

RAR-91-23

June 3, 1991

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

SUBJECT: Quad Cities Nuclear Station Units 1 and 2  
Monthly Performance Report  
NRC Docket Nos. 50-254 and 50-265

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 May 1991.

Respectfully,

COMMONWEALTH EDISON COMPANY  
QUAD-CITIES NUCLEAR POWER STATION

*R.A. Robry*

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Technical Superintendent

RAR/CALS/dak

Enclosure

cc: A. B. Davis, Regional Administrator  
T. Taylor, Senior Resident Inspector

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QUAD-CITIES NUCLEAR POWER STATION

UNITS 1 AND 2

MONTHLY PERFORMANCE REPORT

APRIL 1991

COMMONWEALTH EDISON COMPANY

AND

IOWA-ILLINOIS GAS & ELECTRIC COMPANY

NRC DOCKET NOS. 50-254 AND 50-265

LICENSE NOS. DPR-29 AND DPR-30

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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 Cynthia A. Losek-Short and Debra Kelley, telephone number 309-654-2241, extensions 2938 and 2240.

## II. SUMMARY OF OPERATING EXPERIENCE

### A. Unit One

Unit One began the month of May with the performance of start-up testing and scram timing. The Unit operated at or near full power for the rest of the month except on May 19th and May 22nd thru the end of the month. The load drop on the 19th was due to FCL determination and the shutdown that occurred from the 22nd to the end of the month was due to a unit main transformer problem.

### B. Unit Two

Unit Two began the month of May operating in Economic Generation Control (EGC). The unit remained in EGC for the month except for two power drops occurring May 5th and May 27th. These power drops were due to control rod scram timing on the 5th and Chicago Load Dispatch request on the 27th.

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

<u>WORK REQUEST</u>	<u>SYSTEM</u>	<u>EID DESCRIPTION</u>	<u>WORK PERFORMED</u>
Q91239	7506	Inspect motor for inappropriate mixture of grease in bearings.	As Found: Motor winding had grease on drive end and opposite end had splattering from over greasing. As Left: Rotor and end bells were removed for bearing replacement. Installed new bearings and greased with Chevron SI R-2, reassembled motor and installed it.
Q84821	7509	Access hatch for Standby Gas Treatment has leak, between fan and MO 1/2-7507B investigate and repair.	As Left: Sealed the hatch gasket with tape.
Q88226	7541	Clean out transmitter for 1/2-7541-6B SBT B Train. Check for dirt and oil on nozzle.	As Left: Cleaned both regulators and replaced lower gasket on the flow inlet controller 1/2-7541-7B. For 1/2-7541-6B flow transmitter cleaned and adjusted regulator to 25 PSIG. Cleaned relay in 1/2-7541-7B and checked calibration.
Q76738	0302	Repair original detector taken out under Q76739.	As Left: Replaced capacitor on CI board still did not work and was then rejected to vendor.
Q93052	0311	Investigate and repair nitrogen leak by the stem of 1-0302-111 valve.	As Found: The valve stem was loose in the bonnet. As Left: Replaced whole valve bonnet with new assembly.
Q92920	2303	Repair long bushing in stuffing box which has a broken pin.	As Found: The lower bushing has a sheared anti-rotation pin and bushing has been pushed out of stuffing box. As Left: Cleaned gasket surfaces, lapped stuffing box, compressed gasket within the stuffing box. Reassembled bonnet torqued to final 1200 ft lbs and stuffing box was at a final torque of 50 ft lbs with new pin installed.
Q92901	7504	Replace Cable #29999 from MCC 29-4 to Standby Gas Treatment Panel 2212-29A.	As Left: Pulled new cable from 2312-29A panel to MCC 29-4. Meggered new cable and relabeled old cable 29999 to 29985. Left old cable in cable trays and then lugged and landed new cable 29999. Also, performed cable functional test on new cable.

UNIT 2 MAINTENANCE SUMMARY

<u>WORK REQUEST</u>	<u>SYSTEM</u>	<u>EID DESCRIPTION</u>	<u>WORK PERFORMED</u>
Q91970	0762	Repair IRM pre-amp originally from IRM 17 SER #6, 339, 514 (excessive noise at Hi end of amp.)	As Left: Rejected to vendor.
Q91099	1640	Repair or replace Category I recorder 1-1640-209B which doesn't make any mark on chart.	As Found: Ink wheel dry. As Left: Scraped dried ink off ink wheel and reinked, later determined that print head is worn out. The recorder only prints when ink is first applied and is very wet with ink since the print wheel is not striking hard enough. Calibrated and installed new recorder.
Q84272	2402	Return 2-2402A monitor cell to vendor for repairs.	As Left: Rejected to vendor.
Q91890	5401	Repair solenoid valve exhaust port which is blowing air.	As Found: Oiler found leaking when air was returned to service. As Left: Replaced oil solenoid valve with new one.



#### 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

<u>Licensee Event Report Number</u>	<u>Date</u>	<u>Title of Occurrence</u>
91-012	05-07-91	Failure of HPCI to initiate during QCOS 2300-13.

##### UNIT 2

There were no licensee event reports for Units 2 for this reporting period.

## 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. 50-754  
Unit One  
Date June 3, 1991  
Completed By Cynthia Losek-Short  
Telephone 309-654-2241

OPERATING STATUS

1. Reporting Period 0000 050191  
2400 053091 Gross Hours in Report Period: 720
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	505.6	621.2	132103.1
6. Reactor Reserve Shutdown Hours	0.0	0.0	3421.9
7. Hours Generator On Line	505.6	533.5	127902.8
8. Unit Reserve Shutdown Hours	0.0	0.0	909.2
9. Gross Thermal Energy Generated (MWh)	1079784.0	1112856.0	273844296.0
10. Gross Electrical Energy Generated (MWh)	353533.0	356718.0	88750572.0
11. Net Electrical Energy Generated (MWh)	340254.0	321534.0	83495775.0
12. Reactor Service Factor	70.2	17.3	78.8
13. Reactor Availability Factor	70.2	17.3	80.8
14. Unit Service Factor	70.2	14.8	76.3
15. Unit Availability Factor	70.2	14.8	76.8
16. Unit Capacity Factor (Using MDC)	61.5	11.6	64.7
17. Unit Capacity Factor (Using Design MWe)	59.9	11.3	63.1
18. Unit Forced Outage Rate	0.0	0.0	5.3

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 C

## OPERATING DATA REPORT

Docket No. 50-265  
Unit Two  
Date June 3, 1991  
Completed By Cynthia Losek-Short  
Telephone 309-654-2241

### OPERATING STATUS

- 0000 050191  
1. Reporting Period 2400 053091 Gross Hours in Report Period: 720  
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	720.0	3143.0	128832.2
6. Reactor Reserve Shutdown Hours	0.0	0.0	2985.8
7. Hours Generator On Line	720.0	3112.5	125399.5
8. Unit Reserve Shutdown Hours	0.0	0.0	702.9
9. Gross Thermal Energy Generated (MWh)	1748947.0	7346248.0	270577569.0
10. Gross Electrical Energy Generated (MWh)	554561.0	2387127.0	86848334.0
11. Net Electrical Energy Generated (MWh)	536538.0	2310146.0	82140698.0
12. Reactor Service Factor	100.0	87.3	77.5
13. Reactor Availability Factor	100.0	87.3	79.3
14. Unit Service Factor	100.0	86.5	75.5
15. Unit Availability Factor	100.0	86.5	75.9
16. Unit Capacity Factor (Using MDC)	96.9	83.4	64.3
17. Unit Capacity Factor (Using Design MWe)	94.4	81.3	62.7
18. Unit Forced Outage Rate	0.0	13.2	8.0

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 June 3, 1991  
Completed By Cynthia Short  
Telephone 309-654-2241

MONTH APRIL

DAY AVERAGE DAILY POWER LEVEL  
(MWe-Net)

1	146
2	292
3	409
4	666
5	670
6	673
7	749
8	800
9	798
10	798
11	798
12	796
13	796
14	796
15	794
16	793

DAY AVERAGE DAILY POWER LEVEL  
(MWe-Net)

17	792
18	794
19	455
20	736
21	676
22	3
23	-7
24	-7
25	-7
26	-7
27	-7
28	-7
29	-7
30	-7
31	

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 June 3, 1991  
Completed By Cynthia Short  
Telephone 309-654-2241

MONTH APRIL

DAY AVERAGE DAILY POWER LEVEL  
(MWe-Net)

1	752
2	744
3	732
4	707
5	648
6	754
7	740
8	738
9	754
10	754
11	732
12	735
13	774
14	772
15	771
16	764

DAY AVERAGE DAILY POWER LEVEL  
(MWe-Net)

17	745
18	730
19	719
20	764
21	770
22	780
23	773
24	766
25	731
26	730
27	688
28	760
29	763
30	750
31	

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 D  
UNIT SHUTDOWNS AND POWER REDUCTIONS**

DOCKET NO. 50-254      **COMPLETED BY** Cynthia A. Losek-Short

**UNIT NAME** Quad-Cities Unit One      **TELEPHONE** 309-654-2241

**DATE** June 3, 1991      **REPORT MONTH** May, 1991

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
91-02	910519	F	15.8	B	4	- - - -	- - - -	- - - -	Load Drop Due to FCL Determination
91-03	910522	F	214.3	B	2	- - - -	- - - -	- - - -	Shutdown Due to Unit Main Transformer Problem

**APPENDIX D**  
**UNIT SHUTDOWNS AND POWER REDUCTIONS**

**DOCKET NO.** 50-265

**UNIT NAME** Quad-Cities Unit Two

**DATE** June 3, 1991

**COMPLETED BY** Cynthia A. Losek-Short

**TELEPHONE** 309-654-2241

**REPORT MONTH** May, 1991

NO.	DATE	TYPE T OR S	DURATION (HOURS)	REASON	METHOD OF SHUTTING DOWN REACTOR	LICENSEE EVENT REPORT NO.	SYSTEM CODE	COMPONENT CODE	CORRECTIVE ACTIONS/COMMENTS
91-08	910505	S	11.7	B	-	-	-	-	Load Drop for Control Rods Scram Timing
91-09	910527	S	7.4	H	-	-	-	-	Load Drop Requested per Chicago Load Dispatcher



## 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

There were no Main Steam Relief Valve Operations for the reporting period.

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

The basis for reporting this data to the Nuclear Regulatory Commission are specified in the surveillance requirements of Technical Specifications 4.3.C.1 and 4.3.C.2.

The following table is a complete summary of Units One and Two Control Rod Drive Scram Timing for the reporting period. All scram timing was performed with reactor pressure greater than 800 PSIG.

RESULTS OF SCRAM TIMING MEASUREMENTS  
PERFORMED ON UNIT 1 & 2 CONTROL  
ROD DRIVES, FROM 1-1-91 TO 12/31/91

DATE	NUMBER OF RODS	AVERAGE TIME IN SECONDS AT % INSERTED FROM FULLY WITHDRAWN				MAX. TIME FOR 90% INSERTION	DESCRIPTION
		5 0.375	20 0.900	50 2.00	90 3.5		
						7 sec.	Technical Specification 3.3.C.1 & 3.3.C.2 (Average Scram Insertion Time)
1-30-91	1	0.28	0.63	1.37	2.45	H-7 (2.45)	U2 scram timing for accumulator replacement on H-7
1-30-91	1	0.30	0.72	1.53	2.67	F-6 (2.67)	U2 scram timing for accumulator replacement on F-6
4-30-91	22/177	0.29	0.67	1.46	2.57	H-11 (3.0)	U', Hot Scram Timing during Start Up Sequence A&B, Cycle 12 (Partial)
5-2-91	177	0.29	0.67	1.44	2.55	R-10 (3.27)	U1 Start Up Scram Timing Begin Cycle 12
5-5-91	89	0.31	0.68	1.43	2.51	B-4 (2.84)	U2 Scram Timing For Sequence A
5-6-91	1	0.26	0.62	1.40	2.52	E-12 (2.52)	U1 Scram Timing for WR on Scram Light

scramtim

## 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.

QUAD CITIES REFUELING  
INFORMATION REQUEST

QTP 300-S32  
Revision 2  
October 1989

1. Unit: Q1 Reload: 11 Cycle: 12
2. Scheduled date for next refueling shutdown: 9-5-92
3. Scheduled date for restart following refueling: 12-5-92
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:  
NOT AS YET DETERMINED.
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: 1405
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: 2009

QUAD CITIES REFUELING  
INFORMATION REQUEST

QTP 300-S32  
Revision 2  
October 1989

1. Unit: Q2 Reload: 10 Cycle: 11
2. Scheduled date for next refueling shutdown: 12-28-91
3. Scheduled date for restart following refueling: 3-7-92
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:  
  
NOT AS YET DETERMINED.
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: 2287
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: 2009

## 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
PCOMR	- 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