

From: "Robert L Gill Jr" <rlgill@duke-energy.com>
To: <RLF2@nrc.gov>, <fpg@nrc.gov>, <ptk@nrc.gov>, <ssl1@nrc.gov>
Date: 11/15/02 6:44AM
Subject: McGuire and Catawba Chronology of Licensing Basis for Manual Hose Stations

The attached Word file contains the subject chronology and is provided as we committed during the phone we had on 11/13/2002. A copy has been faxed this morning at about 6:30 am directly to Susie Black's fax number: 301-415-3577 and confirmed.

I understand that Mike Tuckman will be calling Susie between 8 and 9 am this morning. The Duke technical staff is available all day today for any followup that may be necessary on this topic.

Bob

----- Forwarded by Robert L Gill Jr/Gen/DukePower on 11/15/2002 06:34 AM

Roulette K Nader

To: Robert L Gill Jr/Gen/DukePower@DukePower
11/14/2002 05:59 PM cc:
Subject:

Bob, attached is the letter ready to be emailed to the staff. Thanks.

(See attached file: 11-15 TB suppression.doc)

McGuire and Catawba Chronology of Licensing Basis for Manual Hose Stations

McGuire

May and August 1976 – NRC issues Appendix A to BTP 9.5-1

September 1, 1977- Duke issues original Fire Protection Review (FPR) to NRC. The FPR included responses to the BTP guidelines and a complete Fire Hazards Analysis.

March 1, 1978 - NRC issues SER (NUREG 0422) including Chapter 16 of SER, Technical Specifications

Chapter 16 of SER documents the staff review and findings for the applicant's proposed technical specifications.

January 31, 1979- Duke issues revised FPR to NRC, which incorporated results of RAIs, site visits, and meetings. This submittal is the submittal of record at the time the applicable portions of the SER is written.

March 1, 1979 - NRC issues Supplement 2 of SER. The SER provides the fundamental foundation of the licensing basis.

II. Fire Protection Systems Description A. Water Suppression Systems

“(…)

The overall objective of our review of the McGuire Nuclear Plant fire protection program was to ensure that in the event of a fire at the facility, the units would maintain the ability to safely shutdown and remain in a safe shutdown condition and to minimize the release of radioactivity to the environment. Our review included an evaluation of the automatic and manually operated water and gas fire suppression systems, the fire detection systems, fire barriers, fire doors and dampers, fire protection, administrative controls and fire brigade training, and plant fire protection technical specifications.

The automatic sprinkler systems, e.g., wet sprinkler system, pre-action sprinkler systems, deluge and water spray systems, are designed to the requirements of NFPA Standard No. 13, “Standard for Installation of Sprinkler Systems,” and NFPA Standard No. 15, “Standard for Water Spray Fixed System.”

Manual hose stations are located throughout the plant to ensure that an effective hose stream can be directed to any safety related area in the plant. These systems are consistent with the requirements of NFPA Standard No. 14, “Standpipe and Hose System for Sizing, Spacing, and Pipe Support Requirements.”

Areas that have been equipped or will be equipped with water suppression systems are:

- (a) Cable spreading room (Manual Fog System)
- (b) RHR pump rooms and adjacent corridor area (automatic)
- (c) Motor driven auxiliary feedwater pump room (automatic)
- (d) Centrifugal charging pump rooms (automatic)
- (e) Nuclear service water pump rooms (automatic)
- (f) Component cooling water pump rooms (automatic)
- (g) Reactor coolant pump (remote manual)
- (h) Containment Annulus (remote manual)
- (i) Pipe corridor @ EL 725' (automatic)
- (j) Battery room open area – east and west ends (automatic)

We have reviewed the design criteria and bases for the water suppression systems and conclude that these systems meet the guidelines of Appendix A to Branch Technical Position 9.5.1 and are in accord with the applicable portions of the National Fire Protection Association (NFPA) Codes, and are, therefore, acceptable.”

April 1, 1981- NRC issues Supplement 5 of SER. Applicable portions are identical to above with the addition of the following in the list of areas equipped with water suppression:

- (k) Cable shaft (automatic)
- (l) Charcoal filters – containment (remote manual)
- (m) Charcoal filters – react [sic] building (remote manual)

SER Section 5, Fire Protection for Specific Areas, gives detail on the fire protection features for the plant. Individual subsections are 5.1, Cable Spreading Room, 5.2, Battery Room Areas (Fire Area 13), 5.3, Fire Protection Inside Containment, 5.4, Residual Heat Removal Pump Rooms, and 5.5, Other Plant Areas. For Other Plant Areas, the SER states:

“The applicant’s Fire Hazards Analysis addresses other plant areas not specifically discussed in this report. The applicant has committed to install additional detectors, portable extinguishers, hose stations, and some additional emergency lighting as identified in the applicant’s installation schedule. We find these areas with the commitment made by the applicant to be in accordance with the guidelines of Appendix A of the BTP 9.5-1, and the applicable sections of the National Fire Protection Association Code and are therefore acceptable.”

The summary of the review of the SER is that the SER states the specific locations required to have suppression systems. None of these locations are in the turbine building. The SER requires that manual hose stations be able to reach any location that contains, or could present a fire exposure hazard to, safety-related equipment with at least one

effective hose stream. None of the hose stations in the turbine building fulfill that criteria. The SER states that for other plant areas not specified, the staff relied on the FHA. The FHA does not dictate any automatic or manual suppression in the turbine building. The FHA states "The analysis was conducted in the Auxiliary Building and Reactor Buildings and that portion of the Turbine and Service Buildings which are adjacent to the Auxiliary Building." No turbine building suppression is identified in the FHA. Therefore, no turbine building fire presents an unacceptable fire exposure hazard to safety related systems in the auxiliary building.

October 7, 1982 – Duke submits a revision to the FPR. It contains the same information described as the January 31, 1979 submittal with respect to manual hose stations and did not change any of the conclusions of the SER as described above.

June 12, 1981 and March 3, 1983 – Based on the reviews and findings contained in the SER and its supplements, the NRC issues the Facility Operating Licenses for each McGuire unit.

The technical specifications were made a part of the Facility Operating License issued by the staff. Limiting Condition for Operation 3/4.7.10.4, Fire Hose Stations, specifically identifies those fire hose stations that must remain operable. None of the fire hose stations specifically identified in LCO 3/4.7.10.4 are located in the turbine building. All hose stations identified in LCO 3/4.7.10.4 are located in the Auxiliary Building.

June 6, 1989 – Subsequently, the NRC issued amendments to each units' Facility Operating License to relocate fire protection requirements from the operating licenses in the technical specifications to the FSAR.

Catawba

May and August 1976 – NRC issues Appendix A to BTP 9.5-1

December, 1977, June, 1979, (by letter dated 8/31/79) – Duke issues Fire Protection Review (FPR) to NRC. The FPR included responses to the BTP guidelines and a complete Fire Hazards Analysis.

August, 1981, (by letter dated October 23, 1981) – Duke issues revised FPR to NRC, which includes responses to the BTP and Appendix R and a FHA. The October 23, 1981 submittal is the submittal of record at the time the February 1983 SER is written.

July 1981- NRC issues SRP which includes CMEB Section 9.5.1 as a replacement for BTP 9.5-1 and Appendix R.

The corresponding manual hose station requirement in the CMEB states:

“Interior manual hose station installation should be able to reach any location that contains, or could present a fire exposure hazard to, safety-related equipment with at least one effective hose stream. To accomplish this, standpipes with hose connections equipped with a maximum of 100 feet of 1-1/2-inch woven-jacket, lines fire hose and suitable nozzles should be provided in all buildings on all floors. Individual standpipes should be at least 4 inches in diameter for multiple hose connections and 2-1/2 inches in diameter for single hose connections. These systems should follow the requirements of NFPA 14, “Standpipe and Hose Systems,” for sizing, spacing, and pipe support requirements.

Hose stations should be located as dictated by the fire hazard analysis to facilitate access and use for firefighting operations. (...)”

February 1983 – NRC issues SER (NUREG 0954), including Chapter 16 of SER, Technical Specifications

Chapter 16 of SER documents the staff review and findings for the applicant’s proposed technical specifications.

Chapter 9 of the SER includes the following:

9.5.1.7 Fire Detection and Suppression
Sprinkler and Standpipe Systems

(...)

The areas that are being equipped with automatic water suppression systems are

- (1) RHR pump rooms 100, 104, 105, 109, 110 and connecting corridors
- (2) Fire Areas 2 & 3 (rooms 250 and 260)
- (3) centrifugal charging pumps, rooms 231, 230, 241, and 240

- (4) component cooling pumps and cable concentration areas
- (5) reactor building annulus
- (6) Fire Area RB-2, pipe corridor
- (7) manual preaction for the lower containment filters
- (8) reactor coolant pumps

In the Fire Hazards Analyses, the applicant identified fire areas containing safe-shutdown-related equipment that are not protected by an automatic sprinkler system. Fire protection for these areas consists of automatic fire detectors, manual hose stations, and portable fire extinguishers. The boundaries of these areas are composed of three-hour-fire-rated construction. Cable is of a galvanized steel interlocked armor design discussed in Section 9.5.1.5 of this report. The shutdown system is available to achieve safe shutdown in the event of a fire in any of these areas. This is an acceptable deviation from the guidelines of BTP CMEB 9.5-1, Item C.5.b(2). Interior manual hose stations are provided and equipped to reach any plant location with at least one effective hose stream. Each hose station is provided with a maximum of 100 ft of 1 ½-in. hose with a spray nozzle to provide adequate coverage. The staff finds that the hose stations meet the guidelines of BTP CMEB 9.5-1, Item C.6.c, and are, therefore, acceptable.”

Because the SRP is issued at virtually the same time Catawba is finishing its response to the BTP, NRC agrees to let Catawba respond to the BTP but reviews Catawba against the CMEB in the SRP. The SER clearly documents that Catawba is reviewed against and licensed to the SRP as stated in the Introduction Section of 9.5.1.1:

“The staff has reviewed the fire protection program for conformance with SRP Section 9.5-1, Fire Protection, (NUREG-0800). This document, in BTP CMEB 9.5-1, incorporates the guidance of Appendix A to BTP ASB 9.5-1 and the technical requirements of Appendix R to 10 CFR 50.”

The SER is clear that Catawba is licensed to Item C.6.c of the CMEB. The CMEB is the NRC’s latest published version of the guidelines and requires that manual hose stations be able to reach any location that contains, or could present a fire exposure hazard to, safety-related equipment with at least one effective hose stream. None of the hose stations in the turbine building fulfill that criteria.

July 1983, (by letter dated November 4, 1983) - Duke submits a revision to the FPR. It contains the same information described as the October 23, 1981 submittal with respect to manual hose stations and did not change any of the conclusions of the SER as described above.

January 20, 1984 – An NRC audit report states:

“To comply with Section C.6.c of BTP CMEB 9.5-1, interior manual hose stations should be installed so as to be able to reach any location that contains, or could

present, a fire exposure hazard to safety related equipment with at least one effective hose stream.”

December 6, 1984 and February 24, 1986 – Based on the reviews and findings contained in the SER and its supplements, the NRC issues the Facility Operating Licenses for each Catawba unit.

The technical specifications were made a part of the Facility Operating License issued by the staff. Limiting Condition for Operation 3/4.7.10.4, Fire Hose Stations, specifically identifies those fire hose stations that must remain operable. None of the fire hose stations specifically identified in LCO 3/4.7.10.4 are located in the turbine building. All hose stations identified in LCO 3/4.7.10.4 are located in the Auxiliary Building, fuel pool area, or nuclear service water pump structure.

November 30, 1990 – Subsequently, the NRC issued amendments to each units’ Facility Operating License to relocate fire protection requirements from the operating licenses in the technical specifications to the FSAR.

Conclusion

Clearly, the guidance was evolving during the licensing of McGuire and Catawba. The guidance and the Duke responses comprise over a thousand pages of documents. Review of this information confirms that licensing basis of McGuire and Catawba is most clearly embodied in the staff’s SER and in the technical specifications contained in the operating licenses.

Duke’s conclusion from the exercise of reviewing the licensing basis of McGuire and Catawba is that the hose stations within the licensing basis are those listed in the original technical specifications, which did not include any turbine building hose stations. Since the conversion from technical specification to the UFSAR, the current licensing basis for McGuire and Catawba includes those hose stations listed in UFSAR Chapter 16, Selected Licensee Commitments. The Selected Licensee Commitments do not include any turbine building hose stations.