evaluation was made to determine the need to include the emergency lighting units under the Quality Assurance program. The emergency lighting units were determined not to constitute fire protection equipment, and consequently, were not included in the Quality Assurance program. These emergency lighting units are standard stock items; therefore Duke Power considers that application of the fire protection QA program to these standard light fixtures will not improve the performance or reliability of the emergency lighting system.

Deviation Item 369/83-12-03, 370/83-16-03

FPR Section D.1.(j) states that floors, walls and ceilings enclosing separate fire areas have a minimum fire rating of three hours and penetrations through the barriers are sealed to provide a fire resistance equivalent to the barrier. FPR Appendix B, Fire Hazards Analysis, identifies the various fire areas and fire barriers to be provided.

Contrary to the above, unsealed penetrations exist through several fire barrier floors resulting in several of the FPR defined separate fire areas actually being located within the same fire area. Examples of this problem are as follows:

1. Two open and unprotected spiral stairs connect the 695 and 716 foot elevations.

2. Mechanical penetrations at reactor building walls from column lines DD-60 to JJ-62 and DD-52 to JJ-50 are provided with grated metal flooring at the 733 foot elevation which provides an open communication between the 716 and 733 foot elevations.

3. Two open and unprotected spiral stairs connect the 750 and 767 foot elevations.

This deviation is applicable to Units 1 and 2.

Response

The two open spiral stairs between the 695+0 and 716+0 foot elevations and between 750+0 and 767+0 foot elevations were noted on drawings submitted with the first release of the Fire Protection Review to the NRR. In a letter dated June 14, 1978 to W. O. Parker, Jr. from Robert L. Baer, item #10 referenced the need for automatic sprinklers in the corridors on elevation 695+0 due to the limited access. Duke Power agreed to provide the requested protection and this item was closed in a letter dated October 3, 1978 from Ralph A. Birkel to Duke Power.

The metal grated flooring at the 733+0 foot elevation from column lines DD-52 to JJ-50 and DD-60 to JJ-62 was installed to accommodate the number of pipes penetrating the floor in these areas.

A review of each area mentioned above, including the various components and equipment, reveals that a fire originating on one level and spreading to another level would not affect the ability to bring the unit to a hot standby condition. The design concept of the Standby Shutdown System (SSS) utilizes equipment and associated cable routings in areas unaffected by a fire in areas mentioned above.

Elevation 695+0 and 767+0 could be combined as one fire area. However, for simplicity of description for each level, the areas will continue to be noted as different fire area numbers.

A complete review of the Fire Protection Review is in progress. Comments will be added to reflect the spiral stairs and the installation of the metal grating. An explanation of the acceptability of this arrangement as previously discussed will be provided. This revision to the Fire Protection Review will be available concurrent with the Final Safety Analysis Report update in 1984.

Deviation Item 369/83-12-08, 370/83-16-08

FPR Sections B.3 and G.1 state that work within the operating plant which involves an ignition source will be conducted under a permit approval and control program.

Contrary to the above, procedures are not provided to require a permit approval and control program for all work which involves an ignition source and is conducted within the operating plant. The construction group is permitted to conduct welding and cutting operations within the operating unit using a construction procedure which does not require a permit. Also, the existing procedures do not address all types of ignition sources such as grinding operations.

This deviation is applicable to Units 1 and 2.

Response

As stated in Duke Power's Fire Protection Review, section G.1, the McGuire Nuclear Production Procedure requires a permit for all work conducted within the operating plant which involves an ignition source. This procedure has been revised to include ignition sources such as cutting, welding, grinding and open flame. The McGuire Construction Department Procedure which permits welding and cutting operations has also been revised to ensure that the requirements for the Nuclear Production Procedure for ignition sources are satisfied.