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RAR-89-38

June 1, 1989

Director of Nuclear Reactor Regulations
U. S. Nuclear Regulatory Commission
Mail Station P1-137
Washington, D. C. 20555

Enclosed please find a listing of those changes, tests, and experiments completed during the month of May, 1989, for Quad-Cities Station Units 1 and 2, DPR-29 and DPR-30. A summary of the safety evaluations are being reported in compliance with 10 CFR 50.59.

Thirty-nine copies are provided for your use.

Respectfully,

COMMONWEALTH EDISON COMPANY
QUAD-CITIES NUCLEAR POWER STATION

R. A. Robey

R. A. Robey
Technical Superintendent

RAR/vmk/djb

Enclosure

cc: R. Stols
T. Watts/J. Galligan

IE47
1/0

0027H/0061Z

Modification M-4-1-88-017A

Description

The modification was initiated to address concerns associated with pipe support base plate designs using concrete expansion anchor bolts. These concerns were expressed by the NRC in I.E. Bulletin No. 79-02. The modification consists of strengthening existing flued head anchor assemblies by installing new structural memebers and drilling new anchorages into walls and slabs. The following flued head anchors were affected:

PENETRATION	LINE AFFECTED
X-13A	RHR/LPCI Injection
X-13B	RHR/LPCI Injection
X-16A	Core Spray Injection
X-16B	Core Spray Injection
X-23	RBCCW Supply

Evaluation

The purpose of the anchor assemblies is to resist pipe loads due to a seismic event or a pipe break. The reinforcement of these assemblies in this modification will allow them to function as intended in the FSAR. This modification does not require changes in maintenance or system operation, thus the possibility of an accident or malfunction of a different type than any previously evaluated is not created. The reinforcement of the flued head anchor assemblies does not reduce the factor of safety, nor does it impact the technical specifications.

Modification M-4-1-88-017B

Description

The modification was initiated to address concerns associated with pipe support base plate designs using concrete expansion anchor bolts. These concerns were expressed by the NRC in I.E. Bulletin No. 79-02. The modification consists of strengthening existing flued head anchor assemblies by installing new structural members and drilling new anchorages into walls and slabs. The flued head anchor at penetration X-11 for the HPCI steam supply was affected by this partial mod.

Evaluation

The purpose of the anchor assemblies is to resist pipe loads due to a seismic event or a pipe break. The reinforcement of these assemblies in this modification will allow them to function as intended in the FSAR. This modification does not require changes in maintenance or system operation, thus the possibility of an accident or malfunction of a different type than any previously evaluated is not created. The reinforcement of the flued head anchor assemblies does not reduce the factor of safety, nor does it impact the technical specifications.

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10CFR50.59 FORMAT FOR SAFETY EVALUATION

STATION Quad Cities UNIT 1

SYSTEM Flued Head Anchors Structures MODIFICATION No. M-4-1-88-17

EQUIPMENT NAME Flued Head Anchors Structures

EQUIPMENT No. Anchors for Containment Penetrations X7A thru 7D, X8, X9A, X9B, X10, X11, X12, X13A, X13B, X16A, X16B, X17, X23, X24, X36, and X47

DESCRIPTION OF MODIFICATION:

The modification consists of increasing the load carrying capacity of existing flued head anchor frames by installing additional structural members. This work will include drilling concrete slabs and walls, welding new steel members to existing steel members, and installing new anchorages into concrete walls and slabs. The existing concrete anchorage capacities are insufficient to support FSAR design loads. In some cases, the as built configurations of the frames were not per design and require modifications to meet FSAR allowables.

SAFETY EVALUATION: Answer the following questions with a "yes" or "no", and provide specific reasons justifying the decision:

1. Is the probability of an occurrence or the consequence of an accident, or malfunction of equipment important to safety as previously evaluated in the Final Safety Analysis Report increased? _____Yes __X__No, Because:

   The purpose of the anchor frames is to resist pipe loads due to pipe break or seismic events. The probability of occurrence of these events is not changed due to reinforcement of these frames. The reinforcement allows the frames to function as intended in the FSAR should these events occur.

2. Is the possibility for an accident or malfunction of a different type than any previously evaluated in the Final Safety Analysis Report created? _____Yes __X__No, Because:

   No changes to system operation or maintenance are made by this modification, Therefore, the possibility of an accident or malfunction different than previously evaluated in the FSAR is not created.

3. Is the margin of safety, as defined in the basis for any Technical Specification, reduced? _____Yes __X__No, Because:

   The reinforcement of the frames increases the margin of safety to that intended in the FSAR. The modification does not impact the present technical specification.

Performed By Jason Taylor Date 4/28/88

Approved By Richard Mrochka Date 4/28/88

Modification M-4-2-88-43A

Description

This modification installed a temporary battery (125V) on the Unit 2 mezzanine level. This was done to replace the regular Unit 2, 125V battery without causing a dual Unit Outage. The modification was accomplished by installing a GNB. 58 Cell 125V battery west of the equipment hatch on Unit 2. Turbine Building Bus #2 compartment BO4 was used as an electrical connection point.

Evaluation

The battery was electrically greater in capacity than the one already in use. It was seismically mounted with similar alarm and instrumentation. No missile protection was provided like the regular battery has, but a probability risk assessment was performed to show a 21 day window of operability. We expect use of the battery to be about one week.

M-4-2-88-43A

SAFETY EVALUATION

1. Is the probability of an occurrence or the consequence of an accident, or malfunction of equipment important to safety as previously evaluated in the Final Safety Analysis Report increased? _____Yes ___X___No, Because:

The temporary battery will handle the same load as the permanent battery. The temporary battery is designed to carry the normal dc loads required for safe shutdown on one unit and operations required to limit the consequences of a design basis event on the other unit for a period of four hours following loss of all ac sources. This design is identical to that of the permanent battery. As stated in the UFSAR Section 12.1.1, the portions of Class II structures which house Class I components have been designed to provide protection for the Class I components in the same manner as Class I structure. The permanent battery is housed within a concrete structure in the turbine building (Class II) that affords protection from tornado missiles. During the modification to replace the permanent battery in the battery room, a temporary battery will be installed on the turbine building mezzanine floor along Column 24 between Rows D and E. This side of the turbine building is not protected by a reinforced concrete wall. However, an analysis has been performed to determine the probability of a tornado missile striking the temporary battery. This analysis found the probability to be less than 1×10^{-7}

per year. This is based on use of the temporary battery for a maximum 52-day period during any calendar year. However, it is expected that the permanent battery will require a maximum of three weeks for replacement. This three-week period is well within the 52-day limit, and therefore, provides a significant margin. For probabilities below 1×10^{-7} per year, tornado missiles do not have to be considered in the design per Standard Review Plan 3.5.1.5. The probability of a tornado missile hitting the temporary battery is greater than the possibility of a tornado missile hitting the permanently installed battery. However, since a time limit of 52 days per year has been established as the limit for operation of the temporary battery, the probability of a missile hitting the temporary battery is reduced to the same significance as a missile hitting the permanently installed battery.

Since these probabilities are well below those considered for a design basis event, the probability of an occurrence or the consequence of an accident or malfunction as analyzed in the UFSAR is not increased.

2. Is the possibility for an accident or malfunction of a different type than any previously evaluated in the Final Safety Analysis Report created? _____Yes ___X___No, Because:

The temporary battery rack and associated cable conduits will be seismically supported. The Unit 2 permanent battery instrumentation will be used to monitor the temporary battery. The instrumentation is located in the control room. Instrumentation will include undervoltage detection, battery voltage, and ground detection which will monitor the temporary battery in the same manner as that of the permanently installed battery. Both the main and reserve feeds to the 125 Vdc system will be unaffected by the installation of the temporary battery. The temporary battery will use the same type of charger as the permanent battery without a load increase, thus, there is not an increase in hydrogen generation. Since the temporary battery will be located in a larger open area of the mezzanine level of the turbine building, the small amount of hydrogen generated by charging the temporary battery will not be able to build up to the extent that it would pose a threat to any surrounding equipment or systems. Furthermore, a probabilistic analysis shows that the installation of the temporary battery does not expose the Station to an unacceptable tornado missile risk, and no design provisions are needed to protect the temporary battery.

Thus the possibility for an accident or malfunction of a different type than any previously evaluated in the USFAR is not created.

3. Is the margin of safety, as defined in the basis for any Technical Specification, reduced? ______Yes __X__No, Because:

The surveillance applied to the permanent battery will be equally applied to the temporary battery. The type of surveillances described in the Technical Specifications has been demonstrated over the years to provide indication of a cell becoming irregular or unserviceable long before it becomes a failure. The temporary battery can supply the same load as the permanent battery. The temporary 125 Vdc battery is designed to carry the normal dc loads plus all dc loads required for safe shutdown on one unit and operations required to limit the consequences of a design basis event on the other unit for a period of four hours following loss of all ac sources.

Therefore, the margin of safety defined in Section 3.9/4.9.8 of the Technical Specifications will not be reduced.

Prepared by G. C. Ekert III 3/28/89

Approved by Richard Mirochna 3/28/89
CHY 3/27/89

Modification M-4-1(2)-88-045

Description

Due to a recent intrepretation by the NRC of the definition of High/Low pressure interfaces, the ADS valves had to be evaluated for spurious operation due to electrical shorts. This evaluation discovered the possibility exsisted for spurious operation due to shorts within certain cables of the ADS logic. To prevent these shorts, new cable is being routed to provide enough separation that shorts can't occur.

Evaluation

The change in cable route will not affect any of the logic for ADS. The relief valves will operate as the always have.

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10CFR50.59 FORMAT FOR SAFETY EVALUATION

STATION Quad Cities UNIT 1 & 2

SYSTEM Automatic Depressurization System (ADS) MODIFICATION No. M4-1(2)-88-45

EQUIPMENT NAME

EQUIPMENT No.

DESCRIPTION OF MODIFICATION:
Based upon an ADS Spurious Actuation Study, which was initiated to meet the NRC's "current" circuit failure mode interpretation of 10CFR50 App. R requirements, further separation of ADS cabling is mandated.

This modification will separate certain conductors to prevent multiple shorts within any given cable from actuating multiple relief valves.

New cables will be installed. Specific conductors of existing cables (#13934 & 23934) will be disconnected from the circuitry (i.e., become spare) and conductors of the new cables will replace them. These new cables will meet the existing cable routing design criteria as it applies to this system. ADS logic circuitry and functional requirements have not been altered by this modification.

SAFETY EVALUATION: Answer the following questions with a "yes" or "no", and provide specific reasons justifying the decision:

1. Is the probability of an occurrence or the consequence of an accident, or malfunction of equipment important to safety as previously evaluated in the Final Safety Analysis Report increased? _____Yes __X__No, Because:
This modification is being implemented to reduce (to a level not considered credible) the potential for getting shorts in the proper sequence to cause spurious operation of the relief valves. ADS logic is not altered by this modification.

2. Is the possibility for an accident or malfunction of a different type than any previously evaluated in the Final Safety Analysis Report created? _____Yes __X__No, Because:

This modification reduces short circuit susceptibility. All other potential failure modes and their effects from the modified configuration are the same as the existing ADS scheme. No new malfunction type is created.

3. Is the margin of safety, as defined in the basis for any Technical Specification, reduced? _____Yes __X__No, Because:

The Tech. Spec. bases for ADS have been reviewed. The margin of safety is not reduced since the new cables will serve the same function as the cables they replace and the new cable routing will meet the stations separation criteria.

JAK 03-10-89 ~~3/9/89~~

Performed By _____ Date 3/9/89

Approved By _____ Date 3/10/89

Procedure Change QCP 600-9

The word "or" was moved to make the option on how to standardize 0.1 M NaOH more clear.

1. The probability of an occurrence or the consequence of an accident, or malfunction of equipment important to safety as previoulsy evaluated in the Final Safety Analysis Report is not increased because the procedure was revised only to make it more clear on options allowed. Technical items were not changed.

2. The possibility for an accident or malfunction of a different type than any previously evaluated in the Final Safety Analysis Report is not created because the procedure was revised only to make it more clear on options allowed. Technical items were not changed.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because the procedure was revised only to make it more clear on options allowed. Technical items were not changed.

Procedure Change QIS 5-1

Administrative changes to clarify existing procedure and improve shift awareness of calibrations in progress.

1. The probability of an occurrence or the consequence of an accident, or malfunction of equipment important to safety as previously evaluated in the Final Safety Analysis Report is not increased because the trip logic and hardware is not being changed.

2. The possibility for an accident or malfunction of a different type than any previously evaluated in the Final Safety Analysis Report is not created because their is only administrative changes. Logic circuitry is not being altered.

3. The margin of safety, as defined in the basis for Technical Specification, is not reduced because administrative controls ensure Technical Specification compliance.

Procedure Change QTP 1100-1

Addition of Precaution to avoid disturbance of particulate matter when objects are to be moved into or out of the fuel pools. This was added to minimize "specks" on the refuel floor.

1. The probability of an occurrence or the consequence of an accident, or malfunction of equipment important to safety as previously evaluated in the Final Safety Analysis Report is not increased because the change only adds precaution, it does not change how core verification is performed.

2. The possibility for an accident or malfunction of a different type than any previously evaluated in the Fainal Safety Analysis Report is not created because the FSAR describes methods of verifying proper cell orientation. This procedure change does not change these methods.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because the particulate matter in fuel pool is not discussed in Tech Specs.

SPECIAL TEST 1-125

Special Test No. 1-125 was completed on May 21, 1989. The purpose of this test was to evaluate the performance of the new E-Field brackets and pole extenders on Perimeter Detection Sector #13.

A safety evaluation was not required for this special test since it does not constitute a change to a procedure as described in the FSAR nor does it change Technical Specifications.