

ATTACHMENT A

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2.0 LIMITING CONDITIONS FOR OPERATION

2.6 Containment System (Continued)

b. Modification of Minimum Requirements

After the reactor has been made critical, the minimum requirements may be modified to allow either or both of the following statements (i,ii) to be applicable at any one time. If the operability of the component(s) is not restored to meet the minimum requirements within the time specified below, the reactor shall be placed in a hot shutdown condition within six hours.

- (i) One of the hydrogen purge fans, VA-80A or VA-80B, with associated valves and piping may, be inoperable provided the fan is restored to operable status within 30 days.
- (ii) The hydrogen purge filter system, VA-82, may be inoperable provided the system is restored to operable status within 72 hours.

Basis

The reactor coolant system conditions of cold shutdown assure that no steam will be formed and, hence, there would be no pressure buildup in the containment if the reactor coolant system ruptures. The shutdown margins are selected based on the type of activities that are being carried out. The refueling boron concentration provides a shutdown margin which precludes criticality under any circumstances. Each CEDM must be tested and some have two CEA's attached.

Regarding internal pressure limitations, the containment design pressure of 60 psig would not be exceeded if the internal pressure before a major loss-of-coolant accident were as much as 3 psig.⁽¹⁾ The containment integrity will be protected if the visual check of all "locked closed" manual isolation valves to verify them closed is made prior to plant start-up after an extended outage where one or more valves could inadvertently be left open. Operation of the purge isolation valves is prevented during normal operations due to the size of the valves (42 inches) and a concern about their ability to close against the differential pressure that could result from a LOCA or MSLB.

The Hydrogen Purge System is required to be operable in order to control the quantity of combustible gases in containment in a post-LOCA condition.⁽²⁾ The containment integrity will be protected by ensuring the penetration valves VA-280 and VA-289 are "locked closed" while HCV-881 and HCV-882 are normally closed during power operation. The applicable surveillance testing requirements of Table 3-5 will ensure that the system is capable of performing its design function. The blowers (VA-80A and VA-80B), associated valves, and piping are single failure proof, have been designed as a Seismic Class I System, and are redundant to the VA-82 filter header. VA-80A or VA-80B is capable of providing sufficient hydrogen removal capabilities as required by the USAR to prevent the hydrogen concentration inside of containment from exceeding the 4% flammability limit.⁽³⁾ Electrical Equipment qualification was not required as the radiation doses in the area of the Hydrogen Purge System equipment were below the minimum requirements.⁽⁴⁾

ATTACHMENT B

JUSTIFICATION, DISCUSSION, AND NO SIGNIFICANT HAZARDS CONSIDERATIONS

Justification and Discussion

The proposed amendment to the Technical Specifications would add a Limiting Condition of Operation to Section 2.6 Containment System, revise the basis accordingly, add surveillance test requirements per Table 3-5 Item 17 for the hydrogen purge system (HPS) and revise the basis accordingly.

The Limiting Conditions of Operation (LCO) listed in Section 2.6 of the Technical Specification establish the hydrogen purge system configuration in order to meet the 10CFR50.44 requirements for combustible gas control. The LCO lists the minimum requirements for criticality and the modifications of minimum requirements that will be allowed for maintenance and testing activities. The containment integrity is protected by ensuring the outside containment penetration valves are normally "locked closed" during power operation. The Surveillance Testing, as described below, ensures the system is capable of performing its post-LOCA hydrogen control function in accordance with the guidelines of Regulatory Guide 1.7. The hydrogen purge system is designed as a Seismic Class I system, meeting the single failure criterion with redundant blower units with associated valves and piping to the common header for VA-82 filter.

Should the HEPA or charcoal filters in the VA-82 filter unit become obstructed, the HPS would not maintain purge capability. The filter media is tested under more adverse conditions than have been calculated during the accident to where no credible failure mode could be identified. A modification request has been issued to place a bypass line around the filters to ensure full compliance with the redundancy requirements.

The LCO conditions will ensure that the 10CFR100 radiological consequences for the event are not exceeded in a post-LOCA situation by maintaining and verifying the hydrogen purge system as operable.

The amendment is conservative since it adds surveillance test requirements for the hydrogen purge system to the Technical Specifications. The hydrogen purge system (HPS) is classified as an Engineered Safety Features (ESF) System in Section 6.1.2.1 of the Fort Calhoun Updated Safety Analysis Report (USAR). As an ESF system, periodic surveillance tests are required to assure operability of the system in accordance with the design basis. The HPS is utilized to maintain the hydrogen gas concentration in containment below the 4% flammability limit in accordance with the design basis specified in Section 14.17 of the USAR. The surveillance intervals were chosen based on standard technical specification intervals. The HPS was designed and installed prior to the requirements of 10CFR50.44 and was not required to meet automatic containment isolation criteria.

The requirements to cycle all manual valves ensures that when the valves are required to be repositioned they will operate as required. The manual valves have remote operators due to the potentially high radiation fields in the area of the HPS in a post-LOCA environment. The valves are required to make one complete cycle during each refueling outage.

The remotely operated valves in the system are located on the containment penetrations and are locally leak rate tested to ensure the containment isolation function is maintained. The proposed test also requires the valves demonstrate the ability to complete one cycle of operation from a remote (AI-43) operating location. This ensures the ability to open and close the valves as required to perform a purge of the containment.

The flow through VA-80A or VA-80B is measured to be greater than 80 scfm and less than 230 scfm. A flow rate greater than 80 scfm will ensure more hydrogen is removed from containment than is being generated during the event. The flow values include instrument uncertainties. The maximum flow will limit flow to below the flow rate used in the design basis radiological calculations. The abilities of the blowers to provide the minimum flow and maintain the flow for a test period of 10 hours during refueling serves to demonstrate the operability in order to fulfill the separate and redundant requirement. The blowers units will take suction from the containment during the refueling flow test. During power operation the blower units will take suction from Room 59 of the Auxiliary Building in order to reduce the potential for inadvertent radiation release and the 30 minute test period will verify key operating parameters.

The basis for Sections 2.6 and 3.2 were revised to be consistent with the changes in the Sections due to the addition of the hydrogen purge system. This will verify that the offsite doses are less than those calculated in the safety analysis report.

No Significant Hazards Considerations

The proposed amendment to the Technical Specifications does not involve a significant hazards consideration because operation of Fort Calhoun Station Unit 1 in accordance with this amendment would not:

- (1) Involve a significant increase in the probability of occurrence or consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. The proposed surveillance tests will be conducted during refueling operations, in accordance with approved procedures, to verify input assumptions and equipment operation assumed in the safety analysis report remain valid and the hydrogen purge system is considered operable. The limiting conditions of operation ensure the ability of the hydrogen purge system to meet the requirements of 10CFR50.44 and 10CFR100. Therefore, the proposed change does not increase the probability or consequences of an accident or malfunction of equipment important to safety.
- (2) Create the possibility for an accident or malfunction of a new or different type than previously evaluated in the safety analysis report. The proposed change does not physically alter the configuration of the plant and no new or different mode of operation has been implemented. Therefore, the possibility of an accident of a new or different type than previously evaluated in the safety analysis report is not created.

- (3) Involve a significant reduction in the margin of safety as defined in the basis for any Technical Specification. The proposed change maintains the basis of the safety analysis. In addition, the surveillance tests will serve to verify that the margin of safety for the hydrogen purge system is maintained. Therefore, the margin of safety as defined in the basis for the Technical Specifications is not reduced.

Based on the above considerations, OPPD does not believe that this amendment involves a significant hazards consideration as defined by 10CFR50.92 and the proposed changes will not result in a condition which significantly alters the impact of the station on the environment. Thus, the proposed changes meet the eligibility criteria for categorical exclusion set forth in 10CFR51.22(c)(9) and pursuant to 10CFR51.22(b) no environmental impact or environmental assessment need be prepared.