

QUAD-CITIES NUCLEAR POWER STATION  
UNITS 1 AND 2  
MONTHLY PERFORMANCE REPORT  
AUGUST, 1987  
COMMONWEALTH EDISON COMPANY  
AND  
IOWA-ILLINOIS GAS & ELECTRIC COMPANY  
NRC DOCKET NOS. 50-254 AND 50-265  
LICENSE NOS. DPR-29 AND DPR-30

8710290126 870831  
PDR ADOCK 05000254  
R PDR

0027H/0061Z

IE24  
11

## TABLE OF CONTENTS

- I. Introduction
- II. Summary of Operating Experience
  - A. Unit One
  - B. Unit Two
- III. Plant or Procedure Changes, Tests, Experiments, and Safety Related Maintenance
  - A. Amendments to Facility License or Technical Specifications
  - B. Facility or Procedure Changes Requiring NRC Approval
  - C. Tests and Experiments Requiring NRC Approval
  - D. Corrective Maintenance of Safety Related Equipment
- IV. Licensee Event Reports
- V. Data Tabulations
  - A. Operating Data Report
  - B. Average Daily Unit Power Level
  - C. Unit Shutdowns and Power Reductions
- VI. Unique Reporting Requirements
  - A. Main Steam Relief Valve Operations
  - B. Control Rod Drive Scram Timing Data
- VII. Refueling Information
- VIII. Glossary

## 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 Verna Koselka and Kurt Schmidt, telephone number 309-654-2241, extensions 2240 and 2147.



## II. SUMMARY OF OPERATING EXPERIENCE

### A. Unit One

#### August 1-15

Unit One began the month holding load. At 0130 on August 1 a load reduction to a minimum of 500 MWe was initiated to facilitate a control rod pattern adjustment. Following the pattern adjustment a slow load ascent was begun at 0530 and continued until 1125 on August 2 when more required rod movements caused a slight load reduction. The load ascent was resumed at 1200 and continued until 1250 on August 3. Load was held at 788 MWe until 2203. Load was reduced to 589 MWe by 2305 in order to reduce the downstream river temperature to below 86°F. Reduced load was held until 1140 on August 4 and this raised to 720 MWe by 1230. A slow load ascent continued and the unit reached full load at 0400 on August 5. Full load was held until August 8. At 0045 a load reduction to a minimum of 550 MWe was performed to allow control rod pattern adjustments. The pattern adjustments were performed from 0255 to 0355 and at 0422 an ascent to full load was begun. Full load was achieved at 2140 and held until 0550 on August 9. Power was reduced rapidly by reducing recirc pump speed to minimum. A condenser pit high level alarm and a report of water leakage under the main condenser led operators to believe that there was a major leak from the condenser hotwell. At 0620 it was discovered that a fire suppression deluge for the main turbine number 8 and 9 bearings had been actuated and was flooding these bearings. Power was further reduced with control rods at 0630 to prepare for tripping the turbine. At 0635 it was determined that the fire suppression actuation had been spurious, the deluge water supply was isolated and the leakage below the condenser verified to be stopped. At 0650 the oil returns from bearings 6, 7, 8 and 9 were checked and determined not to be water contaminated. A slow power ascent was begun at 0812 and continued until full power was reached on August 12 at 0030. Full load was held until 2145 when power was reduced and the unit placed in EGC at 2205. On August 13, a reserve emergency required EGC to be tripped at 0735 and the unit raised to full load which it held until 0540 on August 16.

#### August 16-31

At 0540 on August 16, load was reduced and the unit placed in EGC at 0600. At 1635, EGC was tripped and a power ascent started. The power ascent was stopped at 2325 and at 2345 the unit was returned to EGC. EGC operated with only minor interruptions until 0255 on August 19. Load was reduced for load following to a minimum of 613 MWe at 0335 and held until 0450 when a power ascent was begun. Full load was reached at 1130 and held until 0130 on August 20. Load was reduced and the unit placed in EGC at 0200. EGC was operated until 1755 on August 21. A scram of Dresden unit II



caused a reserve emergency and EGC was tripped. The unit was returned to EGC at 1853 and taken back out of EGC at 1935. A subsequent load ascent was stopped at 2000 and power held at 786 MWe until August 22. At 0020 a load reduction was initiated to facilitate control rod pattern adjustments a minimum of 500 MWe was reached at 0212. Rod movements were completed at 0413 and a slow load ascent begun at 0450. The load ascent was halted on August 23 at 0300. Load was held at 655 MWe until 0330 on August 24 when the load ascent was resumed. The ascent was stopped and load held at 735 MWe from 1950 until August 25 at 0100. The load ascent raised power to 760 MWe by 0720; this was held until 1130 when the ascent resumed. Full load was finally reached on August 26 at 0620 and held until August 29 at 0850. Load was reduced and the unit placed in EGC at 0930. Except for short interruptions, the unit ran in EGC until 0800 on August 31. The unit was taken out of EGC due to a failed open recirculation valve on the 1B reactor feed pump. Load was held at the EGC low limit (730 MWe) for the remainder of the day.

B. Unit Two

August 1-31

Unit Two experienced a reactor scram at 1422 on August 1. The scram was caused by a failed main output transformer. The reactor was placed in cold shutdown and remained shutdown for the entire month while a transformer replacement was in progress.

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

A. Amendments to Facility License or Technical Specifications

Technical Specification Amendments 102 and 99 were issued on August 6 to facility operating licenses DPR 29 and DPR 30.

These amendments incorporate operability and surveillance requirements for the common unit 4 KV bus cross tie into TS 3.9/4.9 (Auxiliary Electrical Systems). The necessity for these additional TS requirements came as a result of an event at Dresden 2.

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

There were no Deviation Reports or License Events Report associated with the Safety Related Work Request Log this month for Unit 1 or Unit 2.

#### 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.

<u>UNIT 1</u>		
<u>Licensee Event Report Number</u>	<u>Date</u>	<u>Title of Occurrence</u>
87-017	8-5-87	HPCI Group IV Isolation - ESF
<u>UNIT 2</u>		
87-009	8-1-87	Reactor Scram - T/G load mismatch - PSE
87-010	8-17-87	Reactor Scram while SD - while draining H <sub>2</sub> O to torus - PSE



## 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 B  
AVERAGE DAILY UNIT POWER LEVEL

DOCKET NO. 50-254

UNIT ONE

DATE 10 SEPT 1987

COMPLETED BY KURT A SCHMIDT

TELEPHONE 309-654-2241

MONTH August 1987

DAY AVERAGE DAILY POWER LEVEL  
(MWe-Net)

1.	462.8
2.	728.7
3.	634.3
4.	638.0
5.	779.9
6.	744.8
7.	749.7
8.	704.0
9.	545.2
10.	616.8
11.	690.4
12.	773.8
13.	752.9
14.	763.2
15.	771.3
16.	739.9

DAY AVERAGE DAILY POWER LEVEL  
(MWe-Net)

17.	726.4
18.	705.9
19.	731.6
20.	741.9
21.	711.2
22.	556.3
23.	630.7
24.	661.7
25.	736.8
26.	764.4
27.	770.5
28.	787.9
29.	734.2
30.	741.2
31.	704.1

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 10 SEPT 1987

COMPLETED BY KURT A SCHMIDT

TELEPHONE 309-654-2241

MONTH August 1987

DAY AVERAGE DAILY POWER LEVEL  
(MWe-Net)

1.	447.7
2.	-12.1
3.	-11.1
4.	-10.3
5.	-10.8
6.	-10.3
7.	-10.3
8.	-10.6
9.	-10.4
10.	-11.2
11.	-10.8
12.	-10.5
13.	-8.0
14.	-7.5
15.	-7.1
16.	-7.2

DAY AVERAGE DAILY POWER LEVEL  
(MWe-Net)

17.	-7.0
18.	-6.6
19.	-7.2
20.	-2.9
21.	-10.7
22.	-7.4
23.	-7.5
24.	-7.8
25.	-8.2
26.	-7.2
27.	-7.1
28.	-7.0
29.	-7.1
30.	-6.8
31.	-7.2

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.



# OPERATING DATA REPORT

DOCKET NO. 50-254

UNIT ONE

DATE 14 SEPT 1987

COMPLETED BY K.A. SCHMIDT

TELEPHONE 309-654-2241

## OPERATING STATUS

0000 080187

1. Reporting period: 2400 083187 Gross hours in reporting period: 744
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): NA
4. Reasons for restriction (if any):

	This Month	Yr. to Date	Cumulative
5. Number of hours reactor was critical	<u>744.0</u>	<u>5768.6</u>	<u>108581.</u>
6. Reactor reserve shutdown hours	<u>0.0</u>	<u>0.0</u>	<u>3421.</u>
7. Hours generator on line	<u>744.0</u>	<u>5752.6</u>	<u>105069.</u>
8. Unit reserve shutdown hours.	<u>0.0</u>	<u>0.0</u>	<u>902.</u>
9. Gross thermal energy generated (MWH)	<u>1700038</u>	<u>13569223</u>	<u>22262704</u>
10. Gross electrical energy generated (MWH)	<u>550745</u>	<u>4445198</u>	<u>7219858</u>
11. Net electrical energy generated (MWH)	<u>524318</u>	<u>4247641</u>	<u>6769484</u>
12. Reactor service factor	<u>100.0</u>	<u>98.9</u>	<u>80.</u>
13. Reactor availability factor	<u>100.0</u>	<u>98.9</u>	<u>83.</u>
14. Unit service factor	<u>100.0</u>	<u>98.7</u>	<u>78.</u>
15. Unit availability factor	<u>100.0</u>	<u>98.7</u>	<u>79.</u>
16. Unit capacity factor (Using MDC)	<u>91.6</u>	<u>94.7</u>	<u>65.</u>
17. Unit capacity factor (Using Des. MWe)	<u>89.3</u>	<u>92.3</u>	<u>63.</u>
18. Unit forced outage rate	<u>0.0</u>	<u>.5</u>	<u>5.</u>
19. Shutdowns scheduled over next 6 months (Type, Date, and Duration of each): (Refueling and Maintenance, September 12, 1987, 12 weeks)			
20. If shutdown at end of report period, estimated date of startup			

# OPERATING DATA REPORT

DOCKET NO. 50-265

UNIT TWO

DATE 14 SEPT 1987

COMPLETED BY K.A. SCHMIDT

TELEPHONE 309-654-2241

## OPERATING STATUS

0000 080187

1. Reporting period: 2400 083187 Gross hours in reporting period: 744
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): NA
4. Reasons for restriction (if any):

	This Month	Yr. to Date	Cumulative
5. Number of hours reactor was critical	<u>14.4</u>	<u>4474.1</u>	<u>102189.1</u>
6. Reactor reserve shutdown hours	<u>0.0</u>	<u>0.0</u>	<u>2935.1</u>
7. Hours generator on line	<u>14.4</u>	<u>4421.1</u>	<u>92120.1</u>
8. Unit reserve shutdown hours.	<u>0.0</u>	<u>0.0</u>	<u>702.1</u>
9. Gross thermal energy generated (MWH)	<u>36032</u>	<u>10512606</u>	<u>211852301</u>
10. Gross electrical energy generated (MWH)	<u>11325</u>	<u>3391657</u>	<u>67750949</u>
11. Net electrical energy generated (MWH)	<u>5982</u>	<u>3238643</u>	<u>63835689</u>
12. Reactor service factor	<u>1.9</u>	<u>76.7</u>	<u>76.7</u>
13. Reactor availability factor	<u>1.9</u>	<u>76.7</u>	<u>76.7</u>
14. Unit service factor	<u>1.9</u>	<u>75.8</u>	<u>74.7</u>
15. Unit availability factor	<u>1.9</u>	<u>75.8</u>	<u>74.7</u>
16. Unit capacity factor (Using MDC)	<u>1.0</u>	<u>72.2</u>	<u>62.2</u>
17. Unit capacity factor (Using Des. MWe)	<u>1.0</u>	<u>70.4</u>	<u>60.4</u>
18. Unit forced outage rate	<u>98.1</u>	<u>16.8</u>	<u>8.1</u>
19. Shutdowns scheduled over next 6 months (Type, Date, and Duration of each):			
20. If shutdown at end of report period, estimated date of startup		<u>9/5/87</u>	

ID/5A

APPENDIX D  
UNIT SHUTDOWNS AND POWER REDUCTIONS

DOCKET NO. 050-254

UNIT NAME Quad Cities Unit One

DATE

REPORT MONTH AUGUST

COMPLETED BY K. Schmidt

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
87-17	870801	S	0.0	H	4	----	RB	CONROD	Power reduction for rod pattern adjustments
87-18	870809	F	0.0	A	4	----	AB	XXXXXX	Power reduction because of suspected condenser leak, subsequently found to be water from a bearing fire protection deluge actuation.
87-19	870822	S	0.0	H	4	----	RB	CONROD	Power reduction for rod pattern adjustments

APPROVED

AUG 16 1982

-1-(final)

V C U S K



ID/5A

APPENDIX D  
UNIT SHUTDOWNS AND POWER REDUCTIONS

QTP 300-S13  
Revision 6  
August 1982

DOCKET NO. 050-265

UNIT NAME Quad Cities Unit Two

COMPLETED BY K. Schmidt

DATE

REPORT MONTH AUGUST

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
87-18	870801	F	729:38	A	3	87-009	EB	TRANSF	Main output transformer failure causes generator/turbine trip and reactor scram.

APPROVED

AUG 16 1982

-1-(final)

QCUSH

## 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

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.



QUAD-CITIES REFUELING  
INFORMATION REQUEST

QTP 300-532  
Revision 1  
March 1978

- ★
1. Unit: Q1 Reload: 8 Cycle: 9
  2. Scheduled date for next refueling shutdown: 9-14-87
  3. Scheduled date for restart following refueling: 12-7-87
  4. Will refueling or resumption of operation thereafter require a technical specification change or other license amendment: YES. TECHNICAL SPECIFICATION CHANGES WILL BE REQUIRED FOR NEW FUEL TYPES (MAPHLGR CURVES) AND A LICENSE AMENDMENT TO MOVE SINGLE LOOP OPERATION INTO TECHNICAL SPECIFICATIONS. CHANGE TO MCPR LIMIT AND OPERATION AT INCREASED CONG FLOW/FINAL FEEDWATER TEMP. REDUCTION.
  5. Scheduled date(s) for submitting proposed licensing action and supporting information:

SEPTEMBER 9, 1987

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:

FIRST RELOAD OF GENERAL ELECTRIC, GE8E FUEL WITH 4 WATER-RODS AND LHGR LIMIT OF 14.4 KW/FT.

7. The number of fuel assemblies.
  - a. Number of assemblies in core: 724
  - b. Number of assemblies in spent fuel pool: 1573
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.

QUAD-CITIES REFUELING  
INFORMATION REQUEST

QTP 300-S32  
Revision 1  
March 1978

- \*  
1. Unit: 02 Reload: 8 Cycle: 9  
2. Scheduled date for next refueling shutdown: 3-14-88  
3. Scheduled date for restart following refueling: 5-22-88  
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:  
DECEMBER 14, 1987  
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: 1311  
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

APPROVED

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
M. IV	-	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





**Commonwealth Edison**

Quad Cities Nuclear Power Station  
22710 206 Avenue North  
Cordova, Illinois 61242  
Telephone 309/654-2241

*Verna*  
USNRC-DS

1987 OCT 29 A 9:51

RAR-87-41

September 2, 1987

U.S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Office of Nuclear Reactor Regulation  
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 August, 1987.

Respectfully,

COMMONWEALTH EDISON COMPANY  
QUAD-CITIES NUCLEAR POWER STATION

*R. A. Robey*  
R. A. Robey

Services Superintendent

vk

Enclosure

0027H/0061Z

*IE24*  
*11*