



BOSTON Edison COMPANY

NUCLEAR OPERATIONS DEPARTMENT

PILGRIM NUCLEAR POWER STATION

Procedure No. 1.3.34

CONDUCT OF OPERATIONS

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Approved

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I. PURPOSE

To provide guidance for conduct of operations at Pilgrim Nuclear Power Station and to specify the authority and responsibility of individuals to ensure the requirements of Federal Regulations are met.

II. DISCUSSION

The professional attitude of nuclear power plant's staff has a direct relationship on the degree to which the health and safety of the public is protected. High standards of performance which include, but are not limited to, pride in the facility, knowledge of all aspects of plant status by licensed personnel, maintaining an orderly and clean work environment, aggressiveness of staff to identify/prevent operational problems, and timely correction of observed deficiencies are attributes of a professional attitude.

This procedure addresses the conditions and practices which are to be observed in the limiting of access to the Control Room, conduct of personnel in the Control Room, manning to ensure minimum shift crew composition and relief of personnel.

III. REFERENCE MATERIAL

- A. Technical Specifications, Section 6.2.B.
- B. 10CFR50, Paragraph 50.54
- C. 10CFR55, Paragraph 55.31 and 55.40
- D. Regulatory Guide 1.114
- E. IE Information, Notice 79-20, Rev. 1
- F. IE Circular 81-02
- G. Policy Directive from V.P. Nuclear

IV. AUTHORITY/RESPONSIBILITY

A. Manager of Nuclear Operations

The Plant Manager is responsible for ensuring that the facility organization as defined in figure 6.2.2 of the Technical Specifications is maintained at all times.

B. Nuclear Watch Engineer (NWE)

1. The NWE is responsible for overall safe operation of the facility and has the authority to limit Control Room access to those personnel necessary for the particular plant conditions.
2. The NWE is responsible for assuring that the minimum shift crew composition, as specified in Table 6.2-1 of the Technical Specifications is maintained at all times.
3. The NWE is responsible for assuring that the requirements of Sections 6.2.B.1 thru 6.2.B.6 of the Technical Specifications are met at all times.

NOTE: Every effort shall be made to obtain a qualified relief to ensure that a licensed operator does not exceed sixteen (16) hours in the control room performing nuclear safety related functions. Approval from the Plant Manager shall be obtained to exceed this sixteen (16) hours.

4. The NWE is responsible for keeping personnel assigned to his watch informed of changes in plant status and operational problems.
5. NWE responsible for informing his personnel and on-shift STA of pertinent operating experience feedback from internal and external sources.
6. NWE is responsible for the safe handling of all irradiated nuclear fuel bundles.
7. The NWE is responsible for ensuring adequate turnover is given and received.

C. Nuclear Operation Supervisor (NOS)

1. The NOS is responsible for ensuring that the rules and regulations pertaining to conduct in the Control Room are adhered to at all times.
2. The NOS is responsible for keeping personnel reporting to him informed of changes in plant conditions.
3. Maintaining knowledge current regarding procedure changes, modification and pertinent operating experience information.
4. The NOS is responsible for ensuring adequate turnover is given and received.

D. Shift Technical Advisor (STA)

1. The STA is responsible for reviewing plant status upon relieving the watch and for maintaining an awareness of changes in plant status.
2. The STA is responsible for maintaining his continued availability to assist/advise the NWE during off-normal conditions.
3. Maintaining knowledge current regarding procedure changes, modification and pertinent operating experience information.
4. The STA is responsible for ensuring adequate turnover is given and received.

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E. Nuclear Plant Operators (NPO)

1. The NPO is responsible for adhering to the Technical Specifications, plant operating procedures, and NRC regulations at all times.
2. The NPO is responsible for reviewing plant status upon relieving the watch and for maintaining an awareness of changes in plant conditions.
3. The NPO is responsible for maintaining alertness at all times in order to ensure that the plant is operating safely and must be capable of taking action to prevent any progress toward a condition that might be unsafe.
4. Maintaining knowledge current regarding procedure changes, modification and pertinent operating experience information.
5. The NPO is responsible for ensuring adequate turnover is given and recieved.

F. Nuclear Auxiliary Operator (NAO)

1. The NAO is responsible for adhering to the plant operating procedures and NRC regulations at all times.
2. The NAO is responsible for maintaining an awareness of equipment under his control.
3. The NAO is responsible for informing the Control Room of changes in equipment status in a timely manner.
4. The NAO is responsible for ensuring adequate turnover is given and received.

G. Station Personnel

1. Station personnel are responsible for limiting their time in the Control Room to that necessary to perform their required tasks.
2. Station personnel are responsible for adhering to rules and regulations pertaining to conduct in the Control Room.

NOTE: STATION PERSONNEL SHALL VACATE THE CONTROL ROOM WHEN REQUESTED BY THE NWE/NOS.

V. PROCEDURE

A. Access

1. Normal access to the Control Room is required by many groups during plant operations, however, access is for official business only and loitering is prohibited.

2. During startups, shutdown, or transient conditions, access shall be limited to those individuals responsible for the direct operation of the plant (e.g. NWE, NOS, STA, & NPO), pre-designated NRC personnel, and personnel requested or required to support operations. All other personnel must obtain the permission of the on shift NWE prior to entry.

B. Conduct of Personnel in the Control Room

1. All personnel having access to the Control Room shall adhere to rules and regulations pertaining to good conduct. Potentially distracting activities such as radios, TV, games, horseplay, hobbies, and reading that is not directly job related is prohibited.
2. All necessary plant-related technical/administrative business must be conducted in a manner such that neither the licensed control room operator's attentiveness nor the professional atmosphere will be comprised.
3. The taking of food/drink to the control consoles shall be prohibited.
4. The wearing of hard hats near the Control consoles shall be prohibited.
5. The only personnel allowed within the green area are the on-shift NWE, NOS, STA, and NPO's. All other personnel must obtain permission of the NWE/NOS, or the control room operator prior to crossing the green area.
6. All personnel will contribute to the implementation and maintenance of good housekeeping activities in the Control Room. The Control Room shall be kept in a clean and orderly condition.
7. Only licensed operators are permitted to manipulate the controls that directly affect the power level of the reactor.

NOTE: PERSONNEL WHO ARE REQUIRED TO MANIPULATE CONTROLS AS A PART OF THEIR TRAINING TO QUALIFY FOR AN OPERATOR LICENSE SHALL DO SO ONLY UNDER THE DIRECTION OF AND IN THE PRESENCE OF A LICENSED OPERATOR OR SENIOR OPERATOR.

8. Operations of mechanisms and apparatus other than the controls that may indirectly affect the power level or reactivity of the reactor shall only be accomplished with the knowledge and consent of the control room operator and the permission of the NWE/NOS.
9. The control room operator should not normally leave the area designated by the green without obtaining a qualified relief. However, in the event of an emergency, the operator may

be absent from the area momentarily in order to verify the receipt of an annunciator alarm or to initiate corrective actions, provided he remains within the confines of the Control Room.

NOTE: THE NOS IS CONSIDERED A QUALIFIED RELIEF FOR SHORT DURATIONS DURING STEADY STATE OPERATIONS, ALL OTHER RELIEFS MUST BE BRIEFED ON PLANT STATUS/CHANGES BEFORE ASSUMING CONTROL ROOM DUTIES.

NOTE: NON ESSENTIAL PERSONNEL SHALL VACATE THE CONTROL ROOM WHEN REQUESTED BY THE NWE/NOS.

C. Manning

1. The Control Room shall be manned at all times except when uninhabitable.
2. The minimum crew composition as specified in Table 6.2-1 of the Technical Specifications shall be maintained at all times. The names of individuals performing specific watch standing duties shall be logged in the Control Room Log.

<u>STATION CONDITION</u>	<u>CREW</u>	<u>MINIMUM #</u>
OPERATING	Licensed SR. REACTOR OPERATOR	1
	Licensed Reactor Operator	2
	Unlicensed Operator	2
	Shift Technical Advisor	1
COLD SHUTDOWN	Licensed Sr. Reactor Operator	1
	or Licensed Reactor Operator	1
REFUELING	Unlicensed Operator	1
	Shift Technical Advisor	None

NOTE: A HIGHER LICENSE MAY SUBSTITUTE FOR A LOWER LICENSE.

3. At least one Licensed Operator shall be in the Control Room when fuel is in the reactor.
4. At least two Licensed Operators shall be present in the Control Room during reactor startup, scheduled reactor shutdown and during recovery from reactor trips.
5. An individual qualified in radiation protection shall be on site when fuel is in the reactor.

6. A Fire Brigade of 5 members including the Brigade Leader shall be maintained on site at all times. This excludes 3 members of the minimum shift crew necessary for safe shutdown and personnel required for other essential functions during a fire emergency.
7. ALL CORE ALTERATIONS performed while fuel is in the reactor vessel after initial loading shall be directly supervised by a licensed Senior Reactor Operator or a Senior Reactor Operator Limited to Fuel Handling who has no other concurrent responsibilities during this operation.

D. Watch Relief

The continuous and effective transmittal of information is most likely to suffer at the change of shift, particularly during times of unusual activities. Whenever practical, planned, transient activities should be minimized during shift change.

1. The off going shift shall prepare the Shift Turnover Sheets prior to shift change.
 - a. All sections of the Emergency Safeguards Equipment Checklist (OPER 38A) must be filled out.
 - (1) System Operability and correct valve line up is as defined in the applicable operating procedure.
 - (2) Per Technical Specification 4.7.B.1.a (6), analysis of the SBGTS filter medium is required every 720 hours of operation. Operation is defined as air flow thru the unit, therefore, when both train inlet dampers are open the run-time is for both units even though only one fan was running.
 - (3) Per Technical Specification 4.7.B.2.b (5) analysis of Control Room high efficiency air filtration system filter medium is required every 720 hours of operation.
 - (4) Technical Specification 3.2.C.2 allows each Rod Block Monitor to be out of service for maintenance/testing for 24 hours in any thirty day period. This is for reporting purposes only, additional corrective action is not required unless the out of service time approaches seven days (see note 1 to Table 3.2.C.)
 - (5) The 20" Drywell and Torus purge and vent valves are limited to 90 hours in the open position per year with the reactor above 1% (20 MWT). OPER 30 will be utilized to collect data for transposing to this OPER. Every effort must be made to minimize the time these valves are in the open position.

- b. All sections of the Watch Engineer/Shift Technical Advisor turnover sheet must be filled out prior to shift turnover. It must be reviewed by the oncoming watch prior to assuming the watch.
 - c. All sections of the shift supervisor relief checklist must be filled out prior to shift turnover. It must be reviewed by the oncoming watch prior to assuming the watch and the form completed shortly after.
 - d. The R.O. relief checklist must be filled out prior to shift turnover. It must be reviewed by the oncoming watch prior to assuming the watch and the form completed shortly after.
 - e. All sections of the Radwaste Turnover Sheet (OPER 38E) must be filled out and delivered to the Control Room prior to shift change.
- 2. The off going NOS, RO and NWE shall review and sign turnover forms prior to shift change.
 - 3. Each Individual watch stander shall review the required turnover sheet with his relief and the on coming watch stander shall sign the applicable section prior to assuming watch. Additional information concerning changes in routine operation which have occurred during the previous two working shifts, surveillance tests in progress, non-safety related equipment out of service, and other pertinent information shall be transmitted verbally.
 - 4. The NOS, NWE, RO and STA shall review the Emergency Safeguard Equipment Checklist with his relief and the on-coming NOS, NWE, RO and STA shall sign the applicable section prior to assuming the watch.
 - 5. The on-coming NAO shall deliver the Radwaste Turnover Sheet to the Control Room after assuming the watch.
 - 6. The on-coming NOS and NWE shall review the Radwaste Turnover Sheet as soon as practical after relieving the watch.
 - 7. The Shift Turnover Sheets shall be filed in the OPER file in the Control Room and forwarded to the Record Center on a monthly basis.
 - 8. The on-coming shift shall review applicable logs (Control Room Log, Radwaste Log, Instruction Log, and SRO Procedure Log) and any Special Orders issued since their last working shift.

VI. ATTACHMENTS

- A. Emergency Safeguards Equipment Checklist
- B. Watch Engineer/STA turnover sheet
- C. Shift Supervisor turnover sheet
- D. Reactor Operator Relief checklist
- E. Radwaste turnover sheet

OPER

38A

38B

38C

38D

38E

EMERGENCY SAFEGUARDS EQUIPMENT CHECKLIST

I. Mode _____ Shifts _____

☐ N ☐ D ☐ A Date _____

Offgoing NPO _____

II. Safety Systems: Valve lineup correct and system operable.

SYSTEM	YES	NO	REQUIRED	NOT REQUIRED	REMARKS MR/S
ADS					
HPCI					
RCIC					
LPCI Loop A					
LPCI Loop B					
Core Spray Loop A					
Core Spray Loop B					
RBCCW Loop A					
RBCCW Loop B					
SBLC					
SSW Loop A					
SSW Loop B					
D/G A					
D/G B					
SBGT A					
SBGT B					
C.R.H.A.F. A					
C.R.H.A.F. B					

III. ALL SCRAM DISCHARGE VOLUME level monitor indicating lights out Yes____ No____

IV. STANDBY GAS TREATMENT SYSTEM accumulated run time (From OPER 30)

	Hrs Brought Forward	Accumulated This Shift	Hours Total
Train 'A'	_____	_____	_____
Train 'B'	_____	_____	_____

Notify Chemistry when Hours Total reaches 650 for either train.

V. CONTROL ROOM HIGH EFFICIENCY AIR FILTRATION SYSTEM

	Hrs Brought Forward	Accumulated This Shift	Hours Total
Train 'A'	_____	_____	_____
Train 'B'	_____	_____	_____

Notify Chemistry when Hours Total reaches 650 for either train.

VI. 20" PURGE AND VENT VALVE OPEN TIME ABOVE 20 MWT (From OPER 30)

DRYWELL	Hrs Brought Forward	Time This Shift	Hours YTD	TORUS	Hrs Brought Forward	Time This Shift	Hours YTD
A05035A	_____	_____	_____		_____	_____	_____
A05035B	_____	_____	_____		_____	_____	_____
A05044A	_____	_____	_____		_____	_____	_____
A05044B	_____	_____	_____		_____	_____	_____

Notify NWE when and valve's Hours YTD reached 80.

VII. ROD BLOCK MONITOR out of service (OOS) time:

	Hrs Brought Forward	OOS This Shift	Hrs This Month
RBM 'A'	_____	Out_____ In_____	_____
RBM 'B'	_____	Out_____ In_____	_____

Issue a Failure and Malfunction Report when Hrs this month exceeds 24 hours.

VIII. ANNUNCIATOR CARDS pulled/inserted this shift:

Nomenclature	Panel No.	Time Out	Time In	Reason	MR No.
_____				_____	
_____				_____	
_____				_____	
_____				_____	
_____				_____	
_____				_____	
_____				_____	
_____				_____	
_____				_____	
_____				_____	
_____				_____	
_____				_____	
_____				_____	
_____				_____	
_____				_____	

On Coming

_____	NWE
_____	STA
_____	NOS
_____	NPO
_____	NPO
_____	NPO
_____	NPO
_____	NPO

WATCH ENGINEER/SHIFT TECHNICAL ADVISOR TURNOVER SHEET

Date _____

Offgoing WE/STA _____

Oncoming WE/STA _____

4 | Mode Switch _____

Shift ☐ N ☐ D ☐ A

Part I - To be reviewed prior to oncoming WE/STA assuming the shift. (Check box)

☐ Unit Status: _____

☐ Evolutions (completed/in progress/planned) _____

☐ General Information: Abnormal lineups
 Off-normal conditions
 Special instructions/considerations



Equipment Status:

Surveillance test in progress
 Significant equipment deficiencies
 Equipment currently out of service/measures
 required as a result
 Significant maintenance in progress
 Maintenance completed/restoration measures
 outstanding



Radwaste Status:

Radwaste problems
 Condensate demineralizer status

(Check box)



Operating Log



Instruction Log



Emergency Safeguard Equipment Checklist



LCO Status

4 |

- ☐ WE Red Tag Log
- ☐ Chemistry Data
- ☐ Liquid Discharge Permits
- ☐ Active MRs
- ☐ Temporary Modification Log

4 | Part II

Remarks: _____

Date/Time/Initials

Offgoing WE _____ / _____ / _____

Oncoming We _____ / _____ / _____

Offgoing STA _____ / _____ / _____

Oncoming STA _____ / _____ / _____

4 |

SHIFT SUPERVISOR RELIEF CHECKLIST

Mode _____ Shifts

☐ N

☐ D

☐ A

Date _____

Offgoing Supervisor _____

Oncoming Supervisor _____

Part I - To be reviewed prior to oncoming Supervisor assuming the shift (Check box)



Unit Status _____



Evolutions: (completed/in progress/planned) _____



General Information:

Abnormal lineups
Off-normal conditions
Special instructions/considerations
Administrative information
Personnel matters
Housekeeping matters



Equipment Status:

Surveillance Test Procedures/tests in progress
Significant equipment deficiencies identified
Equipment currently out of service/measures required as a result
Maintenance in progress
Maintenance completed/restoration measures outstanding

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4 | ☐ RAD Waste Management Status: RAD Waste inventory problems

(Check Box) ☐ Station Logs (last 24 hours) ☐ LCO Status
☐ Night Orders/Standing Orders

Part II - To be completed/reviewed as early in shift as possible (Check box)

4 | ☐ WE Red Tag Log

☐ Station Logs (initial log since last had shift)

☐ Surveillance Test Procedures Schedule

Part III - To be completed prior to leaving shift (Check box)

4 | ☐ Surveillance Test Procedure Schedule review (Each Shift) - This includes non-safety-related Surveillance Test Procedures and Fire Surveillance Procedures (Each Shift)

4 | ☐ Review/Sign Logs (Each Shift)

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Part IV.

Remarks:

Offgoing SS _____ Date/Time/Initials _____

REACTOR OPERATOR RELIEF CHECKLIST

Mode _____

Shifts

4 | Offgoing Operator _____

☐ ☒ ☐

Date _____

N D A

Oncoming Operator _____

Part I - To be completed by offgoing RO

MODE SWITCH Shutdown _____ Refueling _____ Start & Hot Standby _____ Run _____

Press _____ psig

Core Flow _____ x10⁶ lb/hrFW Flow _____ x10⁶ lb/hr F/W Flow A _____ B _____

Rx Cond _____ umho/cm

CMWT _____ MWE (net) _____ Recirc Pump A _____ B _____

4 | Building Vent _____ CPS _____
Stack _____ uci/sec

Drywell Flow Leakage _____

Recombiner ON OFF Line

Cond. Vac. _____ In. Hg.

Temp: Air _____ °F

Drywell O₂ Conc. _____

Drywell P Press. _____

Part II - To be reviewed/completed by oncoming RO prior to shift relief (Check box)

☐

Station Operational Log

☐

Radwaste Releases in Progress

Y ☐ N ☐☐

Night Orders

☐Control Room Annunciators
(All Alarms)☐

Active Special Orders

☐

Radiation Monitoring System

☐Emergency Safeguard
Equipment Checklist☐

Walkdown Control Boards



Operations in Progress



Special instructions (Short-Term)



Equipment in Degraded Mode: List the systems and components that are in a degraded mode of operation as permitted by Technical Specifications and time in the degraded mode.

System Component	Date and Time in Degraded Mode	Length of Time Allowed in Degraded Mode	Date and Time Must be Out of Degraded Mode
1.			
2.			
3.			
4.			
5.			



Significant Maintenance in Progress (Equipment)

Part III.

Items to be reviewed/accomplished shortly after assuming the shift (Check box)

Surveillance

MRs in Progress

Shift Routine

Test All Annunciators

Part IV.

Remarks :

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There is no handwriting or other markings on the paper.

Date/Time/Initials

Offgoing Shift _____/_____/_____

Oncoming Shift _____/_____/_____

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RADWASTE

SHIFT TURNOVER SHEET

Prepared By _____ (NAO) Date _____ Shift _____

Reviewed By _____ (NOS) _____ (NWE)

I. RADWASTE TANK LEVELS

Clean	A _____	B _____		
Chemical	A _____	B _____		
Treated Water	A _____	B _____	C _____	D _____
Monitor	A _____	B _____	C _____	
Miscellaneous	A _____	B _____		
Back Wash Receiver	_____			
Spent Resin	_____			
Drywell Floor Int.	_____			
Drywell Equip. Int.	_____			

II. CONDENSATE DEMINERALIZERS

Flow Rate (gpm)	A _____	B _____	C _____	D _____	E _____	F _____	G _____
Bed Δ P	A _____	B _____	C _____	D _____	E _____	F _____	G _____
Post Strainer Δ	A _____	B _____	C _____	D _____	E _____	F _____	G _____

Evolutions in progress (e.g. backwash, recycle) _____

III. MAKEUP DEMINERALIZERS

On Line Yes _____ No _____

Anion Through-put (FQ-I-1) _____ gals.

Mixed Bed Through-put (FQ-I-2) _____ gals.

Neutralizing Sump Level (LI-4702) _____

IV. FLAT BED FILTERS

"A" On Line No _____ Yes _____ from Tank _____

"B" On Line No _____ Yes _____ from Tank _____

Number of dumps: Prior _____; This Watch _____; Total _____

Chute Dose Rates A _____ B _____

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V. RADWASTE DEMINERALIZER

4 | Conductivity _____
 ΔP _____

VI. EQUIPMENT OUT OF SERVICE _____

VII. ANNUNCIATOR CARDS pulled/inserted this shift:

Nonmenclature	Panel No.	Time Out	Time In	Reason	MR#
_____				_____	
_____				_____	
_____				_____	
_____				_____	
_____				_____	
_____				_____	
_____				_____	

ONCOMING SHIFT REVIEW (NAO) _____ (NAO) _____ (NAO) _____
 (NOS) _____ (NWE) _____

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