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PCA-94-004

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U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

SUBJECT: Quad Cities Nuclear Station Units 1 and 2
Changes, Tests, and Experiments Completed
NRC Docket Nos. 50-254 and 50-265

Enclosed please find a listing of those facility and procedure changes, tests, and experiments requiring safety evaluations completed during the month of October, 1994, 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 10CFR50.59 and 10CFR50.71(e).

Respectfully,

ComEd
Quad-Cities Nuclear Power Station


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AMS/dak

Enclosure

cc: J. Martin, Regional Administrator
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SAFETY\NRC LTR

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DESCRIPTION:

Installed strip chart recorder at Unit 1 250V charger to monitor voltages. Connected one pen of recorder across charger DC output terminal (TB2) or at charger voltmeter. Connected another pen across pins 12 and 8 of amplifier board A2 (DC output voltage of amp board). Use in-line fuses in leads. Set full scale for charger output at ≥ 280 volts. Set full scale for amp board at ≥ 10 volts.

SAFETY EVALUATION SUMMARY:

1. The change described above has been analyzed to determine each accident or anticipated transient described in the UFSAR where any of the following is true:
 - The change alters the initial conditions used in the UFSAR analysis.
 - The changed structure, system or component is explicitly or implicitly assumed to function during or after the accident.
 - Operation or failure of the changed structure, system, or component could lead to the accident.

The accidents which meet these criteria are listed below:

LOCA	UFSAR Section 15.6.2, 15.6.5
Loss of Auxiliary Power	UFSAR Section 8.3.1

For each of these accidents, it has been determined that the change described above will not increase the probability of an occurrence or the consequence of the accident, or malfunction of equipment important to safety as previously evaluated in the UFSAR.

2. The possibility for an accident or malfunction of a different type than any previously evaluated in the UFSAR is not created because the chart recorder wheels will be secured (chocked) so that the recorder will not act as a missile in the event of an earthquake. No new failure modes are created.
3. The margin of safety, is not defined in the basis for any Technical Specification, therefore, the safety margin is not reduced.

SE-94-074

Replace 1A Fuses in Charger with 2A Fuses
Q13045 (Unit 2), Q18100 (Unit 1)

DESCRIPTION:

This changed the fuse capacity in each of the three phases of the AC power feeds to the 250 VDC station battery chargers' firing boards in the charger. The fuse size was 1.0 amp. This increased the fuse capacity to 2.0 amps.

SAFETY EVALUATION SUMMARY:

1. The change described above has been analyzed to determine each accident or anticipated transient described in the UFSAR where any of the following is true:
 - The change alters the initial conditions used in the UFSAR analysis.
 - The changed structure, system or component is explicitly or implicitly assumed to function during or after the accident.
 - Operation or failure of the changed structure, system, or component could lead to the accident.

For each of these accidents, it has been determined that the change described above will not increase the probability of an occurrence or the consequence of the accident, or malfunction of equipment important to safety as previously evaluated in the UFSAR.

2. The possibility for an accident or malfunction of a different type than any previously evaluated in the UFSAR is not created because the purpose of the fuse is to protect the wiring in the event that the input circuit of a control board fails in the short circuit condition. The wiring used in this circuit is 18 AWG minimum, which is capable of carrying up to 18 amps. The additional one amp that may be seen at the firing card will have no adverse effect on the battery charger and its ability to maintain the battery in a ready condition. Based on the above discussion changing this fuse out will increase the reliability of the battery charger and not adversely impact the system. This change would result in the same type of failure as the existing fuse; therefore, the possibility to create a malfunction different than those evaluated in the FSAR does not exist.
3. The margin of safety, is not defined in the basis for any Technical Specification, therefore, the safety margin is not reduced.

SE-94-075 (Cont'd)

3. The margin of safety, is not defined in the basis for any Technical Specification, therefore, the safety margin is not reduced.

DESCRIPTION:

Revised the station's upper management roles and responsibilities procedure, QCAP 100-1, "Quad Cities Nuclear Station Organization".

SAFETY EVALUATION SUMMARY:

1. The change described above has been analyzed to determine each accident or anticipated transient described in the UFSAR where any of the following is true:
 - The change alters the initial conditions used in the UFSAR analysis.
 - The changed structure, system or component is explicitly or implicitly assumed to function during or after the accident.
 - Operation or failure of the changed structure, system, or component could lead to the accident.

For each of these accidents, it has been determined that the change described above will not increase the probability of an occurrence or the consequence of the accident, or malfunction of equipment important to safety as previously evaluated in the UFSAR.

2. The possibility for an accident or malfunction of a different type than any previously evaluated in the UFSAR is not created because the procedure change brings the content of the procedure up to par with the description contained in the UFSAR Section 13.1.2.

Administrative duties/roles/responsibilities are designed and clarified to reduce the possibility of any accident or malfunction.

3. The margin of safety, is not defined in the basis for any Technical Specification, therefore, the safety margin is not reduced.

DESCRIPTION:

Added steps to procedure to allow for IST testing of the 1/2-5799-381 valve and FCV 1/2-5741-333. Reformatted procedure to clarify and added signature blanks for verification steps. Solenoid valves on valves that were tested previously are also verified to operate. This did not alter the previous evaluation of valve operation.

SAFETY EVALUATION SUMMARY:

1. The change described above has been analyzed to determine each accident or anticipated transient described in the UFSAR where any of the following is true:
 - The change alters the initial conditions used in the UFSAR analysis.
 - The changed structure, system or component is explicitly or implicitly assumed to function during or after the accident.
 - Operation or failure of the changed structure, system, or component could lead to the accident.

The accidents which meet these criteria are listed below:

LOCA

UFSAR Section 15.6

For each of these accidents, it has been determined that the change described above will not increase the probability of an occurrence or the consequence of the accident, or malfunction of equipment important to safety as previously evaluated in the UFSAR.

2. The possibility for an accident or malfunction of a different type than any previously evaluated in the UFSAR is not created because all testing being performed will be done by normal means and in a manner consistent with the design of the equipment. No new operating modes or parameters are being created. Therefore, any failure or malfunction of the equipment will be of a type that has been previously evaluated.
3. The margin of safety, is not defined in the basis for any Technical Specification, therefore, the safety margin is not reduced.

DESCRIPTION:

Revised QOP 6700-3, "Deenergizing Bus 28 for Maintenance".

SAFETY EVALUATION SUMMARY:

1. The change described above has been analyzed to determine each accident or anticipated transient described in the UFSAR where any of the following is true:
 - The change alters the initial conditions used in the UFSAR analysis.
 - The changed structure, system or component is explicitly or implicitly assumed to function during or after the accident.
 - Operation or failure of the changed structure, system, or component could lead to the accident.

The accidents which meet these criteria are listed below:

Loss of Auxiliary Power	UFSAR Section 8.3.1
Power Bus Loss of Voltage	UFSAR Section 8.3.1

For each of these accidents, it has been determined that the change described above will not increase the probability of an occurrence or the consequence of the accident, or malfunction of equipment important to safety as previously evaluated in the UFSAR.

2. The possibility for an accident or malfunction of a different type than any previously evaluated in the UFSAR is not created because a loss of auxiliary power analysis bounds the loss of aux power while in a cold shutdown condition.

A power bus loss of voltage event at power also bounds this event while in cold shutdown.

3. The margin of safety, is not defined in the basis for any Technical Specification, therefore, the safety margin is not reduced.

E04-1-93-221
Replacement of RCIC Rupture Disc

DESCRIPTION:

This exempt change replaced the RCIC rupture disc assembly (1-1301-9 & 10) with an upgraded disc assembly, added two 150# flanges to the existing pressure switch line (1-1328-1"-LX) and modified the existing support for temperature switches (TS-1-1360-14A & C).

The reason for the change was because the existing RCIC rupture disc assembly had a steam cut. The replacement disc assembly was upgraded to provide maintenance with ease of removal and replacement during inspections. The addition of the new flanges provides a means to disconnect the RCIC rupture disc assembly from the pressure switch line for inspections. Modifying the existing support was due to the increased size of the disc assembly.

SAFETY EVALUATION SUMMARY:

1. The change described above has been analyzed to determine each accident or anticipated transient described in the UFSAR where any of the following is true:
 - The change alters the initial conditions used in the UFSAR analysis.
 - The changed structure, system or component is explicitly or implicitly assumed to function during or after the accident.
 - Operation or failure of the changed structure, system, or component could lead to the accident.

The accidents which meet these criteria are listed below:

LOCA (Loss of Coolant Accident) UFSAR Section 15.6..

For each of these accidents, it has been determined that the change described above will not increase the probability of an occurrence or the consequence of the accident, or malfunction of equipment important to safety as previously evaluated in the UFSAR.

2. The possibility for an accident or malfunction of a different type than any previously evaluated in the UFSAR is not created because this exempt change replaces the existing RCIC rupture disc assembly, adds new flanges to the pressure switch line and modifies an existing support. The functions of this equipment will remain unchanged from their original functions, therefore, there will be no impact on the RCIC system and its function.

E04-1-93-221 (Cont'd)

3. The margin of safety, is not defined in the basis for any Technical Specification, therefore, the safety margin is not reduced.

Replace Foxboro Level Controller on Feedwater Heaters

DESCRIPTION:

This exempt change replaced 21 existing Level Indicating Controllers (LICs), Foxboro Model 43A, with new LICs, Foxboro Model 43AP. The newer model was required due to obsolescence of the original components. Parts for the obsolete model are no longer available from the original equipment manufacturer (OEM). The new model is the OEMs specified replacement.

SAFETY EVALUATION SUMMARY:

1. The change described above has been analyzed to determine each accident or anticipated transient described in the UFSAR where any of the following is true:
 - The change alters the initial conditions used in the UFSAR analysis.
 - The changed structure, system or component is explicitly or implicitly assumed to function during or after the accident.
 - Operation or failure of the changed structure, system, or component could lead to the accident.

The accidents which meet these criteria are listed below:

Decrease in Feedwater Temp	UFSAR Section 15.1.1
Turbine Trip with Failure of Bypass System	UFSAR SECTION 5.2.2.2.2, 15.2.3.1

For each of these accidents, it has been determined that the change described above will not increase the probability of an occurrence or the consequence of the accident, or malfunction of equipment important to safety as previously evaluated in the UFSAR.

2. The possibility for an accident or malfunction of a different type than any previously evaluated in the UFSAR is not created because the function and purpose of the LICs has not been changed. There are no new system interactions or drain valve failure modes created.

The LCVs on the FWHs have a "fail safe" mode on loss of Instrument Air. This design feature will be checked following installation to verify continued function. All normal drain valves shall fail CLOSED and all emergency drain valves shall fail OPEN on loss of Instrument Air.

Other testing will verify that the LICs have been properly installed and are functional prior to unit startup. Final LIC checks will be performed at power.

The operation and basic function of the FWH drain system is not changed. This modification was not designed to perform any enhancements, other than the replacement of obsolete equipment. Capacities, response items, and other characteristics are not changed.

3. The margin of safety, is not defined in the basis for any Technical Specification, therefore, the safety margin is not reduced.

DESCRIPTION:

The subject modification reduced the magnitude of the high vibrations and discharge pressure fluctuations in the RHRSW pump. The impeller diameter on the low pressure pump was increased while the impeller diameter on the high pressure pump was reduced. By modifying the impellers, the best efficiency point was moved closer to the pump rated flow.

The low pressure pump internal casing was modified by grinding the existing double volute inlet edges (cut-water). The new cut-water profile reduced the dynamic force created by the interaction between the impeller vane pressure wake and the volute. The overall result was a reduction in the vibration which occurs at the impeller-vane-passing frequency.

SAFETY EVALUATION SUMMARY:

1. The change described above has been analyzed to determine each accident or anticipated transient described in the UFSAR where any of the following is true:
 - The change alters the initial conditions used in the UFSAR analysis.
 - The changed structure, system or component is explicitly or implicitly assumed to function during or after the accident.
 - Operation or failure of the changed structure, system, or component could lead to the accident.

The accidents which meet these criteria are listed below:

LOCA (Bounding)

UFSAR Section 15

For each of these accidents, it has been determined that the change described above will not increase the probability of an occurrence or the consequence of the accident, or malfunction of equipment important to safety as previously evaluated in the UFSAR.

2. The possibility for an accident or malfunction of a different type than any previously evaluated in the UFSAR is not created because this design will modify the RHRSW pump internals by angling the volute's inlet edges (cut-water). This will decrease the dynamic force created by the interaction between the impeller vane pressure wake and the volutes, reducing the vibration amplitudes occurring at vane-pass frequency. The reliability of the pump and its

components are increased and pump performance will be improved. No new accidents or equipment malfunctions are created by this design.

3. The margin of safety, is not defined in the basis for any Technical Specification, therefore, the safety margin is not reduced.

E04-1-93-011
Main Condenser Anti-Vibration Stakes

DESCRIPTION:

This exempt change installed 2,200 of 12,400 Craddle-Lock anti-vibration tube stakes in the Unit 1 Main Condenser to eliminate vibration induced tube cracks. Tube vibrations predominately occur during periods when circulating water temperatures are low. This condition results in a lower backpressure and a higher steam specific volume causing an increase in steam velocity. The increase in steam velocity results in vibration of the condenser tubes.

SAFETY EVALUATION SUMMARY:

1. The change described above has been analyzed to determine each accident or anticipated transient described in the UFSAR where any of the following is true:
 - The change alters the initial conditions used in the UFSAR analysis.
 - The changed structure, system or component is explicitly or implicitly assumed to function during or after the accident.
 - Operation or failure of the changed structure, system, or component could lead to the accident.

For each of these accidents, it has been determined that the change described above will not increase the probability of an occurrence or the consequence of the accident, or malfunction of equipment important to safety as previously evaluated in the UFSAR.

2. The possibility for an accident or malfunction of a different type than any previously evaluated in the UFSAR is not created because the anti-vibration stakes are custom-manufactured to the condenser's tube size and spacing from type 304 stainless steel. When installed the stakes and tubes are locked into a single unit preventing excessive tube vibration. Anti-vibration tube stakes designed by the Atlantic Group have been installed in approximately 50 main power plant condenser's including Quad Cities Unit 2, and have successfully resolved tube vibration problems.

The main condenser's is not credited to support safe shutdown or to perform any reactor safety function, the possibility of a loss of the main condenser has been analyzed thus there are no new types of accidents or malfunctions created.

E04-1-93-011 (Cont'd)

3. The margin of safety, is not defined in the basis for any Technical Specification, therefore, the safety margin is not reduced.

E04-2-93-186
Protecto-Wire for Unit 2 Aux Transformers

DESCRIPTION:

This exempt change replaced the existing thermal detectors for the Unit 2 Auxiliary Transformer (UAT) with a linear-type detection cable (Protecto-Wire). The existing detectors have proven to be a frequent source of 125 VDC grounds. The new detectors improved system reliability and reduced the possibility of inadvertent actuations. The Protecto-Wire was attached to existing deluge piping and spliced into the existing control circuitry.

SAFETY EVALUATION SUMMARY:

1. The change described above has been analyzed to determine each accident or anticipated transient described in the UFSAR where any of the following is true:
 - The change alters the initial conditions used in the UFSAR analysis.
 - The changed structure, system or component is explicitly or implicitly assumed to function during or after the accident.
 - Operation or failure of the changed structure, system, or component could lead to the accident.

For each of these accidents, it has been determined that the change described above will not increase the probability of an occurrence or the consequence of the accident, or malfunction of equipment important to safety as previously evaluated in the UFSAR.

2. The possibility for an accident or malfunction of a different type than any previously evaluated in the UFSAR is not created because the Onsite Auxiliary Power System is designed to provide a reliable source of power to those auxiliaries necessary for power generation and to auxiliary systems important to nuclear safety. The redundancy of transformers and buses within the plant, and the divisions of critical loads between buses yield a system that has a high degree of reliability and integrity. Physical separation of buses and service components limits or localizes the consequences of electrical faults, mechanical accidents or fires occurring at any point in the system. The possibility of a loss of the auxiliary transformer resulting from fire or other faults has been analyzed and thus there are no new types of accidents or malfunctions created.

E04-2-93-186 (Cont'd)

3. The margin of safety, is not defined in the basis for any Technical Specification, therefore, the safety margin is not reduced.

C04-2--001
Component Replacement

DESCRIPTION:

Replaced Yarway 3-way valve manifold with an Anderson Greenwood 3-way valve manifold.

SAFETY EVALUATION SUMMARY:

1. The change described above has been analyzed to determine each accident or anticipated transient described in the UFSAR where any of the following is true:
 - The change alters the initial conditions used in the UFSAR analysis.
 - The changed structure, system or component is explicitly or implicitly assumed to function during or after the accident.
 - Operation or failure of the changed structure, system, or component could lead to the accident.

The accidents which meet these criteria are listed below:

LOCA	UFSAR Section 15.6.5
Instrument Line Break Outside Containment	UFSAR Section 15.6.2

For each of these accidents, it has been determined that the change described above will not increase the probability of an occurrence or the consequence of the accident, or malfunction of equipment important to safety as previously evaluated in the UFSAR.

2. The possibility for an accident or malfunction of a different type than any previously evaluated in the UFSAR is not created because the interaction between the valve manifold and instrument lines has been evaluated by the designer. The new valve manifold is mechanically qualified and mounted, therefore, there is no known hazard that could create an accident or malfunction different from those evaluated in the SAR.
3. The margin of safety, is not defined in the basis for any Technical Specification, therefore, the safety margin is not reduced.