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Quad Cities Generating Station
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ESK 96-197

October 30, 1996

US Nuclear Regulatory Commission
Washington, DC 20555

Attention: Document Control Desk

Subject: Status of Diagnostic Evaluation Team (DET)
Material Condition Improvements

Reference: (a) J. O'Conner to J. Taylor letter concerning DET Response
dated December 30, 1993

The purpose of this letter is to provide detailed information on the progress of material condition improvements described in reference (a).

Our fundamental strategy for accomplishing the planned performance improvements continues to rely on the Course of Action, and the Quad Cities Annual Management Action Plans.

In summary, of the ninety-four (94) improvements planned, eighty (80) have been addressed. The fourteen (14) remaining items are scheduled for completion and are being tracked by the station.

Among the most important completed corrective actions were:

Resolving High Vibration issues on both High Pressure Coolant Injection Pumps, the 2B Residual Heat Removal Service Water pump (RHRSW), the 2C Residual Heat Removal (RHR) pump, and the 2A Core Spray (CS) pump.

Complete overhaul of the Unit 1/2 Emergency Diesel Generator (EDG) and correcting high vibrations on the 1/2 EDG cooling water pump.

Overhaul of Reserve Auxiliary Transformers TR-11, and TR-12.

Overhaul of the Unit 1 Reactor Core Isolation Cooling turbine.

Upgrade of Torus Cooling motor operated valves to alleviate cavitation induced vibration.

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October 30, 1996

The fourteen remaining items are:

The Electromatic Relief Valve replacement is awaiting final resolution of problems encountered with the Power Operated Relief Valves following their installation on Unit 2 during the spring of 1995.

Installation and upgrade of local indication for U-1, 2, and 1/2 EDGs (three items).

Permanent repair to eliminate the furmanite clamp on the 2A Reactor Recirculation Pump flange.

Replacement of the signal cables for the U-2 Source Range Monitors and Intermediate Range Monitors.

Impeller cutwater modifications for the 1B, 1C, and 2D RHRSW pumps.

Replace copper tubing on Unit 1, 2 and 1/2 EDGs (three items).

Overhaul of the "A" RHR pump and refurbish the "C" and "D" RHR pump motors (two items).

Perform maintenance on the RHR heat exchangers.

Modification of Reactor Feed Pump low suction trip logic.

Should you need additional information, please contact Mr. Charles Peterson, Regulatory Affairs Manager, Quad Cities Station, at (309) 654-2241 extension 3602.

Sincerely,

E. S. Kraft, Jr.

E. S. Kraft, Jr.
Site Vice President
Quad Cities Station

October 30, 1996

Attachments: (1) Detailed information concerning resolution of DET material improvement items

cc:

J. Taylor, Executive Director, Operations, NRR

W. Beach, Regional Administrator, Region III

R. Pulsifer, NRR Project Manager

C. Miller, Senior NRC Resident, Quad Cities

F. Spangenberg, Regulatory Affairs Manager, Dresden

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Document Control Desk - Licensing (both hard and electronic copy)

ATTACHMENT 1
"RESOLUTION OF DET MATERIAL IMPROVEMENT ITEMS"
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Emergency Diesel Generator (EDG)

Unit 1

- replacement of the lube oil cooler (cooler previously replaced for other EDGs)

STATUS: Completed

- installation and upgrade of local indication

STATUS: Approved by technical review board (TRB) on 5/9/96} NTS # 254-123-96-1301

- upgrade of air starting skid through the installation of a moisture separator and the replacement of the existing copper tubing with stainless steel

STATUS: Cancelled - the purpose of this project was to replace obsolete instrumentation, relocate copper lines with stainless steel piping, and although the air receiver tanks are acceptable, they also were to be replaced. As engineering progressed the most cost beneficial and available power source needed was a safety related mcc. This additional load on the bus was not justifiable. The alternate power supply became cost prohibitive, and the project was cancelled. However, the obsolete instrumentation has been replaced and plans are in progress to replace the copper tubing. NTS # 254-123-96-01302.

Unit 2

- installation and upgrade of local indication

STATUS: Placed into 1996 map (focus area 1, objective "D", step 1) {approved by TRB on 5/9/96} NTS # 254-123-96-01301.

- upgrade of air starting skid through the installation of a moisture separator and the replacement of the existing copper tubing with stainless steel

STATUS: Cancelled - the purpose of this project was to replace obsolete instrumentation, relocate copper lines with stainless steel piping, and although the air receiver tanks are acceptable, they also were to be replaced. As engineering progressed the most cost beneficial and available power source needed was a safety related mcc. This additional load on the bus was not justifiable. The alternate power supply became cost prohibitive, and the project was cancelled. However, the obsolete instrumentation has been replaced and plans are in progress to replace the copper tubing. NTS 254-123-96-01302.

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High Pressure Coolant Injection (HPCI)

Unit 1

- completion of turbine exhaust line sparger modification
STATUS: Completed
- cutwater modification on booster pump
STATUS: Cancelled, diagnostic testing was performed which determined the motor was acceptable. Station will continue to monitor with diagnostic testing.
- steam line drain modification
STATUS: Completed
- trim upgrade on motor operated valve 2301-46 (cooling water pressure control valve) to alleviate cavitation induced vibration
STATUS: Completed
- overhaul emergency oil pump (balance pump impeller and motor rotor)
STATUS: Completed
- "cold" alignment check on turbine-pump
STATUS: Cancelled: a review of the vibrations on the Unit-1 HPCI pump/turbine combination for the last 30 months show that all vibration points which are monitored have always been below the alert range and in most cases have been trending down. Therefore the system and component engineers determined that a cold alignment should not be performed until maintenance is performed that would require a re-alignment.

Unit 2

- completion of turbine exhaust line sparger modification
STATUS: Completed

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"RESOLUTION OF DET MATERIAL IMPROVEMENT ITEMS"
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- cutwater modification on booster pump

STATUS: Cancelled, diagnostic testing was performed which determined the motor was acceptable, the vibration data showed that pipe strain and turbine/pump alignment were the major contributors, thereby eliminating the need for the modification. The station during Q2R13 reconditioned the pump base, eliminated pipe strain, and aligned the turbine/pump. Station will continue to monitor with diagnostic testing.

- overhaul emergency oil pump (balance pump impeller and motor rotor)

STATUS: Cancelled, diagnostic testing was performed which determined the vibration was acceptable. Station will continue to monitor with diagnostic testing.

- "hot" alignment check/study on turbine-pump following unit startup (permalignment study)

STATUS: Completed

Reactor Core Isolation Cooling (RCIC)

Unit 1

- turbine overhaul

STATUS: Completed

- upgrade of turbine exhaust line rupture disc design

STATUS: Completed

Core Spray (CS)

Unit 1

- overhaul "A" Pump

STATUS: Completed

- motor refurbishment for the "A" Pump

STATUS: Completed

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- balance motor-pump coupling for "A" Pump

STATUS: Completed

- trim upgrade of motor operated valves 1402-4A&B (torus test return) and removal of downstream restricting orifices in order to alleviate cavitation induced vibration. Conversion of testable check valves 1402-9A&B to conventional swing check design - to alleviate pneumatic actuator concerns

STATUS: Completed

Unit 2

- motor refurbishment for the "A" Pump

STATUS: Completed

- balance motor-pump coupling for "A" Pump

STATUS: Completed

- trim upgrade of motor operated valves 1402-4A&B (torus test return) and removal of downstream restricting orifices to alleviate cavitation induced vibration

STATUS: Completed

- conversion of testable check valve 1402-9A to conventional swing check design to alleviate pneumatic actuator concerns

STATUS: Completed

Residual Heat Removal (RHR) and RHR Service Water (RHRSW)

Unit 1

- overhaul "A" RHR Pump

STATUS: Work is scheduled to be completed. WR # 930064455.

- motor refurbishment for the "C" and "D" RHR Pumps

STATUS: Work is scheduled to be completed. WR #'s: 930065228 and 940101916.

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- motor refurbishment for the "B" and "C" RHRSW Pumps
STATUS: Completed
- RHR heat exchanger maintenance activities
STATUS: Work is scheduled to be completed WR # 950086109.
- trim upgrade of motor operated valves 1001-5 A&B (heat exchanger service water outlet) and removal of downstream restricting orifices to alleviate cavitation induced vibration
STATUS: Completed
- trim upgrade of motor operated 1001-36 A&B (torus cooling) to alleviate cavitation induced vibration
STATUS: Completed
- replacement of the 1001-29B (LPCI injection) valve stem to a higher strength material
STATUS: Completed

Unit 2

- overhaul "C" RHR Pump
STATUS: Completed
- motor refurbishment for the "B" and "C" RHR Pumps
STATUS: Completed
- motor refurbishment for the "B" and "C" RHRSW Pumps
STATUS: Completed
- trim upgrade of motor operated valves 1001-5 A&B (heat exchanger service water outlet) and removal of downstream restricting orifices to alleviate cavitation induced vibration
STATUS: Completed

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- trim upgrade of motor operated 1001-36 A&B (torus cooling) to alleviate cavitation induced vibration

STATUS: Completed

Other Activities

Unit 1

- torus recoat

STATUS: Completed

- motor refurbishment of the Reactor Recirculation Pumps

STATUS: Cancelled, diagnostic testing was performed in Q1R13 which determined the motors were acceptable. Station will continue to monitor with diagnostic testing.

- motor refurbishment of the "C" and "D" Condensate/Condensate Booster Pumps

STATUS: Completed

- overhaul "D" Condensate/Condensate Booster Pump

STATUS: Completed

- Unit Aux Transformer (TR-11) overhaul

STATUS: Completed

- MOV dP testing

STATUS: Completed

- upgrade outboard MSIV air lines (from copper to stainless steel piping)

STATUS: Cancelled: This item was reviewed by both the Site Planning Group (SPG) and Technical Review Board (TRB) and found not to be required (no safety implication), and that the modification would be only an enhancement to minimize the potential for damage during outage periods.

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- rebuild/replace the discharge accumulator for each Standby Liquid Control (SBLC) pump

STATUS: Completed

- new/revised MSL support arrangements (as required)

STATUS: Completed

- Electromatic Relief Valve (ERV) replacement to be scheduled for Q1R14

STATUS: ERV Replacement is being delayed. The station is awaiting final resolution of PORV problems. The PORV's were installed on Unit 2 during Q2R13.

- staking of main condenser tubes to alleviate vibration

STATUS: Completed

- overhaul low pressure turbine "B"

STATUS: Completed

- replace main condenser section "A" boot

STATUS: Completed

- 4kV Bus 14 breaker replacement

STATUS: Completed

- installation of time delay relays in the MSL low pressure circuitry - to alleviate Group 1 isolation concerns following scrams

STATUS: Completed

- replacement of the signal cables (triple shielded cables) and drive cables for the SRMs and IRMs

STATUS: Completed

- installation of varistors in 250 Vdc motors for selected HPCI, RCIC, and RHR valves

STATUS: Completed

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- installation of test taps for the RHR testable check valves 68 A&B - performance of the pressure test on the check valves (68 A&B)

STATUS: Completed

- main generator rotor overhaul

STATUS: Completed

- modification of RFP low suction trip logic to "two-out-of-two" with time delay

STATUS: Work is scheduled to be completed. MGD M04-1-93-006.

- upgrade of "A" and "B" Feedwater regulating valves (FRVS) to new hydraulic actuator design (note - "A" FRV is being converted from an air actuator design)

STATUS: Work completed, awaiting testing.

- inspection of the following room coolers: "A" & "B" Core Spray, "A" & "B" RHR, HPCI, and "A" & "B" RHRSW Pumps

STATUS: Completed

- disassembly and repair of the "disk/pilot assembly" for the MSIVs

STATUS: The remaining Unit 1 MSIV will be completed when the valve is required to be disassembled.

Unit 2

- motor refurbishment for the Reactor Recirculation Pumps

STATUS: Cancelled, diagnostic testing was performed which determined the motors were acceptable. The station will continue to monitor with diagnostic testing.

- motor refurbishment for the "C" and "D" Condensate/Condensate Booster Pumps

STATUS: Completed

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- Unit Aux Transformer (TR-21) overhaul
STATUS: Completed
- MOV dP testing
STATUS: Completed
- new/revised MSL support arrangements (as required) and ERV replacement
STATUS: Completed
- permanent repair to eliminate furmanite clamp on "A" Reactor Recirculation Pump flange
STATUS: Planned for next outage (Q2R14) tracked under NTS # 254-123-96-00302
- rebuild/replace the discharge accumulator for each SBLC pump
STATUS: Completed
- 4kV Bus 23 breaker replacement
STATUS: Completed
- reactor vessel feedwater nozzle inspection
STATUS: Completed
- RWCU return piping (outboard piping) replacement
STATUS: Completed
- installation of time delay relays in the MSL low pressure circuitry - to alleviate Group 1 isolation concerns following scrams
STATUS: Completed
- replacement of the signal cables (triple shielded cables) and drive cables for the SRMs and IRMs
STATUS: Drive cables replaced, signal cables will be replaced during Q2R14 (NTS # 254-123-96-01310)

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- upgrade of "A" and "B" Feedwater regulating valves (FRVS) to new hydraulic actuator design (note -"A" FRV is being converted from an air actuator design)

STATUS: Completed

- inspection of the following room coolers: "A" & "B" Core Spray, "A" & "B" RHR, HPCI, and "A" & "B" RHRSW Pumps

STATUS: Completed

- disassembly and repair of the "disk/pilot assembly" for MSIVs "2B", and "2D"

STATUS: Unit 2 completed

Additional Activities planned in 1993/1994:

Unit 1/2 (Swing) Emergency Diesel Generator (during '94)

- replacement of all 20 EDG engine power packs

STATUS: Completed

- installation of field ground indication modification (installation of time delay)

STATUS: Completed

- installation of modification on EDG fuel oil system to allow for flexible hose installation

STATUS: Completed

- installation and upgrade of local indication - includes installation of new digital tachometer

STATUS: Engineering is evaluating a modified design. This will be tracked by NTS # 254-123-96-01303.

- inspection of current transformers in local diesel generator panels

STATUS: Completed

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- upgrade of air starting skid through the installation of a moisture separator and the replacement of the existing copper tubing with stainless steel

STATUS: Cancelled - the purpose of this project was to replace obsolete instrumentation, relocate copper lines with stainless steel piping, and although the air receiver tanks are acceptable, they also were to be replaced. As engineering progressed the most cost beneficial and available power source needed was a safety related mcc. This additional load on the bus was not justifiable. The alternate power supply became cost prohibitive, and the project was cancelled. However, the obsolete instrumentation has been replaced and plans are in progress to replace the copper tubing. NTS # 254-123-96-01302.

Impeller/Cutwater Modification on the RHRSW Pumps

- modifications completed on "1A", "1D", and "2C" pumps

STATUS: Completed

- modifications to be completed on "1B", "1C", "2A", "2B", and "2D" pumps during '94

STATUS: "2A" and "2B" completed, "1B", "1C", AND "2D" are being done in 1996 and tracked under NTS # 254-200-87-04000R1.3

Operator Work-Arounds/Concerns

- 48 issues identified by operators

STATUS: Completed

- 21 issues will be resolved (e.g., Service Water Radiation Monitors) by the completion of Q2M11

STATUS: Completed

- an additional 26 issues are planned to be resolved by the end of '94

STATUS: Completed

- The remaining issue is planned to be resolved during '95

STATUS: Completed

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Vulnerability Assessment Issues

- approximately 25% of the VAT issues will be resolved by the completion of Q2M11

STATUS: Completed

- approximately 80% (total) of the VAT issues are planned to be resolved by the end of '94

STATUS: Completed

Motor Operated Valve (MOV) Differential Pressure Testing

- through '93, 36 MOVs (25 high priority MOVs) have been dP tested - 28 of these MOVs (20 high priority) have been performed since August of '93

STATUS: Completed

- MOV dP testing scheduled to be completed by the end of '94

STATUS: Completed

Material Condition

Unit 1 RHRSW Vaults upgrade scheduled to be completed by the end of the first quarter of '94

STATUS: Completed

Unit 2 RHRSW Vaults upgrade scheduled to be completed by the end of the second quarter of '94

STATUS: Completed

Area reclamation initiative - schedule established and initiative is being implemented

STATUS: Completed