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RAR-89-31

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

Enclosed for your information is the Monthly Performance Report covering the operation of Quad-Cities Nuclear Power Station, Units One and Two, during the month of April, 1989.

Respectfully,

COMMONWEALTH EDISON COMPANY
QUAD-CITIES NUCLEAR POWER STATION

R. A. Robey

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Services Superintendent

RAR/vmk/djb

Enclosure

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QUAD-CITIES NUCLEAR POWER STATION

UNITS 1 AND 2

MONTHLY PERFORMANCE REPORT

APRIL, 1989

COMMONWEALTH EDISON COMPANY

AND

IOWA-ILLINOIS GAS & ELECTRIC COMPANY

NRC DOCKET NOS. 50-254 AND 50-265

LICENSE NOS. DPR-29 AND DPR-30

0027H/0061Z

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I. INTRODUCTION

Quad-Cities Nuclear Power Station is composed of two Boiling Water Reactors, each with a Maximum Dependable Capacity of 769 MWe Net, located in Cordova, Illinois. The Station is jointly owned by Commonwealth Edison Company and Iowa-Illinois Gas & Electric Company. The Nuclear Steam Supply Systems are General Electric Company Boiling Water Reactors. The Architect/Engineer was Sargent & Lundy, Incorporated, and the primary construction contractor was United Engineers & Constructors. The Mississippi River is the condenser cooling water source. The plant is subject to license numbers DPR-29 and DPR-30, issued October 1, 1971, and March 21, 1972, respectively; pursuant to Docket Numbers 50-254 and 50-265. The date of initial Reactor criticalities for Units One and Two, respectively were October 18, 1971, and April 26, 1972. Commercial generation of power began on February 18, 1973 for Unit One and March 10, 1973 for Unit Two.

This report was compiled by Lynne Deelsnyder and Verna Koselka, telephone number 309-654-2241, extensions 2185 and 2240.

II. SUMMARY OF OPERATING EXPERIENCE

A. Unit One

Unit One began the month of April operating at 720 MWe to shuffle control rods and perform the weekly turbine-generator surveillance. At 1020 hours, a load increase to full power was taken with control rods and recirculation pumps. At 2025 hours, all testing was completed and the unit was placed in Economic Generation Control (EGC). The unit remained in EGC until April 3. At 0330 hours, EGC was tripped to perform the monthly High Pressure Coolant Injection (HPCI) surveillance. At 0430 hours, the surveillance was completed, and the unit was placed in EGC. At 0554 hours, the HPCI system was declared inoperable due to problems with being able to engage the turning gear. At 0625 hours, EGC was tripped and a load increase to 725 MWe was taken. At 0800 hours, the Chicago Load Dispatcher requested full load. At 0855 hours, the HPCI system was declared operable. Power levels were held constant and on April 4 at 0025 hours, the unit was placed in EGC.

The unit remained in EGC until April 5. At 0620 hours, EGC was tripped and a load increase to full power was taken to perform Traversing In-Core Probe Set. Power levels were held constant until April 7 due to Master Controller problems. At 1440 hours, power levels were adjusted and the unit was placed in EGC at the request of the Load Dispatcher. The unit remained in EGC until April 9. At 0754 hours, a "Turbine Bypass Valve Open" alarm was received in the control room and at 0758 hours, EGC was tripped to investigate the continuous problems with the master controller. At 0830 hours, power levels were adjusted and per the request of the load dispatcher, the unit was placed in EGC. The unit remained in EGC until April 10. At 0735 hours, EGC was tripped and a load increase to full power was taken per the request of the Load Dispatcher. At 1847 hours, power levels were adjusted and the unit was placed in EGC.

On April 11 at 0400 hours, EGC was tripped and a load increase to full power was taken at the request of the Load Dispatcher. At 0525 hours, the steam seal feed valve was isolated and left in the closed position due to a steam leak. At 2221 hours, a turbine bypass valve opened while the unit was operating at 750 MWe. EGC was tripped and recirculation pumps were placed in MANUAL. At 2233 hours, the turbine bypass valve again opened. Load was reduced to 730 MWe with recirculation flow, and the valve closed. At 2349 hours, the bypass valve again opened, so control rods were inserted and power was reduced to 635 MWe.

On April 12, Instrument Maintenance concluded that there was a problem with the bypass valve small close bias potentiometer. An adjustment was made to increase the bias signal to the bypass valves, and a load increase to 700 MWe was taken. As reactor power was increased, the #1 bypass valve opened. Another adjustment was made to the potentiometer and the valve closed. At 0312 hours, the #1 bypass valve opened fully and the #2 bypass valve opened 50 percent. Adjustments to the potentiometer were ineffective. Continuous problems with the turbine bypass valves existed and at 1136 hours, a manual reactor scram was inserted.

The expected water level transient due to the collapse of the voids following the scram caused reactor vessel level to drop below the +8 inches which caused Group II and III Primary Containment Isolations, Reactor Building Ventilation and Control Room Ventilation Isolations, and Standby Gas Treatment initiation. Reactor water level was restored automatically by the Feedwater System and a normal scram recovery proceeded.

Instrument Maintenance began troubleshooting the Electro-Hydraulic Control system. Between April 12 and April 15, a circuit board in the Electro-Hydraulic Control (EHC) system was replaced. A circuit board within the combined maximum flow limit circuit had a decreasing output. The board limits the opening of control valves and as a result of the decreasing output, caused the control valves to close. The bypass valves were opening as designed to control reactor pressure.

On April 15 at 1051 hours, the reactor was made critical. At 1730 hours, the reactor was manually scrammed due to a steam leak discovered on the elbow of the continuous heat vent line which could not be isolated. Repairs were made and at 1450 hours on April 16 the reactor was again made critical. Startup procedures were commenced. On April 17 at 0235 hours the mode switch was placed in RUN. While performing testing of the electromatic relief valves, the 3D electromatic relief valve was discovered stuck in the open position. Several attempts were made to close the valve with the keylock switch on panel 901-3 but these were unsuccessful. At 0330 hours, the reactor was manually scrammed. At 0331, an Unusual Event per Emergency Action Level No. 14, Failure of Relief Valve to Reseat was initiated in accordance with the General Site Emergency Plan. At 0753 hours, the unit reached cold shutdown and the unusual event was terminated. The unit remained shutdown while the electromatic relief valve and pilot valve were replaced.

On April 18 at 0830 hours, startup procedures were commenced, and at 1157 hours, the reactor was made critical. At 2100 hours, the mode switch as placed in RUN. On April 19 at 0120 hours, the main generator was synchronized to the grid. A load increase to 250 MEw was taken and held constant to perform weekly turbine/generator surveillances. At 0530 hours, all testing was completed and an ascent to full load was begun, using control rods. At 1305 hours, 820 MWe was achieved.

On April 20 at 1621 hours, power levels were adjusted and the unit was placed in EGC. At 2341 hours, EGC was tripped and a power reduction to 500 MWe was taken at the request of the Chicago Load Dispatcher. On April 21 at 0515 hours, a load increase to full power was taken per the Load Dispatcher. At 0900 hours, 820 MWe was achieved. At 2050 hours, a power reduction to 300 MWe was taken for a drywell entry. At 0030 hours on April 22, the load drop was completed.

At 0435 hours, an ascent to full power was begun with recirculation pumps and control rods. At 0900 hours, full power was achieved. On April 23 at 0045 hours, a power reduction to 776 MWe was taken at the request of the Load Dispatcher. At 1020 hours, the unit was placed in EGC. The unit remained in EGC or operated near full power until April 27. At 0930 hours, EGC was tripped due to the turbine control valves spiking 100 percent open. At 1600 hours, power levels were adjusted and the unit was placed in EGC. On April 28 at 1010 hours, the unit was taken off of EGC, and a power reduction to 750 MWe was tkaen so that Instrument Maintneance could perform testing on the Electro-Hydraulic Contr-l (EHC) system. On April 29 at 0025 hours, power levels were further r ced to 450 MWe at the request of the Load Dispatcher. At 2100 hours, another load reduction to 200 MWe was taken for an EHC system board replacement due to continuous turbine control valve problems.

On April 30 at 0105 hours, the main generator was taken off-line to replace the control valve op amp circuit board. At 0341 hours, the main generator was synchronized to the grid, and a load increase to 450 MWe was taken and held constant through the remainder of the month.

B. Unit Two

Unit Two began the month of April operating in Economic Generation Control (EGC). The unit remained in EGC until April 6 with minor interruptions to perform normal operational activities.

At 0332 hours on April 6, an unanticipated reactor scram occurred while performing weekly turbine/generator testing due to a master trip solenoid valve failure. The "A" pilot solenoid valve of the turbine master trip solenoid valve failed in the de-energized condition. Due to a stuck limit switch, the light indication continued to show the pilot solenoid valve energized. Thus, when the "B" master trip solenoid was tested, a turbine trip occurred. The failed solenoid was rebuilt and the coil and limit switch were replaced.

At 1445 hours on April 6, the reactor was made critical. On April 7 at 0120 hours, the main generator was synchronized to the grid. An ascent to full power was begun, using control rods. At 1855 hours, 818 MWe was achieved. On April 8 at 1650 hours, a power reduction to 750 MWe was taken and at 1855 hours the unit was placed in EGC.

From April 8 through April 14, the unit remained in EGC or operated near full power with minor interruptions to perform normal operational activities and surveillances. On April 14 at 2031 hours, EGC was tripped to perform the monthly control rod drive surveillances. On April 15 at 1631 hours, power levels were adjusted, and the unit was placed in EGC. The unit remained in EGC or operated near full power for normal operational activities until April 22. At 2223 hours, the unit was taken of EGC, and a power reduction to 300 MWe was taken at the request of the Chicago Load Dispatcher. A drywell entry was made to repair leaking valve packing. At 0730 hours on April 23, an ascent to full power was taken. Full power was achieved at 1130 hours.

For the remainder of the month, normal operational activities occurred, with the unit operating near full power or remaining in EGC with minor interruptions to perform routine surveillances.

III. PLANT OR PROCEDURE CHANGES, TESTS, EXPERIMENTS, AND SAFETY RELATED MAINTENANCE

A. Amendments to Facility License or Technical Specifications

There were no Amendments to the Facility License or Technical Specifications for the reporting period.

B. Facility or Procedure Changes Requiring NRC Approval

There were no Facility or Procedure changes requiring NRC approval for the reporting period.

C. Tests and Experiments Requiring NRC Approval

There were no Tests or Experiments requiring NRC approval for the reporting period.

D. Corrective Maintenance of Safety Related Equipment

The following represents a tabular summary of the major safety related maintenance performed on Units One and Two during the reporting period. This summary includes the following: Work Request Numbers, Licensee Event Report Numbers, Components, Cause of Malfunctions, Results and Effects on Safe Operation, and Action Taken to Prevent Repetition.

UNIT 1 MAINTENANCE SUMMARY

WORK REQUEST NO.: Q64149

LER NUMBER: 87-026

COMPONENT: System 1024 - FSAR noncompliance of piping support for line 1-1024A-20"-LX on drawing M-1604-40 Rev. B.

CAUSE OF MALFUNCTION: The cause of the problem was found to be on improperly set spring can.

RESULTS & EFFECTS ON SAFE OPERATION: Safety of the plant and personnel were unaffected because, although the supports were outside FSAR compliance. They were still within operability compliance. RHR was therefore still considered operable.

ACTION TAKEN TO PREVENT REPETITION: Corrective action was to reset spring can in accordance with support drawing M-1606-40 Rev. B.

WORK REQUEST NO.: Q66065

LER NUMBER: NA

COMPONENT: System 1400 - One Spray Discharge Header Hi/Lo pressure instrument broke and was not able to be calibrated.

CAUSE OF MALFUNCTION: While performing a QIS-37 calibration, instrument 1-1467B broke while it was being calibrated. It therefore would not be calibrated to within Tech Specs. The root cause of the pressure switch failure is unknown but speculated to be a buildup of dirt and other foreign material in the switch actuator.

RESULTS & EFFECTS ON SAFE OPERATION: The safety implications of this event are minimal due to the monitoring program initiated immediately after the failure. At no time did the "B" Core Spray discharge pressure drop below the alarm setpoint of 46 psig. Therefore the discharge piping remained filled as required by Tech Specs.

ACTION TAKEN TO PREVENT REPETITION: Work Request Q66065 was initiated to replace the switch. The switch was replaced with a Technically identical switch. Two failures at this switch were found at the Quad-Cities Station in the past ten years and seven were found in an industry NPRDS search. Most of the failures were due to unknown causes.

WORK REQUEST NO.: Q69590

LER NUMBER: NA

COMPONENT: System 1400 - 1A Core Spray pump upper motor bearing oil cooler had leak allowing water to leak into oil.

CAUSE OF MALFUNCTION: The 1A Core Spray was declared inoperable due to water found in the pump motor upper bearing oil reservoir. The cause of the event was found to be a small leak in the sealing material at the fittings of the cooling coil.

RESULTS & EFFECTS ON SAFE OPERATION: Safety significance was minimal because all other ECCS systems were operable as demonstrated by the completion of QOS 1400-01, Core Spray Subsystem Outage Report.

ACTION TAKEN TO PREVENT REPETITION: As a preventive action, the cooling coil is inspected during each refuel outage and operators check the oil level once per shift. Electrical Maintenance was writing a procedure to assist in trouble-shooting such problems. This procedure will have the cooling coil pressurized prior to removal. This assures that the sealing material is also tested.

WORK REQUEST NO.: Q70310

LER NUMBER: NA

COMPONENT: System 1600 - Suppression Pool level recorder gives different reading than that of sight glass. EPN LR-1-1602-7

CAUSE OF MALFUNCTION: Suppression chamber level recorder LR-1-1602-7 was found to be reading +2.1 inches during a HPCI surveillance: After performing a suppression chamber level verification, it was determined that torus level was below + 2 inches. The apparent cause of the event was actual oscillations in torus level.

RESULTS & EFFECTS ON SAFE OPERATION: The safety consequences of the event were minimal because the HPCI surveillance was stopped when a high level reading was received. In addition, since local indication reported a proper torus level, no safety problem occurred.

ACTION TAKEN TO PREVENT REPETITION: Work request Q70310 was written to recalibrate LR-1-1602-7 to agree with other torus level indications. In addition, further operator training will be given to insure that operators are aware of torus level oscillations while performing the HPCI surveillance.

WORK REQUEST NO.: Q70404

LER NUMBER: NA

COMPONENT: System 2400 - 1B DW Rad Monitor failed upscale and downscale for no apparent reason. EPN 1-2419B

CAUSE OF MALFUNCTION: The 1B Drywell Radiation Monitor failed downscale and caused a 1/2 Group II isolation logice trip. The apparent cause of the event was unknown at the time of this report. The cause of the failure was to be known after the completion of Work Request Q70409.

RESULTS & EFFECTS ON SAFE OPERATION: The safety consequences of this event were minimal. Since the monitor was inoperable for only 8 hours, no pre-planned alternate method of monitoring was required.

ACTION TAKEN TO PREVENT REPETITION: Immediate corrective action was to replace the monitor and to reset the Group II isolation. Further corrective action was expected in a supplemental report, but it had not been completed at the time of this report.

WORK REQUEST NO.: Q70581

LER NUMBER: NA

COMPONENT: System 1700 - "B" MSL Rad-Monitor failed downscale.

CAUSE OF MALFUNCTION: The "B" MSL Rad Monitor failed downscale. The alarm was reset. It was found that one of the two Low Voltage Power supplies had failed. The monitor then failed again downscale, and a manual 1/2 scram was initiated. The apparent cause of the failure was an open capacitor in the LVPS which was the cause for the degraded power output. The MSL monitor itself was declared to be operable.

RESULTS & EFFECTS ON SAFE OPERATION: The safety consequences of the event were minimal because all of the MSL rad monitors were functional. The rad monitor with the degraded LVPS had a redundant LVPS which kept the unit fully operable. In addition, operators were able to operate the plant in a safe, stable condition throughout the event.

ACTION TAKEN TO PREVENT REPETITION: Work Request Q70581 was written to investigate and repair the "B" MSL rad monitor. The monitor was replaced with a calibrated spare and it was functionally tested. Therefore the system was declared operable. A review of industry NPRDS data indicated no problem with capacitors. Therefore this event is considered to be an isolated random failure.

WORK REQUEST NO.: Q70586

LER NUMBER: NA

COMPONENT: System 1700 - "B" MSL Rad Monitor Power Failure

CAUSE OF MALFUNCTION: The "B" MSL Rad Monitor failed downscale. The alarm was reset. It was found that one of the two Low Voltage Power supplies had failed. The monitor then failed again downscale, and a manual 1/2 scram was initiated. The apparent cause of the failure was an open capacitor in the LVPS which was the cause for the degraded power output. The MSL monitor itself was declared to be operable.

RESULTS & EFFECTS ON SAFE OPERATION: The safety consequences of the event were minimal because all of the MSL rad monitors were functional. The rad monitor with the degraded LVPS had a redundant LVPS which kept the unit fully operable. In addition, operators were able to operate the plant in a safe, stable condition throughout the event.

ACTION TAKEN TO PREVENT REPETITION: Work Request Q70586 was initiated to repair the LVPS for the rad monitor. A bad capacitor was found and replaced. A review of industry NPRDS data indicated no problem with capacitors. Therefore this event is considered to be an isolated random failure.

WORK REQUEST NO.: Q70891

LER NUMBER: NA

COMPONENT: System 263 - Reactor Level Indicator 1-263-106A was replaced.

CAUSE OF MALFUNCTION: The "A" loop of the 2/3 Core Reactor water level monitor was out of service to perform a partial modification consisting of recalibration. An LCO was entered because the "B" loop was also out for the modification. The 1-263-106A could not be calibrated to the tolerances specified in the modification. The root cause of the event was inadequate planning. The partial mod could not be completed until both loops were successfully calibrated and tested.

RESULTS & EFFECTS ON SAFE OPERATION: The safety significance of this event was considered minimal. During the time that the "A" loop could not be recalibrated the "B" loop was fully functional. Although the "B" loop could not be tested and declared operable, it was within tolerance and would have performed its required function.

ACTION TAKEN TO PREVENT REPETITION: Immediate action was to repair the 1-263-106A indicator. After failure to repair the indicator, the station decided to perform an incomplete mod. This allowed the "B" loop to be tested separately and to be returned to service. Work Request Q70891 was written to repair the "A" loop indicator.

WORK REQUEST NO.: Q72403

LER NUMBER: NA

COMPONENT: System 1000 - Valve 1-1001-34B valve would not open. "B" loop inoperable.

CAUSE OF MALFUNCTION: Upon completion of surveillance testing in preparation for taking the shared Diesel Generator out of service, the RHR MOV-1-1001-34B lost its light indication in the control room when the valve went fully closed. An Equipment Attendant was sent to MLC 19-4 and found the breaker tripped. Three attempts were made to reopen the valve, all resulting in tripping the breaker. The cause of the event was component failure due to sheared motor tie bolts.

RESULTS & EFFECTS ON SAFE OPERATION: The safety consequences of the event were miniaml because the 1-1001-34B valve failed in its safe, normally closed position. Therefore, primary containment was isolated. The valve could have been opened manually if it had been needed. Core Spray and the RHR "A" loop were both operational.

ACTION TAKEN TO PREVENT REPETITION: The MOV was replaced under Work Request Q72425. A procedure had been written to limit the number of times a breaker can be reset and operated after a trip. This problem was an isolated event.

WORK REQUEST NO.: Q73551

LER NUMBER: NA

COMPONENT: System 1700 - Repair MSL Rad Monitor from 1-1705-2C and return it to 1-1705-2C after repair. EPN 1-1705-2C

CAUSE OF MALFUNCTION: A fault in the "C" Main Steam Line Rad Monitor caused a Channel "A" 1/2 Scram and a 1/2 Group I isolation channel trip. An IM Technician found the main chassis fuse blown. It was determined that the cause was a faulty power supply, which blew the fuse and prevented the monitor display from coming on.

RESULTS & EFFECTS ON SAFE OPERATION: The safety consequences were minimal because the other three MSL Rad Monitors were functional to perform this primary function. The blown fuse resulted in a failure in the conservative direction.

ACTION TAKEN TO PREVENT REPETITION: Work Request Q73541 was written to investigate and repair the "C" MSL Rad Monitor. Immediate repair was replacement with a calibrated spare. Work Request Q73551 was written to repair the original rad monitor. Five failures of the power supplies were experienced at the Quad Cities Station, and some failed LVPS's have been submitted to GE for analysis.

WORK REQUEST NO.: Q71567

LER NUMBER: NA

COMPONENT: System 1000 - 1B RHRSW pump inoperable due to low flow.

CAUSE OF MALFUNCTION: During an RHR pump operability surveillance, it was found that the 1B RHRSW pump only pumped 2800 gpm @ 301 psig discharge. This valve was 300 gpm less than the established reference valve. The pump was then declared inoperable. Work Request Q70743 was written to inspect the pump. A small amount of debris was found in the suction of the pump. However, it is not believed that the debris could have caused the pump degradation. The root cause of the problem was not found at the time of this report.

RESULTS & EFFECTS ON SAFE OPERATION: The safety significance was minimal. All other components on containment cooling were operable per Tech Specs.

ACTION TAKEN TO PREVENT REPETITION: Work Request Q70743 was written to remove the debris in the pump. Work Request Q71567 was written to repair the pump. Further corrective action was dependent on the results of a supplemental investigation.

WORK REQUEST NO.: Q72327

LER NUMBER: NA

COMPONENT: System 1000 - MOV-1-1001-36A lost its light indication and tripped thermals.

CAUSE OF MALFUNCTION: While performing the RHR containment cooling valve operability test, the 1-1001-36A MOV lost its light indication in the control room panel while being stroked. It was found that the thermal overload relay for the valve had tripped. The "A" RHR loop was declared inoperable. Initial cause was thought to be undersized thermal overload heaters. Further investigation found that the main contactors were not fully energized during operation, causing an extend heating of the overload heaters.

RESULTS & EFFECTS ON SAFE OPERATION: Safety consequences of the event were minimal because the valve could have been stroked by hand. In addition the upstream valve MOV-1001-34A was fully operable, therefore the primary containment was maintained. The "B" loop was also available for use during the event.

ACTION TAKEN TO PREVENT REPETITION: Immediate action was to insure that the valve was closed. Work Request Q72327 was initiated to upsize the thermal heaters. In addition, the auxiliary contacts were cleaned and lubricated to prevent binding. As a safety precaution, all other MOV's are being checked for proper thermal heater sizing.

WORK REQUEST NO.: Q73717

LER NUMBER: NA

COMPONENT: System 1700 - Sping on 912-4 indicated failure of service water rad monitor. Sample line was found plugged.

CAUSE OF MALFUNCTION: A Liquid Process Radiation Monitor Failure alarm was received in the Control Room. In addition, a "FAIL" light on the SPING terminal was received. The Unit One Service Water Radiation Monitor was declared inoperable after a lack of flow was discovered in the sample line. The cause of the event was the plugging of the sample line to the Service Water Rad Monitor Flow switch.

RESULTS & EFFECTS ON SAFE OPERATION: The safety consequences of this event are minimal due to the Radiation Chemistry Departments routine analysis on the service water return header. Grab samples are pulled every 12 hours, meeting the Tech Specs requirements for an inoperable Service Water Radiation Monitor.

ACTION TAKEN TO PREVENT REPETITION: Immediate action was to remove the Rad Monitor from service. A flush was performed on the sample line, which was plugged with mud. The rad monitor was taken out of service under Work Request Q73717. As a follow-up corrective action, a special test was to be written to look into upgrading the supporting piping of the Rad Monitor.

UNIT 2 MAINTENANCE SUMMARY

WORK REQUEST NO.: Q67628

LER NUMBER: NA

COMPONENT: System 730 - Tip Machine #3 did not fully withdraw during PCI Group II and III test. EPN 2-0730-3

CAUSE OF MALFUNCTION: The #3 TIP machine would not withdraw its detector during PCI Group 2 isolation testing. The cause of the event was attributed to a blown fuse in TIP machine #3 that prevented the TIP Detector from being withdrawn from the reactor core. The inability to withdrawal the detector prevented the closing of the TIP ball valve.

RESULTS & EFFECTS ON SAFE OPERATION: Safety consequences of this event were minimal because the key lock shear valve located downstream of the ball valve was fully functional. In the event that a Group II Isolation occurred with the failed fuse in place, the the TIP machine #3 detector in the core, the instrument line could have been isolated by actuating the shear valve.

ACTION TAKEN TO PREVENT REPETITION: Work Request Q67628 was initiated to investigate the problem. The brown fuse was replaced, but there were no other problems found. The Station deemed that no further corrective action was required.

WORK REQUEST NO.: Q67675

LER NUMBER: 88-023

COMPONENT: System 7800 - Testing auto transfer for MCC 28/29-5

CAUSE OF MALFUNCTION: During a modification test for M-4-2-88-06A, motor control center MCC 28/29-5 would not automatically transfer from the Bus 29 to the Bus 28 feed. A wire was found not landed per the approved electrical drawing. The cause was believed to be installation error during original plant construction.

RESULTS & EFFECTS ON SAFE OPERATION: The auto transfer function of MCC 28/29-5 is needed in the event of a LOCA concurrent with a loss of offsite power and a failure of the Unit 2 Diesel. In this event, a failure would result in an inability to supply power to the RHR injection valves. However, MCC 28/29-5 can still be changed manually.

ACTION TAKEN TO PREVENT REPETITION: Work Request Q67675 was initiated to land the cable number 22373 to terminal point E-76 in the 902-8 panel. A visual inspection was done on the Unit One wiring to insure that the same problem did not exist in the MCC 18/19-5 transfer logic. An action plan for reviewing untested components for failure was also initiated.

WORK REQUEST NO.: Q69316, Q69317

LER NUMBER: 88-013

COMPONENT: System 5700 - Replaced fan belts on 2A and 2B CS Room Cooler. EPN 2-5748-A and 2-5748-B

CAUSE OF MALFUNCTION: While performing normal operating rounds per procedure QOS 005-S14, The EA found the Unit One "A" Core Spray room cooler was off and was unable to be started manually. Inspection showed one belt to be broken and the other to be off the pulley. The cause of the event was found to be insufficient preventative maintenance.

RESULTS & EFFECTS ON SAFE OPERATION: The safety of the plant and operating personnel was not affected during this event. The Unit One HPCI and LPCI systems were successfully tested after finding the 1A Core Spray room cooler inoperable. Therefore, all other ECC systems including the "B" loop of Core Spray were operable throughout the event.

ACTION TAKEN TO PREVENT REPETITION: The immediate corrective action was to re-install the loose fan belt and operate the room cooler temporarily on one fan belt. Work requests have been written for both Units 1 and 2 to replace room coolers on the HPCI, RHR, and Core Spray Systems. The fan belts will be replaced every refuel outage. Work Requests Q69316 and Q69317 were written to replace the U-2 2A and 2B CS room cooler belts.

WORK REQUEST NO.: Q69320

LER NUMBER: 88-013

COMPONENT: System 5700 - Replaced fan belts on HPCI Room Cooler. EPN 2-5747.

CAUSE OF MALFUNCTION: While performing normal operating rounds per procedure QOS 005-S14, the EA found the Units One "A" Core Spray room cooler was off and was unable to be started manually. Inspection showed one belt to be broken and the other to be off the pulley. The cause of the event was found to be insufficient preventative maintenance.

RESULTS & EFFECTS ON SAFE OPERATION: The safety of the plant and operating personnel was not affected during this event. The Unit One HPCI and LPCI systems were successfully tested after finding the 1A Core Spray room cooler inoperable. Therefore, all other ECC systems including the "B" loop of Core Spray were operable throughout the event.

ACTION TAKEN TO PREVENT REPETITION: The immediate corrective action was to re-install the loose fan belt and operate the room cooler temporarily on one fan belt. Work requests have been written for both Units 1 and 2 to replace room coolers on the HPCI, RHR, and Core Spray Systems. The fan belts will be replaced every refuel outage. Work Request Q69320 was written to replace the U-2 HPCI room cooler belts.

WORK REQUEST NO.: Q69323, Q69324

LER NUMBER: 88-013

COMPONENT: System 5700 - Replaced fan belts on 2A and 2B RHR Room Cooler. EPN 2-5746-A and 2-5746-B

CAUSE OF MALFUNCTION: While performing normal operating rounds per procedure QOS 005-S14, the EA found the Units One "A" Core Spray room cooler was off and was unable to be started manually. Inspection showed one belt to be broken and the other to be off the pulley. The cause of the event was found to be insufficient preventative maintenance.

RESULTS & EFFECTS ON SAFE OPERATION: The safety of the plant and operating personnel was not affected during this event. The Unit One HPCI and LPCI systems were successfully tested after finding the 1A Core Spray room cooler inoperable. Therefore, all other ECC systems including the "B" loop of Core Spray were operable throughout the event.

ACTION TAKEN TO PREVENT REPETITION: The immediate corrective action was to re-install the loose fan belt and operate the room cooler temporarily on one fan belt. Work requests have been written for both Units 1 and 2 to replace room coolers on the HPCI, RHR, and Core Spray Systems. The fan belts will be replaced every refuel outage. Work Requests Q69323 and Q69324 were written to replace the 2A and 2B RHR room cooler belts.

IV. LICENSEE EVENT REPORTS

The following is a tabular summary of all licensee event reports for Quad-Cities Units One and Two occurring during the reporting period, pursuant to the reportable occurrence reporting requirements as set forth in sections 6.6.B.1. and 6.6.B.2. of the Technical Specifications.

UNIT 1

Licensee Event Report Number	DATE	Title of Occurrence
89-003	4-12-89	Manual Scram, EHC problems
89-004	4-17-89	Manual Scram, Stuck open on Relief valve
89-005	4-17-89	Control Room Emergency Air Filtration Unit inoperable

UNIT 2

89-001	4-06-89	Turbine Trip - Reactor Scram while testing Turbine Master trip solenoid

V. DATA TABULATIONS

The following data tabulations are presented in this report:

A. Operating Data Report

B. Average Daily Unit Power Level

C. Unit Shutdowns and Power Reductions

APPENDIX C

OPERATING DATA REPORT

DOCKET NO. 50-254

UNIT One

DATE May 4, 1989

COMPLETED BY Lynne Deelsnyder

TELEPHONE 309-654-2241

OPERATING STATUS 0000 040189

1. REPORTING PERIOD: 2400 043089 GROSS HOURS IN REPORTING PERIOD: 719
2. CURRENTLY AUTHORIZED POWER LEVEL (MWt): 2511 MAX. DEPEND. CAPACITY (MWe-Net): 769
   DESIGN ELECTRICAL RATING (MWe-Net): 789
3. POWER LEVEL TO WHICH RESTRICTED (IF ANY) (MWe-Net): N/A
4. REASONS FOR RESTRICTION (IF ANY):

	THIS MONTH	YR TO DATE	CUMULATIVE
5. NUMBER OF HOURS REACTOR WAS CRITICAL	594.0	2754	120296.2
6. REACTOR RESERVE SHUTDOWN HOURS	0.0	0.0	3421.9
7. HOURS GENERATOR ON LINE	558.7	2718.7	116377.9
8. UNIT RESERVE SHUTDOWN HOURS	0.0	0.0	909.2
9. GROSS THERMAL ENERGY GENERATED (MWH)	1251955	6354331	248044410
10. GROSS ELECTRICAL ENERGY GENERATED (MWH)	406635	2073635	80431248
11. NET ELECTRICAL ENERGY GENERATED (MWH)	387911	1985984	75551258
12. REACTOR SERVICE FACTOR	82.6	95.7	80.9
13. REACTOR AVAILABILITY FACTOR	82.6	95.7	83.2
14. UNIT SERVICE FACTOR	77.7	94.4	78.2
15. UNIT AVAILABILITY FACTOR	77.7	94.4	78.8
16. UNIT CAPACITY FACTOR (Using MDC)	70.2	89.7	66.0
17. UNIT CAPACITY FACTOR (Using Design MWe)	68.4	87.4	64.4
18. UNIT FORCED OUTAGE RATE	22.3	5.6	5.4

19. SHUTDOWNS SCHEDULED OVER NEXT 6 MONTHS (TYPE, DATE, AND DURATION OF EACH):

20. IF SHUT DOWN AT END OF REPORT PERIOD, ESTIMATED DATE OF STARTUP:

21. UNITS IN TEST STATUS (PRIOR TO COMMERCIAL OPERATION):

	FORECAST	ACHIEVED
INITIAL CRITICALITY		
INITIAL ELECTRICITY		
COMMERCIAL OPERATION		

APPENDIX C

OPERATING DATA REPORT

DOCKET NO. 50-265

UNIT Two

DATE May 4, 1989

COMPLETED BY Lynne Deelsnyder

TELEPHONE 309-654-2241

OPERATING STATUS 0000 040189

1. REPORTING PERIOD: 2400 043089 GROSS HOURS IN REPORTING PERIOD: 719
2. CURRENTLY AUTHORIZED POWER LEVEL (MWt): 2511 MAX. DEPEND. CAPACITY (MWe-Net): 769
   DESIGN ELECTRICAL RATING (MWe-Net): 789
3. POWER LEVEL TO WHICH RESTRICTED (IF ANY) (MWe-Net): N/A
4. REASONS FOR RESTRICTION (IF ANY):

	THIS MONTH	YR TO DATE	CUMULATIVE
5. NUMBER OF HOURS REACTOR WAS CRITICAL	707.8	2810.7	113760.6
6. REACTOR RESERVE SHUTDOWN HOURS	0.0	0.0	2985.8
7. HOURS GENERATOR ON LINE	697.2	2791.8	110523.5
8. UNIT RESERVE SHUTDOWN HOURS	0.0	0.0	702.9
9. GROSS THERMAL ENERGY GENERATED (MWH)	1590552	6423104	237333377
10. GROSS ELECTRICAL ENERGY GENERATED (MWH)	519257	2103021	76036492
11. NET ELECTRICAL ENERGY GENERATED (MWH)	497324	2015816	71752393
12. REACTOR SERVICE FACTOR	98.4	97.6	76.9
13. REACTOR AVAILABILITY FACTOR	98.4	97.6	78.9
14. UNIT SERVICE FACTOR	97.0	97.0	74.7
15. UNIT AVAILABILITY FACTOR	97.0	97.0	75.2
16. UNIT CAPACITY FACTOR (Using MDC)	89.9	91.1	63.1
17. UNIT CAPACITY FACTOR (Using Design MWe)	87.7	88.7	61.5
18. UNIT FORCED OUTAGE RATE	3.0	3.0	8.3

19. SHUTDOWNS SCHEDULED OVER NEXT 6 MONTHS (TYPE, DATE, AND DURATION OF EACH):

20. IF SHUT DOWN AT END OF REPORT PERIOD, ESTIMATED DATE OF STARTUP: _____

21. UNITS IN TEST STATUS (PRIOR TO COMMERCIAL OPERATION):

	FORECAST	ACHIEVED
INITIAL CRITICALITY	_____	_____
INITIAL ELECTRICITY	_____	_____
COMMERCIAL OPERATION	_____	_____

APPENDIX B
AVERAGE DAILY UNIT POWER LEVEL

DOCKET NO. 50-254
UNIT One
DATE 5-5-89
COMPLETED BY Lynne Deelsnyder
TELEPHONE 309-654-2241

MONTH April, 1989

DAY	AVERAGE DAILY POWER LEVEL (MWe-Net)	DAY	AVERAGE DAILY POWER LEVEL (MWe-Net)
1	727	17	- 10
2	707	18	16
3	744	19	527
4	722	20	744
5	758	21	666
6	796	22	634
7	739	23	709
8	715	24	719
9	728	25	722
10	743	26	717
11	763	27	735
12	289	28	724
13	- 11	29	541
14	- 10	30	282
15	- 11	31	
16	- 11		

INSTRUCTIONS

On this form, list the average daily unit power level in MWe-Net for each day in the reporting month. Compute to the nearest whole megawatt.

These figures will be used to plot a graph for each reporting month. Note that when maximum dependable capacity is used for the net electrical rating of the unit, there may be occasions when the daily average power level exceeds the 100% line (or the restricted power level line). In such cases, the average daily unit power output sheet should be footnoted to explain the apparent anomaly.

APPENDIX B
AVERAGE DAILY UNIT POWER LEVEL

DOCKET NO. 50-265
UNIT Two
DATE 5-5-89
COMPLETED BY Lynne Deelsnyder
TELEPHONE 309-654-2241

MONTH April, 1989

DAY	AVERAGE DAILY POWER LEVEL (MWe-Net)	DAY	AVERAGE DAILY POWER LEVEL (MWe-Net)
1	716	17	747
2	685	18	723
3	707	19	727
4	714	20	704
5	712	21	722
6	88	22	706
7	578	23	588
8	763	24	747
9	722	25	756
10	733	26	712
11	745	27	710
12	748	28	706
13	714	29	672
14	720	30	684
15	787	31	
16	708		

INSTRUCTIONS

On this form, list the average daily unit power level in MWe-Net for each day in the reporting month. Compute to the nearest whole megawatt.

These figures will be used to plot a graph for each reporting month. Note that when maximum dependable capacity is used for the net electrical rating of the unit, there may be occasions when the daily average power level exceeds the 100% line (or the restricted power level line). In such cases, the average daily unit power output sheet should be footnoted to explain the apparent anomaly.

ID/5A

APPENDIX D
UNIT SHUTDOWNS AND POWER REDUCTIONS

QTP 300-S13
Revision 6
August 1982

DOCKET NO. 50-254

UNIT NAME QUAD-CITIES UNIT ONE

COMPLETED BY L. DEELSNYDER

DATE May 5, 1989

REPORT MONTH April, 1989

TELEPHONE 309-654-2241

NO.	DATE	TYPE F OR S	DURATION (HOURS)	REASON	METHOD OF SHUTTING DOWN REACTOR	LICENSEE EVENT REPORT NO.	SYSTEM CODE	COMPONENT CODE	CORRECTIVE ACTIONS/COMMENTS
89-1	890412	F	157.7	A	2	89-003	HE	VALVEX	Reactor Manually Scrammed Due To Turbine Bypass Valves Opening
89-2	890429	F	0.0	A	5	-------	HE	INSTRU	Power Reduction Taken To Replace Electro-Hydraulic Control Board
89-3	890430	F	2.6	A	5	-------	HE	INSTRU	Generator Off-Line To Replace Control Valve Op Amp Circuit Board

APPROVED
AUG 16 1982
QCOSR

ID/5A

APPENDIX D
UNIT SHUTDOWNS AND POWER REDUCTIONS

QTP 300-S13
Revision 6
August 1982

DOCKET NO. 50-265

UNIT NAME QUAD-CITIES UNIT TWO

COMPLETED BY L. DEELSNYDER

DATE May 4, 1989

REPORT MONTH April, 1989

TELEPHONE 309-654-2241

NO.	DATE	TYPE F OR S	DURATION (HOURS)	REASON	METHOD OF SHUTTING DOWN REACTOR	LICENSEE EVENT REPORT NO.	SYSTEM CODE	COMPONENT CODE	CORRECTIVE ACTIONS/COMMENTS
89-4	890406	F	21.8	A	3	89-001	HA	VALVEX	Reactor Auto-Scrammed Due To Master Trip Solenoid Valve Failure During Testing
89-5	890423	F	0.0	A	5	-------	HC	VALVCX	Power Reduction Taken for Drywell Entry Due to Leaking Valve Packing

APPROVED
AUG 16 1982
QCOSR

VI. UNIQUE REPORTING REQUIREMENTS

The following items are included in this report based on prior commitments to the commission:

A. Main Steam Relief Valve Operations

Relief valve operations during the reporting period are summarized in the following table. The table includes information as to which relief valve was actuated, how it was actuated, and the circumstances resultng in its actuation.

Unit: One

Date: April 17, 1989

Valves Actuated	No. & Type of Actuation
1-203-3A	1 Manual
1-203-3B	1 Manual
1-203-3C	1 Manual
1-203-3D	1 Manual

Plant Conditions: Reactor Pressure - 921 psig

Description of Events: Technical Specification 4.5.D.1.a

Unit: One

Date: April 18, 1989

Valves Actuated	No. & Type of Actuation
1-203-3B	1 Manual
1-203-3D	1 Manual
1-20 -3E	1 Manual

Plant Conditions: Reactor Pressure - 920 psig

Description of Events: Technical Specification 4.5.D.1.a

B. Control Rod Drive Scram Timing Data For Units One and Two

There was no Control Rod Drive Scram Timing Data for Units One and Two for the reporting period.

VII. REFUELING INFORMATION

The following information about future reloads at Quad-Cities Station was requested in a January 26, 1978, licensing memorandum (78-24) from D. E. O'Brien to C. Reed, et al., titled "Dresden, Quad-Cities, and Zion Station--NRC Request for Refueling Information", dated January 18, 1978.

QTP 300-S32
Revision 1
March 1978

QUAD-CITIES REFUELING INFORMATION REQUEST

*

1. Unit: Q1 Reload: 9 Cycle: 10

2. Scheduled date for next refueling shutdown: 9-9-89

3. Scheduled date for restart following refueling: 12-11-89

4. Will refueling or resumption of operation thereafter require a technical specification change or other license amendment:

   NOT AS YET DETERMINED.

5. Scheduled date(s) for submitting proposed licensing action and supporting information:

   JUNE 10, 1989

6. Important licensing considerations associated with refueling, e.g., new or different fuel design or supplier, unreviewed design or performance analysis methods, significant changes in fuel design, new operating procedures:

   NONE AT PRESENT TIME.

7. The number of fuel assemblies.

   a. Number of assemblies in core: 724

   b. Number of assemblies in spent fuel pool: 1773

8. The present licensed spent fuel pool storage capacity and the size of any increase in licensed storage capacity that has been requested or is planned in number of fuel assemblies:

   a. Licensed storage capacity for spent fuel: 3657

   b. Planned increase in licensed storage: 0

9. The projected date of the last refueling that can be discharged to the spent fuel pool assuming the present licensed capacity: 2008

APPROVED
APR 20 1978
Q.C.O.S.R.

QTP 300-S32
Revision 1
March 1978

QUAD-CITIES REFUELING INFORMATION REQUEST

*

1. Unit: Q2 Reload: 9 Cycle: 10

2. Scheduled date for next refueling shutdown: 2-3-90

3. Scheduled date for restart following refueling: 5-7-90

4. Will refueling or resumption of operation thereafter require a technical specification change or other license amendment:

   NOT AS YET DETERMINED.

5. Scheduled date(s) for submitting proposed licensing action and supporting information:

   NOVEMBER 2, 1990

6. Important licensing considerations associated with refueling, e.g., new or different fuel design or supplier, unreviewed design or performance analysis methods, significant changes in fuel design, new operating procedures:

   NONE AT PRESENT TIME.

7. The number of fuel assemblies.

   a. Number of assemblies in core: 724

   b. Number of assemblies in spent fuel pool: 1475

8. The present licensed spent fuel pool storage capacity and the size of any increase in licensed storage capacity that has been requested or is planned in number of fuel assemblies:

   a. Licensed storage capacity for spent fuel: 3897

   b. Planned increase in licensed storage: 0

9. The projected date of the last refueling that can be discharged to the spent fuel pool assuming the present licensed capacity: 2008

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APR 20 1978

Q.C.O.S.R.

VIII. GLOSSARY

The following abbreviations which may have been used in the Monthly Report, are defined below:

ACAD/CAM	-	Atmospheric Containment Atmospheric Dilution/Containment Atmospheric Monitoring
ANSI	-	American National Standards Institute
APRM	-	Average Power Range Monitor
ATWS	-	Anticipated Transient Without Scram
BWR	-	Boiling Water Reactor
CRD	-	Control Rod Drive
EHC	-	Electro-Hydraulic Control System
EOF	-	Emergency Operations Facility
GSEP	-	Generating Stations Emergency Plan
HEPA	-	High-Efficiency Particulate Filter
HPCI	-	High Pressure Coolant Injection System
HRSS	-	High Radiation Sampling System
IPCLRT	-	Integrated Primary Containment Leak Rate Test
IRM	-	Intermediate Range Monitor
ISI	-	Inservice Inspection
LER	-	Licensee Event Report
LLRT	-	Local Leak Rate Test
LPCI	-	Low Pressure Coolant Injection Mode of RHRS
LPRM	-	Local Power Range Monitor
MAPLHGR	-	Maximum Average Planar Linear Heat Generation Rate
MCPR	-	Minimum Critical Power Ratio
MFLCPR	-	Maximum Fraction Limiting Critical Power Ratio
MPC	-	Maximum Permissible Concentration
MSIV	-	Main Steam Isolation Valve
NIOSH	-	National Institute for Occupational Safety and Health
PCI	-	Primary Containment Isolation
PCIOMR	-	Preconditioning Interim Operating Management Recommendations
RBCCW	-	Reactor Building Closed Cooling Water System
RBM	-	Rod Block Monitor
RCIC	-	Reactor Core Isolation Cooling System
RHRS	-	Residual Heat Removal System
RPS	-	Reactor Protection System
RWM	-	Rod Worth Minimizer
SBGTS	-	Standby Gas Treatment System
SBLC	-	Standby Liquid Control
SDC	-	Shutdown Cooling Mode of RHRS
SDV	-	Scram Discharge Volume
SRM	-	Source Range Monitor
TBCCW	-	Turbine Building Closed Cooling Water System
TIP	-	Traversing Incore Probe
TSC	-	Technical Support Center