

DOCKET NO.: 50-354
UNIT: Hope Creek
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SUMMARY OF CHANGES, TESTS, AND EXPERIMENTS
FOR THE HOPE CREEK GENERATING STATION

MONTH AUGUST 1996

The following items completed during **July 1996** have been evaluated to determine:

1. If the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report may be increased; or
2. If a possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report may be created; or
3. If the margin of safety as defined in the basis for any technical specification is reduced.

The 10CFR50.59 Safety Evaluations showed that these items did not create a new safety hazard to the plant nor did they affect the safe shutdown of the reactor. These items did not change the plant effluent releases and did not alter the existing environmental impact. The 10CFR50.59 Safety Evaluations determined that no unreviewed safety or environmental questions are involved.

Design Changes Summary of Safety Evaluations

DESIGN CHANGE 4HM-00119, INSTALLATION OF LADDER STORAGE BRACKETS IN POWER BLOCK

- This design change package installed storage brackets on the walls of various rooms throughout the power block. The maintenance department will utilize these racks to store temporary fiberglass ladders. The permanent installation of fiberglass ladder storage areas within the power block does not increase the likelihood of a fire in a safety related area because the ladders are not ignition sources. The ladders are not subject to spontaneous combustion. The ladders do add to the combustible loading of the rooms in which they are placed, however, the placement of the storage areas complies with the 10CFR50 Appendix R requirements regarding separation of redundant trains of safety circuits. The fire detection and suppression systems are adequate to handle the increased loading. The ladder storage area will not create a hazard or impairment to a safety related system or component. The ladder storage racks conform to the seismic II/I design considerations.

Therefore, this design change does not increase the probability or consequences of an accident previously described in the UFSAR and does not involve an Unreviewed Safety Question.

DESIGN CHANGE 4HE-00039, AIR INJECT AT THE BOTTOM OF CATION VESSEL

- Intermittent air injection will be provided to the bottom of cation tank to create the proper mixing of resin and water and remove acid hide-out. The cation vessel is open to the atmosphere and as a result there will be no pressure buildup. The change has no effect on safety-related systems, as the demineralized water system does not perform safety related functions. The intermittent air supply for this process is supplied by an existing air supply sized and designed for demineralizer backwash. Failure of the system does not compromise any safety-related systems nor prevent safe shutdown of the plant.

Therefore, this design change does not increase the probability or consequences of an accident previously described in the UFSAR and does not involve an Unreviewed Safety Question.

UFSAR Change Notices Summary of Safety Evaluations

UFSAR CHANGE NOTICE, UFSAR SECTION 5.4.7.2.6, RESIDUAL HEAT REMOVAL MANUAL ACTION

- This change revises the Residual Heat Removal (RHR) system operation description to indicate that 1BCHV-F015A(B) is throttled, as opposed to fully open, to maintain desired system flow during RHR Shutdown Cooling Mode, as described in the original General Electric documentation (GEK 90355). The original system design intended for the 1BCHV-F015A(B) valve to be throttled to maintain system flow to prevent pump runout conditions. Therefore, this change will reduce the probability of occurrence of a malfunction of equipment important to safety previously described in the SAR. Operation of the RHR system in accordance with the current operating procedures and the original system design will allow normal operation of the RHR system in the shutdown cooling mode. This change will correct the documentation deficiency which exists in the UFSAR to allow normal, reliable operation of the RHR system in the shutdown cooling mode. This change does not physically alter the plant nor does it alter operating procedures. It does not affect configuration or operation of the RHR system. Loss of shutdown cooling is discussed in UFSAR Section 15.2.9. Any malfunction of the RHR components that could lead to a loss of the shutdown cooling function would be bounded by the total loss of shutdown cooling analysis.

Therefore, this UFSAR change does not increase the probability or consequences of an accident previously described in the UFSAR and does not involve an Unreviewed Safety Question.

UFSAR CHANGE NOTICE, UFSAR SECTION 5.4.8.2, 'REACTOR WATER CLEAN UP SYSTEM DESCRIPTION'

- This UFSAR change clarifies that only the Reactor Water Clean Up (RWCU) suction line outboard containment isolation valve (1BGHV-F004) closes as a result of the RWCU high temperature on the non-regenerative heat exchanger (NRHX) outlet isolation signal. The RWCU NRHX Outlet Temperature High isolation protects the system filter/demineralizer (F/D) resins from high temperature water that could degrade the resins. In the event of a malfunction that led to a high temperature condition, a single failure of the outboard isolation valve to close could expose the resin to a high temperature. However, the RWCU F/D and associated resins are not important to safety and are not required to achieve or maintain safe shutdown of the plant. RWCU F/D resin damage due to high temperature is not included in any operational transients or postulated design basis accidents previously evaluated in the SAR. The RWCU NRHX Outlet Temperature High Isolation does not serve a safety function for reactor coolant pressure boundary or primary containment isolation or leak detection. The primary containment isolation of the RWCU suction line are important to safety, however, this clarification of documentation for the RWCU NRHX Outlet Temperature High isolation has no effect on the safety related functions of the valve. It is not discussed in the UFSAR for mitigation of any analyzed accident. This change does not alter the plant or procedures, nor does it affect any initiating events or initial condition assumptions in the SAR.

Therefore, this UFSAR change does not increase the probability or consequences of an accident previously described in the UFSAR and does not involve an Unreviewed Safety Question.

UFSAR CHANGE, SECTION 6.3.2.2.6, 'ECCS DISCHARGE LINE FILL NETWORK'

- This change revises UFSAR section 6.3.2.2.6 to reflect the use of the Condensate Storage and

Transfer (CST) system to provide ECCS keepfill, thereby allowing the removal of an ECCS jockey pump from service without affecting the availability of the supported equipment. The purpose of the ECCS and RCIC fill networks is to maintain the ECCS and RCIC pump discharge lines full of water when the systems are in standby lineup in order to 1) prevent water hammer, and 2) minimize injection time when the systems receive automatic initiation signals. The HPCI and RCIC jockey pumps are also used to maintain a water seal in the feedwater lines following a LOCA. The change addresses only the keepfill networks for RCIC and ECCS. Consequently, it does not impact or affect any precursors to accidents previously evaluated in the UFSAR and therefore does not increase the probability of those accidents. The consequences of a failure of a single RCIC or ECCS keepfill network are bounded by the single failures presently assumed in the UFSAR. When a jockey pump is removed from service, it is done so in accordance with station administrative controls which ensure that the impact on system operability is assessed and appropriate compensatory actions are considered and implemented. This, together with the limitation that only a single jockey pump will be removed from service at a time, provides reasonable assurance that a malfunction that is more limiting than that assumed in the UFSAR is not made credible by the change. Although the CST system is non-safety related and non-seismic, the check valves, isolation valves and all downstream piping supplying each ECCS and RCIC discharge header are safety related. This would therefore prevent a failure in the CST system from propagating into the ECCS or RCIC system. Therefore, the vulnerability of plant systems to a seismic event is not impacted by the change.

Therefore, this UFSAR change does not increase the probability or consequences of an accident previously described in the UFSAR and does not involve an Unreviewed Safety Question.

UFSAR CHANGE, SECTION 9.2, ULTIMATE HEAT SINK - UFSAR Section 9.2 is being changed to clarify how the ultimate heat sink (UHS) is monitored. The UHS temperature is defined as the 'average river water temperature'. Currently, the 'average river water temperature' can be measured two ways: 1) using the service water intake structure (SWIS) river temperature detectors, which are two pipes - each containing a 29.5 foot RTD device with the RTD element at the bottom of the device - installed in front of the SWIS; 2) using the service water (SW) pump discharge temperature detectors, which consist of an RTD in a metal thermal well installed in the service water piping attached to the discharge side of the service water strainers. The 'Service Water Hydraulic Analysis' determines UHS temperature based upon the temperature of the water entering the Safety Auxiliary Cooling System (SACS) heat exchanger. The SW pump discharge temperature reflects the temperature of the water entering the SACS heat exchanger. Monitoring the UHS temperature at this location accounts for the heat input due to work from the SW pump. In addition, the change will not alter the original system configuration but will improve the system description by eliminating the reference to the SWIS river temperature detectors.

Therefore, this UFSAR change does not increase the probability or consequences of an accident previously described in the UFSAR and does not involve an Unreviewed Safety Question.

Procedures Summary of Safety Evaluations

PROCEDURE CHANGE, ABNORMAL SERVICE WATER PROCEDURE CHANGE,

HC.OP-AB.ZZ-0122(Q) - The maximum allowable Ultimate Heat Sink (UHS) temperature is defined in Technical Specification (TS) 3/4.7.1.3(b) and will allow plant operation up to a maximum river temperature of 88.6 degrees Fahrenheit. Preliminary calculations have identified a bounding case that was not included in the analysis that determined the existing UHS upper temperature limit. In accordance with the NRC Generic Letter (GL) 91-18, this condition is defined within section 4.4, 'Discovery Of An Existing But Previously Unanalyzed Condition or Accident'. The proposed procedural changes and operation action will be consistent with the GL 91-18 direction to put the plant in a safe condition. A reasonable assurance of safety, as defined in paragraph 4.6 of GL 91-18, can be established based on the redundant equipment availability, the low probability of occurrence and the proposed compensatory measures including administrative controls.

The current analysis has determined that all design and licensing bases can be satisfied with a lower UHS temperature for the new bounding case. The final UHS maximum temperature will be determined based on completion of extensive thermal and hydraulic calculations. Until these calculations are finalized, the allowable UHS temperature will be controlled administratively using a conservative limit that bounds all Design Basis Accidents (DBA) and normal operating cases. The need for a permanent TS change will be determined after the calculations are finalized.

The administrative UHS temperature limit for the DBA will require additional operator action during the DBA. These additional operator actions following the DBA will be contained in the SW abnormal operating procedure. The intent of the procedure changes is to optimize the available SW flow across the Safety Auxiliary Cooling System (SACS) heat exchangers during the DBA. There are no credible failure modes introduced by these changes. All actions can be completed from the control room within a reasonable time frame with available equipment. The proposed procedural changes will not alter the original system configuration but will improve system reliability. The procedure changes are required to mitigate the effects of the DBA while meeting the UFSAR description of the SW system. The procedural changes and operator actions will enhance the system reliability to withstand an active failure and mitigate the consequences of the DBA. The changes will eliminate a single active failure that can cause a partial loss of the required SW flow path. The operator actions will ensure that SACS cooling water temperature is maintained within design limits. The minimum required components necessary to achieve and maintain cold shutdown conditions will be available. There is no postulated increase in the offsite does and 10CFR100 limits are not challenged by this change since all design parameters are maintained. In addition, the change will maintain the same margin of safety as currently implied by the TS. The assumptions used in the UFSAR chapter 15 accident analysis will not change.

Therefore, this change does not increase the probability or consequences of an accident previously described in the UFSAR and does not involve an Unreviewed Safety Question.

Other Summary of Safety Evaluation

Temporary Modifications Summary of Safety Evaluations

Deficiency Reports Summary of Safety Evaluations

There were no changes in these categories implemented during July 1996.