

GCT-91-11

October 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 ~~August~~ <sup>Sept</sup> 1991.

Sincerely,

COMMONWEALTH EDISON COMPANY  
QUAD-CITIES NUCLEAR POWER STATION

*G. C. Tietz*  
G. C. Tietz  
Technical Superintendent

(C)/CALSD/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

SEPTEMBER 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

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

## II. SUMMARY OF OPERATING EXPERIENCE

### A. Unit One

At the beginning of September Unit One was operating in Economic Generating Control (EGC). Load drops occurred on the 2nd, 10th, 11th, 12th, and 13th at the request of the Chicago Load Dispatch. Load was dropped on the 3rd so that a reactor feed pump could be changed over. On the 17th load was dropped for a turbine test, on the 25th for turbine and MSIV testing, and also on the 26th for turbine testing. Load drops also occurred on the 6th for recirculation pump controller testing and on the 19th due to loss of vacuum in the condenser.

### B. Unit Two

Unit Two was also operating in EGC at the beginning of the month. Unit Two experienced load drops on the 2nd, 5th, 6th, and 12th at the request of the Chicago Load Dispatch. On the 19th Unit Two was shutdown per normal procedures due to an inboard MSIV failing closed.

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>
Q89468	6700	Counter is inoperable replace it with new counter.	As Left: Removed front cover to install new counter for breaker, 4 Kv Horizontal Magneblast. Tested breaker and counter worked fine.
Q92664	9400	Replace carbon trays and test canisters on Control Room Emergency filtration unit.	As Found: Second filter housing had water rust line and first chamber outer door seal is degraded but still seals. As Left: Installed test canister, second chamber (Downstream) on bottom. Inspected door seals, filter seals and test canister seals. All seals were sealing.
Q94100	0311	Investigate and repair UI HCV 34-35 - N2 leak which alarms every shift.	As Found: Disc on removed valve was found to be very dry and hardened. As Left: Removed bonnet assembly from instrument block. All O-Rings were removed and O-Ring Grooves were cleaned. O-Rings were lubricated with silicone Molykote (Graphite Lubrication for valve threads). A new valve was installed in the full open position and torqued to 50 ft/lb.
Q90845	1001	Repair seal tite which was exposed on limiter torque motor housing.	As Found: Seal tite was pulled away from motor housing approximately 1". As Left: Unscrewed both ends of seal tite and refastened valve end seal tite first. Bent the existing conduit back to its original position approximately 2". Reattached the other end of seal tite.
Q90989	1053	Replace test fitting on switch.	As Found: Test fitting was bad. As Left: Installed new test fitting.

UNIT 1 MAINTENANCE SUMMARY

<u>WORK REQUEST</u>	<u>SYSTEM</u>	<u>EID DESCRIPTION</u>	<u>WORK PERFORMED</u>
Q89953	1641	Replace transmitter 1-1641-58 w/like for like replacement.	As Found: Recorder and indicator in transmitter's loop were indicating normal or plant conditions. As Left: Mounted the new transmitter and re-landed leads on transmitter and the leads on the terminal. Performed QIS 54-3 on the transmitter. Installed new conduit/plug and new O-Ring. Did the calibration check on the indicator and recorder as per QIS 54-3. Readjusted and checked the tolerance between the indicator and recorder it was within .5 ft.
Q87653	2402	Repair right hand heater element in hot box which has bolt broken off.	As Found: Found approximately 14 lugs that go to the four heaters deteriorating from excessive heat in hot box assembly. Lugs need replacement, wire also brittle, needs replaced. As Left: Drilled out broken bolt and tapped hole. Cleaned out metal shavings and replaced hardware and lugs.

UNIT 2 MAINTENANCE SUMMARY

<u>WORK REQUEST</u>	<u>SYSTEM</u>	<u>EID DESCRIPTION</u>	<u>WORK PERFORMED</u>
Q95045	1705	Investigate and repair U2 2B Main Steam Line high rad monitor failed low.	As Found: HV reading 235V on display with HV Cable connected and disconnected. Operating good on bench in shop. As Left: Removed chassis and brought to shop and found nothing unusual with chassis. Replaced analog module, high voltage module, and rad monitor. Rad monitor was calibrated and functionally tested per QIS 31-3, voltages checked fine 9-10-91.
Q95024	5747	Replace U2 HPCI Room cooler fan belts which are broken.	As Found: Belts were shredded and laying in fan guard. As Left: Removed guard, checked bearings on fan, motor, checked sheaves, replaced belts, adjusted tension and checked alignment. Reinstalled guard and greased fan bearings.
Q95199	5207	Investigate and repair U2 5207 D/G fuel strainer (2-5207) leaks.	As Found: O-Ring was extruding from filter housing and cut. As Left: Installed new O-Ring, tightened evenly and inspected strainer which was in good condition.

#### 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>
91-015	08/27/91	U1 Cable Tunnel Flow Switch Out-of-Service for greater than 14 days due to the scope of the work and testing for this (MOD) requiring more than 14 days.
91-016	08/30/91	Lines 2-1604-18" and 1-1606-18" outside of design basis.
91-017	09/04/91	Control Room HVAC "B" Train Inop.
91-018	09-14-91	RCIC Inop to repair 125 VDC Ground.

##### UNIT 2

91-10	09/07/91	HPCI Inop due to room cooler belts broke.
91-11	09/18/91	2B Core Spray & RCIC declared Inop because floor drain check valves failed test.

## 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 October 3, 1991  
 COMPLETED BY Cynthia A. Losek-Short  
 TELEPHONE 309-654-2241

**OPERATING STATUS**      0000      090191  
                                  2400      093091

1. REPORTING PERIOD: \_\_\_\_\_ GROSS HOURS IN REPORTING PERIOD: 720

2. CURRENTLY AUTHORIZED POWER LEVEL (MWe): 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 .....	<u>720.0</u>	<u>2987.0</u>	<u>134468.9</u>
6. REACTOR RESERVE SHUTDOWN HOURS .....	<u>0.0</u>	<u>0.0</u>	<u>3421.9</u>
7. HOURS GENERATOR ON LINE .....	<u>720.0</u>	<u>2860.3</u>	<u>130229.6</u>
8. UNIT RESERVE SHUTDOWN HOURS .....	<u>0.0</u>	<u>0.0</u>	<u>909.2</u>
9. GROSS THERMAL ENERGY GENERATED (MWH) .....	<u>1758965.0</u>	<u>6587047.0</u>	<u>279318487.0</u>
10. GROSS ELECTRICAL ENERGY GENERATED (MWH) .....	<u>573505.0</u>	<u>2127297.0</u>	<u>90521151.0</u>
11. NET ELECTRICAL ENERGY GENERATED (MWH) .....	<u>557444.0</u>	<u>2028378.0</u>	<u>85202619.0</u>
12. REACTOR SERVICE FACTOR .....	<u>100.0</u>	<u>45.6</u>	<u>78.8</u>
13. REACTOR AVAILABILITY FACTOR .....	<u>100.0</u>	<u>45.6</u>	<u>80.0</u>
14. UNIT SERVICE FACTOR .....	<u>100.0</u>	<u>43.7</u>	<u>76.3</u>
15. UNIT AVAILABILITY FACTOR .....	<u>100.0</u>	<u>43.7</u>	<u>76.8</u>
16. UNIT CAPACITY FACTOR (Using MDC) .....	<u>28.1</u>	<u>40.3</u>	<u>64.9</u>
17. UNIT CAPACITY FACTOR (Using Design MWe) .....	<u>95.6</u>	<u>39.2</u>	<u>63.3</u>
18. UNIT FORCED OUTAGE RATE .....	<u>0.0</u>	<u>22.4</u>	<u>5.6</u>

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 October 3, 1991  
 COMPLETED BY Cynthia A. Losek-Short  
 TELEPHONE 309-654-2241

**OPERATING STATUS**

- 0000 090191  
 1. REPORTING PERIOD: 2400 093091 GROSS HOURS IN REPORTING PERIOD: 720  
 2. CURRENTLY AUTHORIZED POWER LEVEL (MWh): 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	<u>437.2</u>	<u>5753.8</u>	<u>131443.0</u>
6. REACTOR RESERVE SHUTDOWN HOURS	<u>0.0</u>	<u>0.0</u>	<u>2985.8</u>
7. HOURS GENERATOR ON LINE	<u>437.2</u>	<u>5706.0</u>	<u>127993.0</u>
8. UNIT RESERVE SHUTDOWN HOURS	<u>0.0</u>	<u>0.0</u>	<u>702.9</u>
9. GROSS THERMAL ENERGY GENERATED (MWH)	<u>953664.0</u>	<u>13189549.0</u>	<u>276420870.0</u>
10. GROSS ELECTRICAL ENERGY GENERATED (MWH)	<u>309415.0</u>	<u>4270362.0</u>	<u>88731569.0</u>
11. NET ELECTRICAL ENERGY GENERATED (MWH)	<u>297128.0</u>	<u>4129068.0</u>	<u>83959620.0</u>
12. REACTOR SERVICE FACTOR	<u>60.7</u>	<u>87.8</u>	<u>77.7</u>
13. REACTOR AVAILABILITY FACTOR	<u>60.7</u>	<u>87.8</u>	<u>79.5</u>
14. UNIT SERVICE FACTOR	<u>60.7</u>	<u>87.1</u>	<u>75.7</u>
15. UNIT AVAILABILITY FACTOR	<u>60.7</u>	<u>87.1</u>	<u>76.1</u>
16. UNIT CAPACITY FACTOR (Using MDC)	<u>52.3</u>	<u>82.0</u>	<u>64.6</u>
17. UNIT CAPACITY FACTOR (Using Design MWe)	<u>51.3</u>	<u>79.9</u>	<u>62.9</u>
18. UNIT FORCED OUTAGE RATE	<u>39.2</u>	<u>12.5</u>	<u>8.1</u>

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 October 3, 1991

COMPLETED BY Cynthia Losek-Short

TELEPHONE 309-654-2241

MONTH September

**DAY AVERAGE DAILY POWER LEVEL  
(MWe-Net)**

1	745
2	667
3	695
4	744
5	756
6	738
7	762
8	783
9	781
10	741
11	779
12	720
13	772
14	785
15	787
16	788

**DAY AVERAGE DAILY POWER LEVEL  
(MWe-Net)**

17	778
18	791
19	784
20	802
21	802
22	804
23	807
24	807
25	775
26	797
27	803
28	808
29	806
30	806
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 October 3, 1991

COMPLETED BY Cynthia Losek-Short

TELEPHONE 309-654-2241

MONTH September

DAY	AVERAGE DAILY POWER LEVEL (MWe-Net)
1	656
2	629
3	742
4	683
5	643
6	688
7	706
8	701
9	732
10	727
11	675
12	684
13	703
14	701
15	701
16	707

DAY	AVERAGE DAILY POWER LEVEL (MWe-Net)
17	672
18	651
19	47
20	-7
21	-7
22	-7
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 D  
UNIT SHUTDOWNS AND POWER REDUCTIONS

DOCKET NO. 50-254

UNIT NAME Unit One

DATE October 3, 1991

COMPLETED BY Cynthia A. Losek-Short

TELEPHONE

309-654-2241

REPORT MONTH September 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
91-06	910902	F	9.3	F	5	-	-	-	Load drop per Chicago Load Disptach
91-07	910903	F	1.8	B	5	-	-	-	Load drop to charge over reactor feed pump.
91-08	910919	F	2.1	C	5	-	-	-	Load drop due to inadvertent closure of recombiner suction.
91-09	910925	F	4.6	B	5	-	-	-	Turbine & MSIV testing.

APPENDIX D  
UNIT SHUTDOWNS AND POWER REDUCTIONS

DOCKET NO. 50-265

UNIT NAME Unit 2

DATE October 3, 1991

REPORT MONTH September 1991

COMPLETED BY Cynthia A. Lcsek-Short

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
91-24	910902	F	13.5	F	5	-----	--	----	Load drop per Chicago Load Dispatch
91-25	910905	F	12.5	F	5	-----	--	----	Load drop per Chicago Load Dispatch
91-26	910906	F	7.7	F	5	-----	--	----	Load drop per Chicago Load Dispatch
91-27	910912	F	7.5	F	5	-----	--	----	Load drop per Chicago Load Dispatch
91-28	910919	F	437.2	A	2	-----	--	----	Unit shutdown due to inboard MSIV failing closed.

## 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

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 300-532  
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
LFA	- Licensee Event Report
LRT	- Local Leak Rate Test
LFCI	- 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
MSTV	- Main Steam Isolation Valve
NIOSH	- National Institute for Occupational Safety and Health
PCI	- Primary Containment Isolation
PCIQMR	- 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