DRAFT
SRO/Part A Operating

PECO NUCLEAR
PEACH BOTTOM ATOMIC POWER STATION
JOB PERFORMANCE MEASURE

POSITION TITLE: Unit Reactor Operator/Senior Reactor Operator

TASK-JPM DESIGNATOR: 3421130302 K/A: 2.1.2

URO: 4.3 SRO: 4.2

TASK DESCRIPTION: Review a Temporary Procedure Change.

A. NOTES TO EVALUATOR:

1. An asterisk (*) before the step number denotes a CRITICAL STEP. CRITICAL STEPS are those steps which when not performed correctly will prevent the system from functioning properly or prevent successful task completion.

2. System cues included in the performance checklist are to be provided to the examinee when no system response is available.

3. JPM Performance

   a. "Control Room" JPMs are designed to be performed in the simulator. If a "Control Room" JPM is to be performed in the Control Room all perform steps (P) shall be simulated (S).

   b. When performing "In-Plant" JPMs, no equipment will be operated without Shift Management approval.

4. Satisfactory performance of this JPM is accomplished if:

   a. The task standard is met.

   b. JPM completion time requirement is met.

      1) For non-time critical JPMs, completion within double the estimated time (listed in paragraph D.2) is acceptable provided the evaluator determines that the progress to completion is acceptable.

      2) For time critical JPMs, completion within the estimated time (listed in paragraph D.2) is required.

5. The estimated time to complete this JPM, though listed in the task standard, is not to be given to the examinee.

B. TOOLS AND EQUIPMENT

1. Copy of ST-O-080-520-2 marked-up with a proposed Temporary Change to step 6.1.2 for reactor vessel flange and head flange to be greater than 75 deg. F.

2. A-3 Rev. 18, Temporary Changes to Procedures and Partial Procedure Use.

3. Copy of Exhibit A-3-3 Rev. 0, with Part A and B (for the SQR) filled out.

C. REFERENCES

1. ST-O-080-520-2 Reactor Vessel Head Flange Temperature Surveillance.

2. A-3 Rev. 18, Temporary Changes to Procedures and Partial Procedure Use.

D. TASK STANDARD

1. Satisfactory task completion of this task is indicated when the Shift Management review has been completed , the errors in the procedure have been identified and the Temporary Change is disapproved pending resolution of the problems.

2. Estimated time to complete: 10 minutes Non-time critical

E. DIRECTIONS TO EXAMINEE

When given the initiating cue, perform the necessary steps to review a Temporary Change, using appropriate procedures. I will describe initial plant conditions and provide you access to the materials required to complete this task.

F. TASK CONDITIONS/PREREQUISITES

1. A refuel outage is in progress on Unit 2.

2. Refueling has been completed, and reactor vessel reassembly is in progress.

3. An industry notification has been sent to Peachbottom concerning the accuracy and range of temperature elements associated with the reactor vessel head flange.

4. I & C has contacted operations with this concern and the recommendation to not allow vessel flange and head flange temperature to go below 75 deg. F.

5. A Temporary Change has been prepared for ST-O-080-520-2 "Reactor Vessel Head Flange Temperature Surveillance" step 6.1.2, to ensure reactor vessel flange and head flange temperature is greater than 75 deg. F.

G. INITIATING CUE

You have been assigned as the SRO Reviewer for the temporary change to the surveillance procedure. Review and approve the temporary change to ST-O-080-520-2, "Reactor Vessel Head Flange Temperature Surveillance".

H. PERFORMANCE CHECKLIST

STEP NO	STEP	ACT	STANDARD
1	Review ST-O-080-520-2 temporary procedure change.	P	Review the procedure change and compare it to the Temporary Change Screening Matrix criteria in exhibit A-3-1.
*2	Identify a change of intent. Note: this is a change to the acceptance criteria in the test.	P	Identify that the proposed change to step 6.1.2 constitutes a "change of intent" in accordance with exhibit A-3-1.
*3	Disapprove the procedure change. (Cue: Acknowledge the disapproval.)	P	Disapprove the temporary procedure change.

***** NOTE *****

Terminate the exercise when the activities listed above are performed.

Under "ACT" P - must perform
S - must simulate

I. TERMINATING CUE

When the review of ST-O-080-520-2 has been completed, and the temporary procedure change is disapproved, terminate the exercise.

TASK CONDITIONS/PREREQUISITES

1. A refuel outage is in progress on Unit 2.

2. Refueling has been completed, and reactor vessel reassembly is in progress.

3. An industry notification has been sent to Peachbottom concerning the accuracy and range of temperature elements associated with the reactor vessel head flange.

4. I & C has contacted operations with this concern and the recommendation to not allow vessel flange and head flange temperature to go below 75 deg. F.

5. A Temporary Change has been prepared for ST-O-080-520-2 "Reactor Vessel Head Flange Temperature Surveillance" step 6.1.2, to ensure reactor vessel flange and head flange temperature is greater than 75 deg. F.

INITIATING CUE

You have been assigned as the SRO Reviewer for the temporary change to the surveillance procedure. Review and approve the temporary change to ST-O-080-520-2, "Reactor Vessel Head Flange Temperature Surveillance".

PORC	NO
SQR	YES
QR	NO
50.59	NO
Resp. Mgr.	YES

TEMPORARY CHANGE FORM

PART A - INITIATION

TC NUMBER -

1. UNIT APPLICABILITY: 2 ☒ 3 ☐ Common ☐

2. TC CLASSIFICATION (Select one box):
   - Conditional (C) (See NOTE) ☐
   - Permanent Rev (R) _____ ☐
   - Single Use (S) _____ ☒

   NOTE: Enter the activity No. which will restore system/ component & eliminate need for Conditional TC.

   (Circle One)
   A/R or W/O No: _____

3. PROCEDURE NUMBER: ST-O-080-520-2 REV: 2

4. PROCEDURE TITLE: REACTOR VESSEL HEAD FLANGE TEMPERATURE SURVEILLANCE.

5. PAGES AFFECTED: 4, 6

6. Does this TC supersede or replace existing TCs? NO ☒ YES ☐
   If YES, list TCs to be DELETED and removed from distribution: _____

7. TC DESCRIPTION: CHANGE REACTOR VESSEL FLANGE AND HEAD FLANGE RECORDED TEMPERATURE TO GREATER THAN 75°F.

8. REASON for TC: INDUSTRY NOTIFICATION

9. INITIATOR: REACTOR OPERATOR (print name) / RO (initial) 2/xx/01 (date) OPS (work group) 4687 (ext)

PART B - REVIEW & APPROVAL

ITEMS 1 thru 4 MUST BE YES TO OBTAIN TC APPROVAL.

	SQR (Circle One)		SRO	
1. ARE THE CHANGES IN ACCORDANCE WITH THE INTENT OF THE PROCEDURE per Exhibit A-3-1?	Yes	No	Yes	No
2. Is the change TECHNICALLY AND OPERATIONALLY CORRECT?	Yes	No	Yes	No
3. Is the change SAFE from the standpoint of NUCLEAR & INDUSTRIAL SAFETY?	Yes	No	Yes	No
4. Is the change IN CONFORMANCE WITH TECHNICAL SPECIFICATIONS?	Yes	No	Yes	No
5. Is the CLASSIFICATION of the Temporary Change PROPERLY ESTABLISHED?	Yes	No	Yes	No
*6. Are TCs required to OTHER PROCEDURES (e.g., other unit) as a result of this change?	Yes	No	Yes	No
*7. Are SPECIAL ASSIGNMENTS or TRAINING required to implement this TC?	Yes	No	Yes	No
8. Does potential Ops Impact of this TC warrant IMMEDIATE DISTRIBUTION to MCR procedures?			Yes	No

*If answered YES, explain here: _____

NOTE: The SQR and SRO shall verify that the above steps are completed prior to signature.

STATION QUALIFIED REVIEWER: STATION QUALIFIED REVIEWER (print name) / SQR (initial) 2/xx/01 (date)

SENIOR REACTOR OPERATOR: _____ (print name) / _____ (initial) _____ (date)

TEMPORARY CHANGE FORM

PART C - TC ADMINISTRATOR CHECK

TC NUMBER -

1. All Temporary Change Log entries are complete and TC number assigned.
2. DATE BY WHICH THE TEMPORARY CHANGE MUST BE ACTED UPON BY THE SQR/RS - - - - - - - - - - - - - - - - 14TH DAY: ______
   (14 days after the implementation date)

TC ADMINISTRATOR: ______________________ / ________ ________
(print name) (initial) (date)

PART D - POST IMPLEMENTATION REVIEW AND APPROVAL

1. Did the TC meet the requirements of A-3 and Exhibit A-3-1? YES ☐ NO ☐
2. If the answer to number 1 is YES, then enter the required date for permanent revision or the expected removal date for conditional. Required by: ______
3. If the answer to step 1 is NO, then the TC shall be disapproved

3a. SQR: ______________________ / ________ ________
(print name) (initial) (date)

APPROVAL RECOMMENDED: YES ☐ NO ☐

3b. RS: ______________________ / ________ ________
(print name) (initial) (date)

APPROVED: YES ☐ NO ☐

4. If Temporary Change is NOT approved, describe CORRECTIVE ACTION to resolve matter AND complete DS box below to remove the TC from distribution:

____
____
____
____
____
____
____
____
____
____
____
____
____
____
____
____
____
____

DS, pull from distribution: YES ☐

ST-O-080-520-2 **REACTOR VESSEL HEAD FLANGE TEMPERATURE SURVEILLANCE**

TEST FREQUENCY: Unscheduled (See Section 1.0)
TECH SPEC: SR 3.4.9.5, SR 3.4.9.6, and SR 3.4.9.7
APPLICABILITY: At All Times

1 **CHECK** why this procedure is being performed:

☐ Schedule ☐ OVF ☐ Retest Due To Unsat Test

☐ Other Reason: _____

Approved By SMgt: _____ _____ __/__/__ _____
Printed Name Time Date Initials

2 **INITIAL** one of the following Test Results:

A: All * steps are **SATISFACTORY** _____

B: One or More * steps are **UNSATISFACTORY**
Refer to Section 9.0 for Tech Spec LCO's

Performed By: _____ _____ __/__/__ _____
Printed Name Time Date Initials

RO/PRO Informed of Test Completion: _____ _____ __/__/__ _____

SMgt Informed of Test Results: _____ _____ __/__/__ _____

UNSAT Notification: _____
SMgt Discretion: Plant Mgr or Others

Notified By: _____ _____ __/__/__ _____

3 **IF** other portions of the test did **NOT** function properly, **OR** other discrepancies were noted **THEN COMPLETE** the following:

DESCRIBE discrepancies/actions taken: A/R or ETT #: _____

_____

4 Reviewed/Approved Plant Staff: _____ _____ __/__/__ _____
Printed Name Time Date Initials

1.0 PURPOSE

This procedure records the reactor vessel flange and head flange temperatures when the head studs are being tensioned and when the reactor coolant temperature is less than or equal to 100°F in Mode 4 in accordance with Tech Spec Surveillance Requirements (SR) 3.4.9.5, 3.4.9.6, and 3.4.9.7. The frequency requirements for this testing are modified by note in each given surveillance requirement.

2.0 TEST EQUIPMENT

> **NOTE**
>
> This equipment is only required if the installed, permanent thermocouples interfere with the tensioning work or are not functioning.

2.1 Description	Required Minimum Accuracy	M&TE No.	Cal Due Date
Temperature measurement device(s)	±2°F within a range between 60°F and 80°F	_____	____/___/____
		_____	____/___/____

3.0 PREREQUISITES

Initial

3.1 Test Initiation

3.1.1 **COMPLETE** Section 1 of cover page. _____

3.2 Document Review

3.2.1 **ENSURE** procedure is current revision. _____

3.3 Setup/Check of Required Communications

None

3.4 Equipment Configuration

3.4.1 **VERIFY** Reactor is in mode 4 or 5. _____

3.5 Required Redundant Safety Related Equipment

None

3.6 Approval to Start Test

3.6.1 **OBTAIN** RO Permission to begin.

_____ __/__/__ _____
Time Date RO

4.0 PRECAUTIONS, LIMITATIONS, AND GENERAL INSTRUCTIONS

4.1 Plant Impact Statement

4.1.1 There is no impact on plant operation since the reactor is in mode 4 or 5.

4.2 Precautions

4.2.1 **INVESTIGATE** any suspect thermocouple reading immediately. Substitution of calibrated temperature measurement devices is acceptable. If used, describe the device(s) in Section 2, "Test Equipment", and indicate with T (temporary) in the data column(s).

4.3 Limitations

None

4.4 General Instructions

4.4.1 **IF** any procedure step can **NOT** be completed **OR** produces an unexpected response **THEN STOP** the test **AND NOTIFY** the RO or SMgt.

4.4.2 **IF** any Black Box is initialed **THEN STOP** the test **AND NOTIFY** the RO or SMgt.

4.4.3 **IF** procedure is aborted, **THEN NOTIFY** SMgt **AND WRITE "TEST ABORTED"** in Section 3 of Cover Page.

4.4.4 All persons who initial steps in Sections 3.0, 6.0, or 7.0 are responsible for completing Section 10.0.

4.4.5 All applicable * steps are identified immediately in front of the initials.

5.0 ACCEPTANCE CRITERIA

The recorded temperatures of the closure flanges and adjacent vessel and head materials are greater than 70°F while the head studs are in a tensioned state and prior to starting the tensioning process.

6.0 PERFORMANCE STEPS

Initial
Sat UnSat

6.1 Data Accumulation

> **NOTE**
>
> 1. Step performance and acceptance criteria verification are documented on the Data Sheet.
>
> 2. Additional copies of the Data Sheets may be made as required provided total number of sheets are documented.
>
> 3. The following step is required to be performed when temperature is less than or equal to 100°F in MODE 4.

6.1.1 **RECORD** reactor vessel flange and head flange temperatures every 30 minutes on Data Sheet 1.

SQR 2/xx/01

6.1.2 **VERIFY** reactor vessel flange and head flange recorded temperature is greater than ~~70°F~~. 75°F * _____

7.0 PROCEDURE COMPLETION

Initial

7.1 Independent Verification

None

7.2 Records Completion

7.2.1 **VERIFY** all copies of Data Sheets are attached with sheet numbers and dates included. _____

7.2.2 **COMPLETE** Section 2 of Cover Page (and Section 3 if applicable). _____

8.0 REFERENCES

8.1 Governing

8.1.1 Tech Spec SR 3.4.9.5, 3.4.9.6, and 3.4.9.7

8.0 REFERENCES (Cont.)

8.2 Interfacing

8.2.1 M-004-400, Reactor Pressure Vessel Reassembly

8.2.2 GP-3, Normal Plant Shutdown

8.2.3 GP-6 Refueling Operations

8.3 Developmental

8.3.1 I0006134

8.3.2 This procedure supersedes ST 9.12.C and ST-O-02B-520-2.

9.0 TECH SPEC LIMITING CONDITIONS FOR OPERATION (LCOs)

Section 3.4.9

10.0 PARTICIPANTS RECORD

Printed Name	Initials

DATA SHEET 1
REACTOR VESSEL HEAD FLANGE TEMPERATURES

Date ___/___/___ Sheet ___of___

SQR 2/XX/01

	Panel 20C021					
Time Intervals as directed in step 6.1.1	Reactor Vessel Steam (Shell below flange) TR-2-02-3-89 Point 2 TE-2-02-3-69B1	Reactor Vessel Head Adjacent to Flange TR-2-02-3-89 Point 10 TE-3-02-3-66A1	Reactor Vessel Head Flange TR-2-02-3-89 Point 11 TE-2-02-3-66B1	Reactor Vessel Flange TR-2-02-3-89 Point 1 TE-2-02-3-69J1	Recorded Pts ~~70°F~~ >75°F [1] Sat UnSat	[2] SMgt Review
	°F	°F	°F	°F	___ ___	
	°F	°F	°F	°F	___ ___	
	°F	°F	°F	°F	___ ___	
	°F	°F	°F	°F	___ ___	
	°F	°F	°F	°F	___ ___	
	°F	°F	°F	°F	___ ___	
	°F	°F	°F	°F	___ ___	
	°F	°F	°F	°F	___ ___	
	°F	°F	°F	°F	___ ___	
	°F	°F	°F	°F	___ ___	
	°F	°F	°F	°F	___ ___	
	°F	°F	°F	°F	___ ___	
	°F	°F	°F	°F	___ ___	
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	°F	°F	°F	°F	___ ___	
	°F	°F	°F	°F	___ ___	
	°F	°F	°F	°F	___ ___	
	°F	°F	°F	°F	___ ___	
	°F	°F	°F	°F	___ ___	
	°F	°F	°F	°F	___ ___	

SQR 2/XX/01 [1] **IF** any monitored point is less than or equal to ~~70°F~~ 75°F, **THEN NOTIFY** Shift Management immediately **AND INITIAL** step 6.1.2 UNSAT.

[2] Shift Management shall review data at least once per shift and initial this form at the appropriate time line. Mark unused spaces N/A.

PORC	YES
SQR	YES
QR	YES
50.59	YES
RESP MGR.	YES

PECO Energy Company
Peach Bottom Atomic Power Station

TEMPORARY CHANGES TO PROCEDURES AND PARTIAL PROCEDURE USE

1.0 PURPOSE

1.1 To establish the administrative requirements, controls, and responsibilities for making Temporary Changes (TCs) to procedures and partial procedure use.

2.0 SCOPE

2.1 This procedure shall be used to initiate, document and control Temporary Changes to approved procedures. A change that would result in a 50.59 Safety Evaluation per LR-C-13 is NOT within the scope of this procedure.

2.2 This procedure contains the requirements for partial procedure use.

3.0 SOURCES AND REFERENCES

3.1 SOURCE DOCUMENTS

3.1.1 ANSI N18.7-1972, Administrative Controls for Nuclear Power Plants

3.1.2 PBAPS Quality Assurance Program, UFSAR Appendix D

3.1.3 NRC Regulatory Guide 1.33 - 1972

3.1.4 PBAPS UFSAR Section 13.6

3.1.5 CM-1, Ltr to NRC 07/22/88 (T00295)

3.1.6 CM-2, Ltr to NRC 08/31/87 (T00364)

3.1.7 CM-3, Ops Incident Rpt 2-89-21 (T00617)

3.1.8 CM-4, NRC PB URI 91-30-02 (T01666)

3.1.9 CM-5, Ltr to NRC 05/15/91 (T01022)

3.1.10 CM-6, Ltr to NRC 12/29/93 (T03245)

3.1.11 CM-7, Failure of Maintenance Procedures to comply with A-3 (Q0001535)

3.1.12 CM-8, Permanent Revisions TC's are not being revised in a timely manner (I0003541)

3.1.13 CM-9, Letter to NRC from G.A. Hunger, Jr. dated Sept. 29, 1994 transmitting TSCR 93-16 (Reference A/R A0905549 E94, Subsequent revisions to these sections require NRB approval)

3.2 **CROSS REFERENCES**

3.2.1 A-C-4.2, Station Qualified and Quality Reviewer Program

3.2.2 DC-CG-2, Processing and Retrieval of Quality Records

3.2.3 LR-C-10, Performance Enhancement Program (PEP)

3.2.4 LR-C-13, 10CFR50.59 Reviews

3.2.5 RE-C-40, Core Component Transfer Authorization Sheet Generation and Administration

4.0 **DEFINITIONS**

4.1 **CHANGE OF INTENT** - Any change in the function or conceptual method of the activity, the specific task, or goal. Refer to Exhibit A-3-1. **CM-3**, **CM-4**

4.2 **CONDITIONAL TC** - A Temporary Change approved for use through the duration of a defined plant or component condition, but NOT intended to permanently alter the procedure.

4.3 **EVALUATORS** - All persons involved with a TC, both pre-implementation and post implementation.

4.4 **PARTIAL PROCEDURES** - Properly authorized sections of a procedure when such use is not previously specified in the scope of the procedure. Partial procedures are NOT TCs and are processed in accordance with section 7.7.

4.5 **PERMANENT REVISION TC** - A Temporary Change approved for continuous use until distribution of the next revision of the affected procedure.

4.6 **PLANT MANAGEMENT STAFF** - Those individuals who are authorized to review and approve Temporary Changes at the time of implementation. This consists of two reviews. One

review is done by a Station Qualified Reviewer. The second review is done by Senior Reactor Operator.

4.7 **SENIOR REACTOR OPERATOR** - Any individual who is temporarily or permanently assigned to the Operations Section, who currently holds a valid Senior Reactor Operators License.

4.8 **SINGLE USE TC** - A Temporary change that is approved for one procedure performance, not intended for incorporation into a permanent revision and NOT be expected to be used again.

4.9 **TEMPORARY CHANGE (TC)** - An approved alteration to a controlled procedure which clearly does NOT change the intent of the original procedure and is valid over a defined duration.

4.10 **TC-CONTROLLED LOCATION** - Location in which TCs are captured.

4.11 **TC PACKAGE** - Original Exhibit A-3-3 and original altered procedure pages.

5.0 RESPONSIBILITY AND AUTHORITY

5.1 **PLANT MANAGEMENT STAFF** - Reviews and approves proposed Temporary Changes prior to their use. This consists of two Reviews, one done by an SQR, the other by an SRO.

5.2 **DOCUMENT SERVICES (DS)** - Collects, logs, and distributes copies of approved TCs and maintains TC database.

5.3 **INITIATOR** - Identifies the need for a temporary change to a procedure, properly prepares the TC, and completes required documentation.

5.4 **RESPONSIBLE SUPERINTENDENT (RS)** - Approves items within this program in accordance with A-C-4.2. In the post implementation review the SQR CANNOT be the same person as the RS.

5.5 **SENIOR REACTOR OPERATOR (SRO)** - Reviews and approves proposed temporary changes prior to their use and determines potential affect of TC on Operations activities.

5.6 **TC ADMINISTRATOR** - A person designated by Operations to update the TC Log, issue TC numbers and forward TC packages to the designated area at the end of each shift.

5.7 **STATION QUALIFIED REVIEWER (SQR)** - An appointed person knowledgeable in the functional area affected who is NOT the preparer of the item. The SQR may be from the same organization as the preparer.

6.0 PREREQUISITES

None

7.0 PROCEDURE

7.1 GENERAL

7.1.1 The evaluators shall be responsible for review of Exhibit A-3-1 to ensure no change of intent and the validity of the TC in question. **CM-3, CM-4**

7.1.2 TCs may be initiated for the following circumstances:

1. When the existing procedure is in error and time constraints prevent processing a procedure revision.

2. When the plant or component configuration is temporarily in conflict with that assumed by the procedure and time constraints prevent delay of performance.

7.2 INITIATION

7.2.1 TCs shall be prepared and processed in accordance with Exhibit A-3-2.

7.2.2 TC classification shall be assigned based on whether or not the TC use for subsequent performances of the procedure is appropriate:

1. PERMANENT REV (R) - TCs due to procedure error should be used until incorporation into the next procedure revision.

2. CONDITIONAL (C) - TCs due to a conflict with current Plant or System configuration which will exist until condition is resolved, and it is expected that the procedure is going to be performed more than once while the condition exists.

3. SINGLE USE (S) - TCs that will ONLY be needed for use ONE TIME. Plant or System configuration is expected to return to its initial condition.

7.2.3 The initiator shall present the TC to the SQR and SRO for review and approval PRIOR to obtaining a TC number.

7.3 **PRE-IMPLEMENTATION REVIEW**

7.3.1 Two members of Plant Management Staff who meet the following criteria shall review each TC: **CM-9**

1. The first reviewer shall be an SQR, who is an appointed person knowledgeable in the functional area affected. The SQR may be from the same organization as the preparer.

2. The second reviewer shall be a member of the Operation Section, who currently holds a valid Senior Reactor Operator License. **CM-9**

7.3.2 Reviewers shall verify that the proposed TC will NOT change the intent of the procedure and is within the scope of the TC process. Exhibit A-3-1 will determine the validity of the TC in question. **CM-3, CM-4, CM-9**

7.3.3 The SQR and SRO approval shall be documented on Exhibit A-3-3.

7.4 **PROCESSING AND DISTRIBUTION**

7.4.1 After the pre-implementation reviews and approvals are complete, the initiator shall obtain a TC number from the TC Administrator.

7.4.2 The TC Administrator shall complete appropriate log entries and forward all TC packages to the designated area for post implementation review and approval.

7.4.3 CONDITIONAL and PERMANENT REV TCs shall be distributed by DS to designated TC-controlled locations during the next scheduled distribution.

7.5 **POST IMPLEMENTATION REVIEW**

7.5.1 The SQRs shall review procedures/programs/guidelines that their group, or groups under their purview, have responsibility or sponsorship for revising or generating the entire document, or significant responsibility in performing the entire document. The additional SQR shall be performed to determine if a Change of Intent was made to the procedure in accordance with Exhibit A-3-1. **CM-3, CM-4, CM-9**

7.5.2 The SQR shall recommend either approval or disapproval of the TC to the RS and shall document such on Exhibit A-3-3. The RS and the SQR shall NOT be the same individual.

7.5.3 Should the TC be disapproved, the SQR shall take remedial action to resolve the unsatisfactory aspect of the TC including:

1. Halting the use of the TC.

2. Ensuring removal of the TC from distribution.

3. Presenting documented resolution of the recommended actions to RS.

4. Initiating a PEP in accordance with LR-C-10.

7.5.4 The SQR ensures the required date is entered on Exhibit A-3-3 as follows:

1. Permanent Revision **CM-8**

   - For RT, SI, ST, the test shall be revised and implemented prior to the next scheduled date, except weekly and bi-weekly tests which shall be revised and implemented within 30 days from the initiated date

   - For a procedure that does not have a schedule frequency, from the time the TC was initiated, the procedure shall be revised and implemented within 60 days for station procedures and 120 days for common procedures.

2. Conditional

   - If closure date is known, enter that required date

   - If closure date is not known, enter 1/20/20

7.5.5 The RS shall approve or disapprove TCs within 14 days of implementation. **CM-9**

7.6 **TEMPORARY CHANGE MAINTENANCE CM-1, CM-5**

7.6.1 DS shall maintain a TC database for Responsible Group action and accountability.

7.6.2 Responsible Groups shall use the TC PIMS database to ensure the continued validity of all open TCs and satisfaction of the 14 day requirement.

7.6.3 Responsible Groups shall refer to the TC database during procedure reviews to ensure that coincidental revisions incorporate any open Permanent Revision TCs.

7.6.4 The organization that initiated the TC shall notify DS of conditional TCs which need to be removed from distribution and the TC database.

7.6.5 DS shall update the TC database in response to requests and remove conditional TCs from distribution during their next scheduled distribution.

7.6.6 If a TC for permanent revision has not been revised and implemented by its required date, then initiate a PEP in accordance with LR-C-10.

7.7 **PARTIAL PROCEDURE USE CM-2, CM-7**

7.7.1 If the task authorized for performance is <u>more limited in scope</u> than the procedure being used, authorization to disregard the unnecessary portions of the procedure may be obtained.

For example: Following maintenance on the "A" Core Spray Pump, only the portion of ST-O-014-300-2 which pertains to the "A" Pump need be performed.

7.7.2 With the exception of COLs, if the task to be performed is intended to accomplish the <u>entire scope</u> of a procedure a TC shall be processed.

7.7.3 The SQR shall be a person knowledgeable in the functional area affected and verify the procedure is valid as it is intended to be performed and that it accomplishes its objectives.

1. Enter the word PARTIAL on the first page of the procedure. Record the reasons for partial versus complete performance and whether additional testing is required to fulfill surveillance test requirements, where applicable.

2. Indicate on the procedure those steps or portions of the procedure that are not required to be performed.

3. Review the procedure to verify that the Partial performance will be valid and to confirm that it will accomplish its objective.

4. Initial and date the affected steps or pages.

5. Proper restoration of the affected equipment.

8.0 **DOCUMENTATION**

8.1 The Temporary Change package is filed in accordance with DC-CG-2 following final approval.

8.2 Common Nuclear Procedure TCs initiated by either site, will be available to the other site for **information only** from DS.

8.3 Partial Procedures are forwarded through the governing work and test control processes to DS by the performing organization for final storage.

8.4 The TC Log is not considered to be a permanent record and can be disgarded after all entries are completed.

9.0 **EXHIBITS**

9.1 Exhibit A-3-1, "Temporary Change Screening Matrix"

9.2 Exhibit A-3-2, "Completing and Processing a Temporary Change"

9.3 Exhibit A-3-3, "Temporary Change Form"

PORC	YES
SQR	YES
QR	YES
50.59	YES
Resp. Mgr.	YES

TEMPORARY CHANGE SCREENING MATRIX

	COMMENTS/NOTES
Changes to the following procedures: **(1)** • Administrative (-type) as defined in AA-C-5 (Exc:A-8 Exhibits) • Emergency Response Procedures • Fire Guides and Procedures (T-300) • Prefire Strategy • Special Event (Exc:SE-10.1 App's) • Trips, OTs, ONs • Core Component Transfer Authorization Sheets **(2)**	**(1)** Excluded from A-3 process. **(2)** See RE-C-40 for change method.
Deletion of SQR and SRO approval or authorization steps	Excluded from A-3 scope.
Changes to procedures which contain a statement prohibiting Temporary changes against them	Excluded from A-3 scope.
Changes to procedure usage level.	Excluded from A-3 scope.
Change resulting in activity in conflict with one or more of the following: • Emergency Plan • Environmental Protection Plan • Fire Protection Plan/Program • QA Program • Security Plan • Technical Specifications Bases • UFSAR • NRC/PECO Safety Evaluation Reports	Changes to the SAR Excluded from A-3 scope
The following are NOT considered to be temporary changes: (This is not intended to be a complete list) • Discrepancy in the page headers • Changes to notes or caution statements • Plant location designations (eg., R2-22, in place of R2-21) • One or two incorrect designators, where the correct designation has been consistently used throughout the document (eg. HV-3-03-04425 should be HV-2-03-04425) **(3)** • A description of a Alarm Window or Tag has a slight variation and the meaning is the same (eg. It should be "Hi" and it reads "High")	**Use as is. Initiate a** PPIS. **(3)** Applies ONLY to Unit specific procedures ie. common procedures shall be TC'ed
Changes being made for the purpose of protecting personnel and equipment during operations maintenance and modification activities	Use Clearance & Tagging process or other approved methods. **CM-6**
Performance of only certain portions of a procedure which do not change the intent of the procedure, when properly authorized per A-3.	TC not required. Use PARTIAL process.
Changes to a Special Procedure or Modification Acceptance Test	**Initiate single use TC only**
Changes to tolerances on Maintenance procedures. These changes must be within the recognized design boundary of the equipment. Other tolerances changes cannot be processed as a TC.	The SQR for pre-implementation shall be from a maintenance discipline area. **Initiate single use TC only**
Change to scope/performance section which changes the purpose of procedure	Change of intent.
Changes to or Elimination of acceptance criteria in a test (e.g., delete an asterisk or black box step from an ST)	Change of intent.
Changes to calculation/formulas critical to achievement of procedure goal, NOT previously 10CFR50.59 evaluated	Change of intent.
Changes that eliminate QV hold points.	Change of Intent.
Changes to or deletion of procedure steps annotated to Flag commitments or other corrective measures.	Change of Intent.

PORC	NO
SQR	YES
QR	NO
50.59	NO
Resp. Mgr.	YES

COMPLETING AND PROCESSING A TEMPORARY CHANGE

1.0 **INSTRUCTIONS**

1.0.1 Prior to initiation of a TC, the initiator shall determine if the TC is valid. Use Exhibit A-3-1 to determine the validity of the TC in question.

1.1 **TC INITIATION**

1.1.1 This section provides additional help for the following:

1. When to supersede existing TCs

2. Preparation of the procedure changes

1.1.2 TC CLASSIFICATION should be selected by the TC initiator based on whether or not future procedure users will need the same procedure changes in order to perform the procedure correctly.

1.1.3 TCs marked "CONDITIONAL" shall include one of the following actions to ensure TC closure at the appropriate time:

1. For changes associated with maintenance to plant equipment, have the TC number added to the Action Request (A/R) or Work Order by initiating an additional evaluation or activity to track the TC as a closure mechanism.

2. For changes associated with testing, have the TC number added to the A/R by initiating an additional Evaluation.

3. For other programs such as Nonconformance Reports (NCR), add the TC number to the NCR and make it part of the NCR closure mechanism.

4. If the TC does not fit the above categories the initiator shall generate an A/R and assign the A/R to the responsible System Manager/Owner of the procedure as a closure mechanism.

1.1.4 The initiator shall NOT include changes of different classifications on the same TC.

1.1.5 When preparing the temporary change for approval, a Working Copy, obtained preferably from Lotus Notes or DS, shall be used for TC preparation. TCs **shall** be prepared on **clean pages**.

1. Only one type of TC classification (ie. Conditional, Permanent Revision, or Single Use) may be applied to a given page within a procedure.

2. The application of a new TC to a page will supersede any existing temporary change.

1.1.6 All superseded TCs will be deleted and removed from distribution. For this reason the Initiator shall:

1. Ensure that all changes have been included or addressed by the new TC.

2. List all TCs being superseded on Exhibit A-3-3, Part A, step 6.

1.1.7 The step shall be shown by marking the procedure in a clear and legible manner, with BLACK INK:

1. Draw a single line through items to be changed.

2. Enter new text as close to the affected step(s) as possible (preferably below the affected step) or if new text cannot be added near the affected step(s) then perform the following:

   a. Enter "CONTINUED ON PAGE ___ A of ___" (where A is the first added page, B is the second page added etc.)

   b. On top of the continued pages include the following:

      - Procedure number
      - Revision
      - Page ___ A of __

3. Include the following information in the left margin next to each changed procedure step. The right margin may be used when no space is available on the left.

   a. Initials/Date of SQR

   b. Initials/Date of SRO

1.2 **TEMPORARY CHANGE REVIEWERS**

1.2.1 The Initiator shall present Exhibit A-3-3 and the entire procedure prepared with the change(s) to the SQR and SRO for review and approval prior to obtaining a TC number.

1.2.2 The **SQR** shall be a person knowledgeable in the functional area affected **for the type of procedure** which is being altered or a Technical Reviewer shall be consulted.

1.2.3 The **SRO** shall be a member of the Operation Section, who currently holds a valid Senior Reactor Operator License.

1.3 **TC PRE-IMPLEMENTATION REVIEW AND APPROVAL**

1.3.1 Both TC Reviewers (SQR and SRO) evaluate the proposed change to ensure that the TC is required and valid. Exhibit A-3-1 will determine the validity of the TC in question. **CM-3, CM-4**

1. If the proposed TC is identified as a change of intent, or is prohibited by Exhibit A-3-1 exit this procedure.

1.3.2 Both TC Reviewers shall examine the altered procedure and answer the questions listed in Part B on Exhibit A-3-3.

1. If any of the questions 1 through 4 are answered "NO", then the TC shall not be approved.

2. If question 5 is "NO", correct the selected classification.

3. If question 6 or 7 is answered "YES", then the additional conditions or requirements shall be listed on Exhibit A-3-3 Part B.

1.3.3 The SRO shall also determine if the potential impact of the TC on upcoming Operations activities merits immediate attachment to the Control Room procedure. Document the decision on Exhibit A-3-3, Part B-8:

1. NORMAL DISTRIBUTION allows attachment to wait until the next DS scheduled distribution run. For example, a TC initiated on Friday evening would be distributed to the Control Room the following Monday.

2. IMMEDIATE DISTRIBUTION will indicate that the TC Administrator shall attach the TC to the procedure **THAT SHIFT.**

1.3.4 As each Reviewer is satisfied with all aspects of the Temporary Change, the Reviewer shall:

1. Initial and date in the space provided in the margin next to each changed portion of the procedure.

2. Print name, initial, time, and date on Exhibit A-3-3, Part B.

1.4 **TEMPORARY CHANGE NUMBER**

1.4.1 When SQR and SRO review and approval are complete, then the Initiator obtains a TC Number from the TC Administrator.

1.4.2 The TC Administrator assigns the next sequential number from the TC Log. Sequential numbers shall be assigned in the format XX-YYYY, where XX are the last two digits of the calendar year and YYYY is the current total number of initiated TCs for that year.

1.4.3 The TC Administrator shall stamp the assigned TC number on Exhibit A-3-3 and at the top of each affected page.

1.5 **TC ADMINISTRATOR CHECK**

1.5.1 The TC Administrator shall verify that all log entries are complete, the 14 day time limit is established, and signs Exhibit A-3-3 Part C.

1.5.2 The TC Administrator is responsible to make one copy of Exhibit A-3-3 and one copy of the affected procedure pages.

1.5.3 The TC Administrator is responsible to provide a copy of Exhibit A-3-3 and a copy of affected procedure pages to the initiator. Initiator retains a copy of the TC package.

1.5.4 If "IMMEDIATE DISTRIBUTION" has been advised on Exhibit A-3-3 Part B-8, the initiator shall incorporate the TC into field working copies and the TC Administrator shall incorporate the TC into the Control Room procedure books and consumables immediately by:

1. Making single sided copies of the procedure and TC package on blue paper. **CM-5**

2. Attaching a copy of Exhibit A-3-3 to the front of the procedure.

3. Replace corresponding page with the affected TC page.

4. If there are additional TC pages added to the procedure (e.g., 5a, 5b), they shall be added after the corresponding page.

1.5.5 At the end of each shift, the TC Administrator shall deliver the TC package(s) to the designated area.

1.6 **CONTROL AND DISTRIBUTION**

1.6.1 After receiving the TC Package, DS performs the following:

1. Copies the TC for distribution.

2. Enters the TC into Lotus Notes on top of the corresponding procedure. **CM-5**

3. Forwards the TC package(s) to the responsible group.

4. Distributes copies of the TC to the designated TC-controlled locations.

1.6.2 For normal distribution in the Control Room, and other designated TC-controlled locations DS shall capture the TC by performing the following:

1. Making single sided copies of the procedure and TC package on blue paper. **CM-5**

2. Attaching Exhibit A-3-3 to the front of the procedure.

3. Replace the corresponding page with the affected TC page.

4. If there are additional TC pages added to the procedure (e.g., 5a, 5b), they shall be added after the corresponding page.

1.7 **POST IMPLEMENTATION REVIEW, APPROVAL, AND DISPOSITION**

1.7.1 SQR shall review TCs within 14 days of implementation for the following aspects:

1. Does the TC meet the requirements of Exhibit A-3-1? **CM-3**, **CM-4**

2. Does it appear that the TC was proper with regard to technical accuracy and nuclear safety?

1.7.2 If the SQR determines that the TC for permanent revision is appropriate, it shall be approved within the time frame requirements of A-3 and processed as follows:

1. To determine the next scheduled date for RT, SI and ST procedures perform the following in PIMS.

   - =4.2..11

   - Procedure NBR; e.g., <u>ST-</u> <u>O-60F-400</u>

   - Enter the required revision date based on the next scheduled start date on Exhibit A-3-3, Part D-2.

2. For procedures without scheduled date, enter the required date on Exhibit A-3-3, Part D-2.

1.7.3 SQR shall recommend either approval or disapproval of the TC to the RS and shall sign on Exhibit A-3-3, Part D-3a.

1.7.4 The RS shall review the TC within 14 days of performance (implementation) and document approval or disapproval Exhibit A-3-3, Part D-3b.

1.7.5 The TC package is forwarded to DS for logging and final storage.

1.8 **TEMPORARY CHANGE DISAPPROVAL**

NOTE
The following applies to TC disapproval during the 14-day review only.

1.8.1 If the TC is disapproved during post-implementation review for any reason, then:

1. The SQR/RS shall note the basis on Exhibit A-3-3, Part D and check the "Approved - NO" box, sign and date Exhibit A-3-3, Part D.

2. The activities completed during the TC use shall be evaluated for adverse impact.

3. Remedial corrective actions shall be recommended to resolve the unsatisfactory aspect of the TC.

4. Initiate a PEP in accordance with LR-C-10.

1.8.2 Exhibit A-3-3, Part D, shall be completed and DS notified that the TC is to be removed from distribution.

1.8.3 DS shall remove disapproved TCs from TC-controlled locations.

1.9 **TEMPORARY CHANGE TRACKING AND MAINTENANCE CM-1, CM-5**

1.9.1 Using TC database, the responsible group reviews the TC computer log (via fastpath =0.5..16 responsible group <u>or</u> =0.5..9 TC Number) to verify:

1. Listed TCs are still valid.

2. Existing Conditional TCs against procedures which are being revised are re-initiated, if still valid.

3. If a TC for permanent revision has not been revised and implemented by its required date, then initiate a PEP in accordance with LR-C-10.

1.10 **TC CANCELLATIONS**

NOTE
A new procedure revision will supersede <u>all</u> TCs applied to the previous revision.

1.10.1 Conditional TCs which are no longer valid can be removed by:

1. The organization that initiated the TC verifies the Conditional TC is no longer required and the activity e.g., A/R, Work Order has been closed out.

   a. This organization shall notify DS to remove the TC by giving the TC number, procedure number and the activity number that closed out the TC.

2. Document Services shall verify the activity associated with the TC has been closed out and make necessary distribution and TC database changes.

1.10.2 DS shall remove all copies of the cancelled or superseded TCs from TC-controlled location. DS shall update the TC database to reflect the TC closure.

1.11 **USE OF EXISTING TCs**

1.11.1 When a working copy of a procedure is provided for use with an attached TC, the following shall be completed PRIOR to performance by the person performing the procedure:

1. Attach Exhibit A-3-3 to the front of the procedure.

2. Replace the corresponding page with the affected TC Page.

3. If there are additional TC pages (e.g., 5a, 5b) they shall be added after the corresponding page.

PECO NUCLEAR
PEACH BOTTOM ATOMIC POWER STATION
JOB PERFORMANCE MEASURE

POSITION TITLE: Unit Reactor Operator/Senior Reactor Operator

TASK-JPM DESIGNATOR: 2830090101 K/A: 2.1.20

URO: 4.3 SRO: 4.2

TASK DESCRIPTION: Perform a Manual Heat Balance

A. NOTES TO EVALUATOR:

1. An asterisk (*) before the step number denotes a CRITICAL STEP. CRITICAL STEPS are those steps which when not performed correctly will prevent the system from functioning properly or prevent successful task completion.

2. System cues included in the performance checklist are to be provided to the examinee when no system response is available.

3. JPM Performance

   a. "Control Room" JPMs are designed to be performed in the simulator. If a "Control Room" JPM is to be performed in the Control Room all perform steps (P) shall be simulated (S).

   b. When performing "In-Plant" JPMs, no equipment will be operated without Shift Management approval.

4. Satisfactory performance of this JPM is accomplished if:

   a. The task standard is met.

   b. JPM completion time requirement is met.

      1) For non-time critical JPMs, completion within double the estimated time (listed in paragraph D.2) is acceptable provided the evaluator determines that the progress to completion is acceptable.

      2) For time critical JPMs, completion within the estimated time (listed in paragraph D.2) is required.

5. The estimated time to complete this JPM, though listed in the task standard, is not to be given to the examinee.

B. TOOLS AND EQUIPMENT

1. Calculator

C. REFERENCES

1. RE-C-05, Rev. 1, "Manual Heat Balance"

D. TASK STANDARD

1. Satisfactory task completion is indicated when Core Thermal power has been calculated and recorded.

2. Estimated time to complete: 20 minutes Non-Time Critical

E. DIRECTIONS TO EXAMINEE

When given the initiating cue, perform the necessary steps to calculate a manual heat balance using the appropriate procedure. I will describe initial plant conditions and provide you access to the materials required to complete this task.

F. TASK CONDITIONS/PREREQUISITES

1. You have been directed to perform a manual heat balance.

2. The "Manual Heat Balance" procedure RE-C-05, is in progress and is complete through step 6.2.

3. The Reactor Engineer has determined that Data Sheet #1 (PMS Computer Data) is to be used for plant data.

G. INITIATING CUE

Perform a manual heat balance in accordance with RE-C-05, "Manual Heat Balance".

PECO NUCLEAR
PEACH BOTTOM ATOMIC POWER STATION
JOB PERFORMANCE MEASURE

POSITION TITLE: Unit Reactor Operator/Senior Reactor Operator

TASK-JPM DESIGNATOR: 2830090101 K/A: 2.1.20

URO: 4.3 SRO: 4.2

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   a. "Control Room" JPMs are designed to be performed in the simulator. If a "Control Room" JPM is to be performed in the Control Room all perform steps (P) shall be simulated (S).

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   b. JPM completion time requirement is met.

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      2) For time critical JPMs, completion within the estimated time (listed in paragraph D.2) is required.

5. The estimated time to complete this JPM, though listed in the task standard, is not to be given to the examinee.

B. TOOLS AND EQUIPMENT

1. Calculator

C. REFERENCES

1. RE-C-05, Rev. 1, "Manual Heat Balance"

D. TASK STANDARD

1. Satisfactory task completion is indicated when Core Thermal power has been calculated and recorded.

2. Estimated time to complete: 20 minutes Non-Time Critical

E. DIRECTIONS TO EXAMINEE

When given the initiating cue, perform the necessary steps to calculate a manual heat balance using the appropriate procedure. I will describe initial plant conditions and provide you access to the materials required to complete this task.

F. TASK CONDITIONS/PREREQUISITES

1. You have been directed to perform a manual heat balance.

2. The "Manual Heat Balance" procedure RE-C-05, is in progress and is complete through step 6.2.

3. The Reactor Engineer has determined that Data Sheet #1 (PMS Computer Data) is to be used for plant data.

G. INITIATING CUE

Perform a manual heat balance in accordance with RE-C-05, "Manual Heat Balance".

H. PERFORMANCE CHECKLIST

STEP NO	STEP	ACT	STANDARD
1	Obtain a copy of procedure RE-C-05.	P	A copy of procedure RE-C-05 is obtained.
*2	Complete the Preliminary Calculations Worksheet item #16 for feedwater flow.	P	Calculate feedwater flow as 10.26 MLB/HR by adding Data Sheet #1 items 1, 2, and 3. 0 + 5.13 + 5.13 = 10.26 MLB/HR
*3	Complete the Preliminary Calculations Worksheet item #17 for feedwater temperature.	P	Calculate feedwater temperature as 360 deg. F by adding Data Sheet #1 items 4, 5, 6, & 6a, and dividing by four. 360 + 360 + 360 + 360 = 1440/4 = 360
*4	Complete the Preliminary Calculations Worksheet item #23 for total Reactor Water Cleanup (RWCU) flow.	P	Calculate RWCU flow as 1.155×10^{-6} MLB/HR by adding Data Sheet #1 items 12 & 13, multiplying by 8.021×10^{-6} and dividing by v (specific volume of saturated liquid for the temp in item #14). $(.072 + .072)(8.021 \times 10^{-6}) = 1.155 \times 10^{-6}$ MLB/HR
*5	Complete the Preliminary Calculations Worksheet item #24 for CRD flow.	P	Determine CRD flow as .030 MLB/HR by inputting the computer point value for item #7.
*6	Complete the Preliminary Calculations Worksheet item #9A for reactor pressure.	P	Calculate RX pressure as 1000 psia by adding 14.7 psi to Data Sheet #1 item #9. 14.7 + 985.3 = 1000 psia
7	Sign the Preliminary Calculation Worksheet complete.	P	Initial and date step 6.3.
*8	Complete the Steam Table Data sheet item #18.	P	Calculate feedwater Enthalpy h_{fw} as 333.57 BTU/LB by plotting feedwater temperature (item #17) and RX Pressure (item #9A) on Appendix 'B'.
*9	Complete the Steam Table Data sheet item #19.	P	Calculate saturated steam Enthalpy h_{st} by plotting RX Pressure (item #9A) on Appendix 'A'. An interpolation of these numbers will result in 1191.8 BTU/LB (acceptable range from 1186 to 1193 BTU/LB).

STEP NO	STEP	ACT	STANDARD
*10	Complete the Steam Table Data sheet item #20.	P	Calculate the Enthalpy of Reactor Water Cleanup (RWCU) h_{cuo} from the core as 499.69 BTU/LB, by plotting RWCU inlet temp. (item #14) and RX Pressure (item #9A) on Appendix 'B'
*11	Complete the Steam Table Data sheet item #21.	P	Calculate the Enthalpy of Reactor Water Cleanup (RWCU) h_{cui} into the core as 375.96 BTU/LB, by plotting RWCU inlet temperature (item #15) and RX Pressure (item #9A) on Appendix 'B'.
*12	Complete the Steam Table Data sheet item #22.	P	Calculate the Enthalpy of CRD h_{crd} as 80.57 BTU/LB, by plotting RWCU inlet temp. (item #8) and RX Pressure (item #9A) on Appendix 'B'.
13	Sign the Steam Table Data sheet complete.	P	Initial and Date step 6.4.
*14	Complete the Calculation Worksheet item #25 for the mass flow rate of steam.	P	Calculate the mass flow rate of steam as 10.29 MLB/HR by adding items #16 and 24 from the Preliminary Calculations worksheet. 10.26 + .030 = 10.29MLB/HR
*15	Complete the Calculation Worksheet item #26 for the energy of the steam.	P	Calculate the steam energy rate as 3593.24 MW, by adding multiplying items #25 x #19 x 0.293. 10.29 x 1191.9 x .293 = 3593.24 MW
*16	Complete the Calculation Worksheet item #27 for the RWCU energy rate out of the core.	P	Calculate the RWCU energy rate out of the core as 1.69×10^{-4} MW, by multiplying items #23 x #20 x 0.293. $(1.155 \times 10^{-6}) \times 499.69 \times 0.293 =$ 1.69×10^{-4} MW
*17	Complete the Calculation Worksheet item #28 for the feedwater energy rate.	P	Calculate the feedwater energy rate as 1002.77 MW, by multiplying items #16 x 18 x 0.293. 10.26 x 333.57 x 0.293 = 1002.77 MW

STEP NO	STEP	ACT	STANDARD
*18	Complete the Calculation Worksheet item #29 for the CRD energy rate.	P	Calculate the CRD energy rate as 0.708 MW, by multiplying items #24 x 22 x 0.293. .030 x 80.57 x 0.293 = 0.708 MW
*19	Complete the Calculation Worksheet item #30 for the RWCU energy rate into the core.	P	Calculate the RWCU energy rate into the core as 1.27×10^{-4} MW, by multiplying items #23 x 21 x 0.293. $(1.155 \times 10^{-6}) \times 375.96 \times 0.293 =$ 1.27×10^{-4} MW
*20	Complete the Calculation Worksheet item #31 for the power input from the Reactor Recirc. Pumps.	P	Calculate the Recirc. Pumps power input as 1.21 MW, by adding items #10 & 11, and multiplying by .948. (.64 + .64) x .948 = 1.21 MW
*21	Complete the Calculation Worksheet for the Core Thermal Power.	P	Calculate Core Thermal Power as 2530.87 MW, by adding items #26 & 27 + 2.1 and subtracting the sum of items #28, 29, 30, and 31. (3593.24+1.69E-4+2.1) - (1002.77+.708+30+31) = 2530.87 MW (Acceptable range of 2514 to 2535 MW depending on enthalpy identified in JPM step 9 (procedure step 19).
*22	Record Core Thermal Power.	P	Record Core Thermal Power in step 6.6, and initial and date.

***** NOTE *****

Terminate the exercise when the activities listed above are performed.

Under "ACT" P - must perform
S - must simulate

I. TERMINATING CUE

When Core Thermal Power has been calculated, the evaluator will then terminate the exercise.

TASK CONDITIONS/PREREQUISITES

1. You have been directed to perform a manual heat balance.

2. The "Manual Heat Balance" procedure RE-C-05, is in progress and is complete through step 6.2.

3. The Reactor Engineer has determined that Data Sheet #1 (PMS Computer Data) is to be used for plant data.

INITIATING CUE

Perform a manual heat balance in accordance with RE-C-05, "Manual Heat Balance".

PECO Energy Company
NUCLEAR GENERATION GROUP

MANUAL HEAT BALANCE

1.0 PURPOSE

This procedure provides methods of manually calculating Core Thermal Power using operating parameters.

2.0 SCOPE

This procedure applies to performing manual heat balance calculations by using PMS Computer Points or by using Control Room Instrumentation.

The thermal power of the reactor core is determined by a heat balance on the reactor vessel using operating data. Under steady-state conditions, the reactor vessel heat output is obtained as the difference between the total heat removed from the vessel minus the heat added in the flow streams returning to the vessel. In symbol form the equation is:

$$CTP = (Q_{st} + Q_{cuo} + Q_{rad}) - (Q_{fw} + Q_{crd} + Q_{cui} + W)$$

Where:

CTP = Core Thermal Power

Q_{st} = Steam Energy Rate

Q_{cuo} = Clean-up Energy Rate Out of Core

Q_{rad} = Radiative Losses and unmonitored losses

Q_{fw} = Feedwater Energy Rate

Q_{crd} = Control Rod Drive Cooling Water Energy Rate

Q_{cui} = Clean-up Energy Rate into Core

W = Power Input from Recirc. Pumps

3.0 SOURCES AND REFERENCES

3.1 SOURCES

3.1.1 General Electric Mechanical & Nuclear Training, Station Nuclear Engineering Manual, Volume I NEDO-24810C, September 1986 and Volume II (Process Computer),NEDE-24810, January 1987. (PBAPS)

3.1.2 NSS Design Specifications for Core Thermal Power (CTPSUB), SR-1. (PBAPS)

3.1.3 Station Nuclear Engineering Training Manual, Vol. II Process Computer. (LGS)

4.0 PREREQUISITES

4.1 Reactor should be in a steady state condition with Feedwater flow on scale.

SRO 2/xx/01
INITIALS/DATE

4.2 Verify that no Emergency Core Cooling System (ECCS) is in operation or is being functionally tested.

SRO 2/xx/01
INITIALS/DATE

4.3 IF this procedure is being performed to support RE-C-22, "Core Performance Monitoring Without the NSSS Software Computers", THEN data collection for both procedures shall be performed concurrently.

5.0 PRECAUTIONS AND LIMITATIONS

5.1 PRECAUTIONS

5.1.1 This test should be performed under steady state reactor conditions to ensure a high degree of accuracy. Reactor transients will reduce the accuracy of the thermal power calculation.

5.1.2 Since steam flow measurements are not very accurate, steam flow should be determined used the following equation:

$$\dot{M}_{st} = \dot{M}_{fw} + \dot{M}_{crd}$$

Where:

$\dot{M}_{st}$ = Mass Flow Rate of Steam (MLB/HR)

$\dot{M}_{fw}$ = Mass Flow Rate of Feedwater (MLB/HR)

$\dot{M}_{crd}$ = Mass Flow Rate of Control Rod Drive Water (MLB/HR)

5.1.3 IF the cleanup system is in vessel to vessel mode (valves to condenser and waste surge tank are fully closed and dump flow indicating zero), THEN the core thermal power calculation should be accurate. IF the cleanup system is in dump mode (dumping to condenser), THEN the core thermal power calculation will give an artificially higher value. This is acceptable since the calculated core thermal power will be more conservative (higher) than the actual core thermal power.

5.1.4 Peer checking shall be performed for data collection.

5.2 LIMITATION

5.2.1 IF values obtained from control room indication are used, THEN there is no control room instrumentation to read the CRD temperature. A constant value of 120 °F should be used for the CRD temperature.

NOTE

WHEN required to verify the fulfillment of technical specifications, THEN this calculation will be performed by two different people OR performed by one AND checked by another.

6.0 PROCEDURE

NOTE

This procedure provides two different methods for performing the manual heat balance calculation. The two Tables attached (Data Sheet 1 - PMS Computer Points, and Data Sheet 2 - Control Room Instrumentation) may be completed for comparison or system analysis.

6.1 Have the Reactor Engineer determine which Table is to be used.

RE Data Sheet 1 -(PMS Computer Data)

_____ Data Sheet 2 -(Control Room Instrumentation)

SRO 2/xx/01
INITIALS/DATE

NOTE

IF this procedure is being performed to support RE-C-22, "Core Performance Monitoring Without the NSSS Software Computers", THEN data collection for both procedures shall be performed concurrently.

6.2 Obtain the values listed on the required Data Sheet. SRO 2/xx/01 PC
INITIALS/DATE

6.3 Complete the Preliminary Calculations Worksheet.
INITIALS/DATE

6.4 Complete Data Sheet 3 - Steam Table Data.
INITIALS/DATE

6.5 Complete the attached Calculation Worksheet.
INITIALS/DATE

6.6 Record CTP from Calculation Worksheet below.

CTP = _____ (MW)
INITIALS/DATE

7.0 DOCUMENTATION

None

8.0 EXHIBITS

8.1 Data Sheet 1 - PMS Computer Data

8.2 Data Sheet 2 - Control Room Instrumentation

8.3 Preliminary Calculations

8.4 Data Sheet 3 - Steam Table Data

8.5 Core Thermal Power Calculation Worksheet

8.6 Appendix A - Steam Table

8.7 Appendix B - Compressed Water Table

9.0 TECHNICAL SPECIFICATIONS

No Technical specifications are applicable to this procedure; however, this procedure can be used to verify that rated power as defined in Tech Specs is not exceeded.

Data Collected on (select one):
LGS1 ____
LGS2 ____
PBAPS2 ____
PBAPS3 ____

DATA SHEET 1

PMS Computer Points

Item #	Parameter	LIMERICK		PEACH BOTTOM	
		Computer Point ID	Data	Computer Point ID	Data
1	Feedwater Flow A	K000NSS	MLB/HR	B*18R	0 MLB/HR
2	Feedwater Flow B	K001NSS	MLB/HR	B*19R	5.13 MLB/HR
3	Feedwater Flow C	K002NSS	MLB/HR	B*20R	5.13 MLB/HR
4	Feedwater Temp A1	K007NSS	°F	B*29R	360 °F
5	Feedwater Temp A2	K008NSS	°F	B*30R	360 °F
6	Feedwater Temp B1	K009NSS	°F	B*31R	360 °F
6a	Feedwater Temp B2	K010NSS	°F	B*32R	360 °F
7	CRD Flow	B020CM	MLB/HR	B*17R	.030 MLB/HR
8	CRD Temp	R000	°F	M*51R	110 °F
9	Reactor Pressure	E*234NSS	PSIG	B*13R	985.3 PSIG
10	A Recirc M/G Pwr	B031	MW	B*23R	0.64 MW
11	B Recirc M/G Pwr	B032	MW	B*24R	0.64 MW
12	RWCU Flow A	B024CM	MLB/HR	B*21R	.072 MLB/HR
13	RWCU Flow B			B*22R	.072 MLB/HR
14	RWCU Inlet Temp (Reac Wtr Out)	B047	°F	B*27R	510 °F
15	RWCU Outlet Temp (Reac Wtr In)	B048	°F	B*28R	400 °F

For LGS * = 1 for Unit 1 and 2 for Unit 2. For PBAPS * = 0 for Unit 2 and 3 for Unit 3.
Date Collected on _____ (Date) at _____ (Time)
Person Collecting Data Initials RO

Data Collected on (select one):
LGS1 _____
LGS2 _____
PBAPS2 _____
PBAPS3 _____

DATA SHEET 2

Control Room Instrumentation

Item #	Parameter	LIMERICK			PEACH BOTTOM		
		Instrument	Location	Data	Instrument	Location	Data
1	Feedwater Flow A	FI06-*R604A	*0C603	MLB/HR	FR-*565A or **	*0C005A	MLB/HR
2	Feedwater Flow B	FI06-*R604B	*0C603	MLB/HR	FR-*565B or **	*0C005A	MLB/HR
3	Feedwater Flow C	FI06-*R604C	*0C603	MLB/HR	FR-*565C or **	*0C005A	MLB/HR
4	Feedwater Temp A	TI-03-*01 [46]	*0C668	°F	TR-*151A	*0C005A	°F
5	Feedwater Temp B	TI-03-*01 [47]	*0C668	°F	TR-*151B	*0C005A	°F
6	Feedwater Temp C	TI-03-*01 [48]	*0C668	°F	TR-*151C	*0C005A	°F
7	CRD Flow	FI-46-*R605	*0C603	GPM	FI-*-03-310	*0C005A	GPM
8	CRD Temp	N/A	N/A	120°F	N/A	N/A	120°F
9	Reactor Pressure	PI-42-*R605	*0C603	PSIG	PI-*-06-090A	*0C005A	Ave Press
					PI-*-06-090B	*0C005A	PSIG
10	A Recirc M/G Pwr	B32-*R624A	*0C602	MW	XI-*-02-184-024A	*0C004A	MW
11	B Recirc M/G Pwr	B32-*R624B	*0C602	MW	XI-*-02-184-024B	*0C004A	MW
12	RWCU Flow A	FI-44-*R609 ***	*0C602	GPM ***	FI-*-12-141A	*0C004A	GPM
13	RWCU Flow B				FI-*-12-141B	*0C004A	GPM
14	RWCU Inlet Temp (Reac Wtr Out)	TI-44-*R607 TSS44-1N601 [1]	*0C602	°F	TI-*-12-137 SS-*-12-142 (1)	*0C004A	°F
15	RWCU Outlet Temp (Reac Wtr In)	TI-44-*R607 TSS44-1N601 [4]	*0C602	°F	TI-*-12-137 SS-*-12-142 (4)	*0C004A	°F

* = Unit Identifier
** = Feedwater Flow may be obtained from the digital Feedwater Computer (measures in MLB/HR).
***= Only one parameter for LGS, Treat this value as equal to ((12) + (13)) on calc sheets.

Date Collected on _____ at _____ Person Collecting Data Initials _____
Date Time

PRELIMINARY CALCULATIONS

Feedwater Flow:

FW flow = (1) + (2) + (3)

FW flow = _____ (MLB/HR)
(16)

Feedwater Temperature:

FW Temp = $\frac{(4)+(5)+(6)+(6a)}{4}$ (Data Sheet 1) or $\frac{(4)+(5)+(6)}{3}$ (Data Sheet 2)

FW Temp = _____ (°F)
(17)

Total RWCU Flow:

For Computer Point Data use:

$\dot{M}_{cu}$ = (12) + (13)

For Control Room Indication use:

$$\dot{M}_{cu} = \frac{((12) + (13))}{\nu} \times 8.021 \times 10^{-6} \frac{MIN - MLB - ft^3}{hr - LB - Gal}$$

$\dot{M}_{cu}$ = _____ MLB/HR
(23)

Where:

$\dot{M}_{cu}$ = Total RWCU Flow

ν = Specific Volume of Saturated Liquid at Temperature (14) using Appendix A.

CRD Flow:

For Control Room Indication use the following formula, otherwise input the computer point value for (7) into (24).

$$\dot{M}_{crd} = (7) \times (5 \times 10^{-4}) \frac{MIN - MLB - ft^3}{hr - LB - Gal}$$

$\dot{M}_{crd}$ = _____ MLB/HR
(24)

Reactor Pressure:

Rx pressure = _____ + 14.7 psi
9

Rx pressure = _____ psia
9A

DATA SHEET 3

Steam Table Data

Item #	Description	Value
18	h_{fw} = Enthalpy of Compressed Water(Feedwater) at temperature (17) and pressure (9A) from Appendix B	BTU/LB
19	h_{st} = Enthalpy of Saturated Steam at pressure (9A) from Appendix A	BTU/LB
20	h_{cuo} = Enthalpy of Compressed Water at temperature (14) and pressure (9A) from Appendix B	BTU/LB
21	h_{cui} = Enthalpy of Compressed Water at temperature (15) and pressure (9A) from Appendix B	BTU/LB
22	h_{crd} = Enthalpy of Compressed Water at temperature (8) and pressure (9A) from Appendix B	BTU/LB

CALCULATION WORKSHEET

$$CTP = (Q_{st} + Q_{cuo} + Q_{rad}) - (Q_{fw} + Q_{crd} + Q_{cui} + W)$$

$$CTP = (M_{st}h_{st}c + M_{cu}h_{cuo}c + Q_{rad}) - (M_{fw}h_{fw}c + M_{crd}h_{crd}c + M_{cu}h_{cui}c + W)$$

Where:

CTP = Core Thermal Power (MW)

Q_{st} = Steam Energy Rate (MW)

Q_{cuo} = Clean-up Energy Rate Out of Core (MW)

Q_{rad} = Radiative Heat Losses and unmonitored losses (assumed to be equal to a constant value of 2.1 MW)

Q_{fw} = Feedwater Energy Rate (MW)

Q_{crd} = Control Rod Drive Cooling Water Energy Rate (MW)

Q_{cui} = Clean-up Energy Rate Into Core (MW)

$\dot{M}_{st}$ = Mass Flow Rate Steam (MLB/HR)

h_{st} = Enthalpy of Steam (BTU/LB)

$\dot{M}_{cu}$ = Mass Flow Rate Reactor Water Cleanup (RWCU) Sys. (MLB/HR)

h_{cuo} = Enthalpy of Reactor Water Out of Vessel to RWCU (BTU/LB)

h_{cui} = Enthalpy of Reactor Water into Vessel from RWCU (BTU/LB)

$\dot{M}_{fw}$ = Mass Flow Rate Feedwater (MLB/HR)

h_{fw} = Enthalpy of Feedwater (BTU/LB)

$\dot{M}_{crd}$ = Mass Flow Rate Control Rod Drive System (MLB/HR)

h_{crd} = Enthalpy of CRD Water (BTU/LB)

W = Power Input from Recirc. Pumps

$W = (A + B)$

A = A Recirc. Pump Power (MW)
B = B Recirc. Pump Power (MW)

c = Unit Conversion Factor = $0.293 \frac{(MW)}{(BTU)} \frac{(hr)}{(MLB)} \frac{(LB)}{}$

CALCULATION WORKSHEET (Cont'd)

A. Steam Energy Rate (Q_{st})

Steam mass flow rate is determined by using the following equation:

$\dot{M}_{st} = \dot{M}_{fw} + \dot{M}_{crd}$

$\dot{M}_{st} = (16) + (24)$

$\dot{M}_{st} =$ _____ (MLB/HR)
(25)

$Q_{st} = \dot{M}_{st} h_{st} c$

$Q_{st} = (25) * (19) * 0.293$

$Q_{st} =$ _____ (MW)
(26)

B. Clean-up Energy Rate Out of Core (Q_{cuo})

$Q_{cuo} = \dot{M}_{cu} h_{cuo} c$

$Q_{cuo} = (23) * (20) * 0.293$

$Q_{cuo} =$ _____ (MW)
(27)

C. Feedwater Energy Rate (Q_{fw})

$Q_{fw} = \dot{M}_{fw} h_{fw} c$

$Q_{fw} = (16) * (18) * 0.293$

$Q_{fw} =$ _____ (MW)
(28)

D. CRD Energy Rate (Q_{crd})

$Q_{crd} = \dot{M}_{crd} h_{crd} c$

$Q_{crd} = (24) * (22) * 0.293$

$Q_{crd} =$ _____ (MW)
(29)

CALCULATION WORKSHEET (Cont'd)

E. Clean-up Energy Rate into Core (Q_{cui})

$Q_{cui} = \dot{M}_{cu} h_{cui} c$

$Q_{cui} = (23) * (21) * 0.293$

Q_{cui} = _____ (MW)
(30)

F. Power Input from Recirc. Pumps (W)

W = efficiency * (Pump A Power + Pump B Power)

NOTE
The recirc pumps are assigned a 94.8% efficiency value.

W = .948 * ((10) + (11))

W = _____ (MW)
(31)

G. Core Thermal Power (CTP)

$CTP = (Q_{st} + Q_{cuo} + Q_{rad}) - (Q_{fw} + Q_{crd} + Q_{cui} + W)$

CTP = ((26) + (27) + 2.1) - ((28) + (29) + (30) + (31))

CTP = _____ (MW)
Step 6.6

APPENDIX A

Steam Table

Temp °F	Abs. Press	Specific Volume, ft^3/lbm	Enthalpy, BTU/lbm		Temp °F
	psia	Sat Water	Sat Water	Sat Steam	
100	0.9492	0.01613	67.97	1105.2	100
120	1.6924	0.01620	87.92	1113.7	120
140	2.8886	0.01629	107.89	1122.0	140
160	4.741	0.01639	127.89	1130.2	160
180	7.510	0.01651	147.92	1138.1	180
200	11.529	0.01663	167.99	1145.9	200
220	17.186	0.01677	188.13	1153.4	220
240	24.969	0.01692	208.34	1160.5	240
260	35.429	0.01709	228.64	1167.3	260
280	49.203	0.01726	249.06	1173.8	280
300	67.013	0.01745	269.59	1179.7	300
320	89.66	0.01765	290.28	1185.2	320
340	118.01	0.01787	311.13	1190.1	340
360	153.04	0.01811	332.18	1194.4	360
380	195.77	0.01836	353.45	1198.1	380
400	247.31	0.01864	374.97	1201.0	400
420	308.83	0.01894	396.77	1203.1	420
440	381.59	0.01926	418.90	1204.3	440
460	466.9	0.0196	441.4	1204.6	460
480	566.1	0.0200	464.4	1203.7	480
500	680.8	0.0204	487.8	1201.7	500
520	812.4	0.0209	511.9	1198.2	520
540	962.5	0.0215	536.6	1193.2	540
560	1133.1	0.0221	562.2	1186.4	560
580	1325.8	0.0228	588.9	1177.3	580
600	1542.9	0.0236	617.0	1165.5	600

APPENDIX B
Page 1 of 2

Compressed Water Table
Enthalpy
BTU/lbm

Press psia Temp°F	950	1000	1050	1100
550	_____	_____	549.45	549.33
540	_____	536.69	536.60	536.51
530	524.19	524.12	524.05	523.98
520	511.85	511.79	511.74	511.69
510	499.73	499.69	499.66	499.63
500	487.81	487.79	487.77	487.75
490	476.07	476.06	476.05	476.05
480	464.48	464.49	464.49	464.49
470	453.04	453.05	453.06	453.08
460	441.72	441.74	441.76	441.79
450	430.52	430.55	430.58	430.61
440	419.42	419.45	419.49	419.53
430	408.41	408.46	408.50	408.54
420	397.50	397.55	397.60	397.65
410	386.66	386.72	386.77	386.83
400	375.90	375.96	376.02	376.08
390	365.21	365.27	365.34	365.40
380	354.58	354.65	354.72	354.79
370	344.01	344.08	344.16	344.23
360	333.50	333.57	333.65	333.72
350	323.03	323.11	323.19	323.27
340	312.61	312.69	312.78	312.86
330	302.24	302.32	302.41	302.49
320	291.91	291.99	292.08	292.17
310	281.61	281.70	281.79	281.88

APPENDIX B
Page 2 of 2

Compressed Water Table
Enthalpy
BTU/lbm

Press psia Temp°F	950	1000	1050	1100
300	271.35	271.44	271.54	271.63
290	261.12	261.22	261.32	261.41
280	250.93	251.03	251.13	251.22
270	240.76	240.86	240.96	241.06
260	230.62	230.72	230.83	230.93
250	220.50	220.61	220.71	220.82
240	210.41	210.52	210.62	210.73
230	200.34	200.44	200.55	200.66
220	190.28	190.39	190.50	190.61
210	180.24	180.35	180.46	180.58
200	170.22	170.33	170.44	170.56
190	160.20	160.32	160.44	160.55
180	150.21	150.32	150.44	150.56
170	140.22	140.34	140.45	140.57
160	130.24	130.36	130.48	130.60
150	120.27	120.39	120.51	120.63
140	110.30	110.43	110.55	110.67
130	100.34	100.47	100.59	100.72
120	90.39	90.52	90.65	90.77
110	80.44	80.57	80.70	80.83
100	70.50	70.63	70.76	70.90

PECO NUCLEAR
PEACH BOTTOM ATOMIC POWER STATION
JOB PERFORMANCE MEASURE

POSITION TITLE: Unit Reactor Operator/Senior Reactor Operator

TASK-JPM DESIGNATOR: 3410170302 K/A: 2.2.23

URO: 2.6 SRO: 3.8

TASK DESCRIPTION: Ability to track limiting conditions for operation

A. NOTES TO EVALUATOR:

1. An asterisk (*) before the step number denotes a CRITICAL STEP. CRITICAL STEPS are those steps which when not performed correctly will prevent the system from functioning properly or prevent successful task completion.

2. System cues included in the performance checklist are to be provided to the examinee when no system response is available.

3. JPM Performance

   a. "Control Room" JPMs are designed to be performed in the simulator. If a "Control Room" JPM is to be performed in the Control Room all perform steps (P) shall be simulated (S).

   b. When performing "In-Plant" JPMs, no equipment will be operated without Shift Management approval.

4. Satisfactory performance of this JPM is accomplished if:

   a. The task standard is met.

   b. JPM completion time requirement is met.

      1) For non-time critical JPMs, completion within double the estimated time (listed in paragraph D.2) is acceptable provided the evaluator determines that the progress to completion is acceptable.

      2) For time critical JPMs, completion within the estimated time (listed in paragraph D.2) is required.

5. The estimated time to complete this JPM, though listed in the task standard, is not to be given to the examinee.

B. TOOLS AND EQUIPMENT

1. Blank copy of Technical Specification Action Log (Exhibit NOM-P-6.4:1) from the Nuclear Operations Manual

C. REFERENCES

1. Technical Specification 3.1.7, "Standby Liquid Control (SLC) System".

2. Nuclear Operations Manual Section 6.4, "Operation Action Log" Rev. 1.

D. TASK STANDARD

1. Satisfactory task completion is indicated when the Technical Specification Action Log entries have been completed.

2. Estimated time to complete: 15 minutes Non-Time Critical

E. DIRECTIONS TO EXAMINEE

When given the initiating cue, evaluate and perform any actions required to be taken for information obtained from the chemistry department. I will describe initial plant conditions and provide you access to the materials required to complete this task.

F. TASK CONDITIONS/PREREQUISITES

1. Unit 2 is operating at rated power.

2. A Chemistry Tech has just reported that a sample on the Unit 2 Standby Liquid Control Tank shows the concentration of boron in solution at 9.84% weight and a temperature of 72 deg. F.

3. Chemistry has initiated AR# A1127359.

4. All other Tech Spec plant equipment is operable.

5. The Unified Control Room Log Computer is not operating.

G. INITIATING CUE

Determine the impact of this condition and make a manual Tech Spec Action Log entry as required in accordance with the Nuclear Operations Manual. Submit any required forms to the Shift Manager for review.

H. PERFORMANCE CHECKLIST

STEP NO	STEP	ACT	STANDARD
1	Obtain a copy of Tech Spec.	P	A copy of Tech Spec is obtained.
*2	Determine Tech Spec action.	P	Review Tech Spec 3.1.7 and determine that Condition 'A' applies: • A solution >9.82% weight requires verifying the concentration and temperature of the boron and pump suction piping temperature on figure 3.1.7-1 within 8 hrs and once per 12 hrs thereafter. • Review figure 3.1.7-1 and determine concentration and temperature plot "Acceptable". • Restore concentration of boron in solution to ≤9.82% weight within 72 hrs.
*3	Complete Tech Spec Action Log. • Unit – "unit experiencing inoperability" Entry # - sequential number consisting of year, unit and sequential TSA # **CUE: next sequential TSA# is 009 (01-2-009)** • Tech Spec Number – "Tech Spec number for inoperability" • Discovery Date/Time – "date and time inoperability discovered" • Equipment ID – "alpha-numeric designator for inop equipment" • System Number – "system number for equipment inop"	P	Using Exhibit NOM-P-6.4:1, complete the following Tech Spec Action Log data entries: • Unit - Unit 2 • Entry # "01-2- (next TSA number)" • Tech Spec # - "3.1.7" • Discovery date/time - today's date/time of notification • Equipment ID - 20T18 • System # - "11"

STEP NO	STEP	ACT	STANDARD
	• Reference # - "AR number associated with the INOP feature" • Condition – "applicable Tech Spec condition letter and condition statement" • Reason – "short reason system is inop" • Required Action 1 – "Applicable required action statement" • Completion Time Date/Time – "Date and time for required action to be completed"		• Reference # - A1127359 • Condition - "A", concentration of boron in solution >9.82% weight. • Reason - concentration of boron in solution >9.82% weight. • Required Action 1 - restore concentration of boron in solution ≤9.82% weight. • 72 hours (from time of discovery listed above)
4	Submit the completed form. (Cue: acknowledge receipt of the completed Tech Spec Action Log)	P	Submit the completed Tech Spec Action Log to the Shift Manager for review.

***** NOTE *****

Terminate the exercise when the activities listed above are performed.

Under "ACT" P - must perform
S - must simulate

I. TERMINATING CUE

When the Tech Spec Action Log has been completed and submitted to the Shift Manager, the evaluator will terminate the exercise.

TASK CONDITIONS/PREREQUISITES

1. Unit 2 is operating at rated power.

2. A Chemistry Tech has just reported that a sample on the Unit 2 Standby Liquid Control Tank shows the concentration of boron in solution at 9.84% weight and a temperature of 72 deg. F.

3. Chemistry has initiated AR# A1127359.

4. All other Tech Spec plant equipment is operable.

5. The Unified Control Room Log Computer is not operating.

INITIATING CUE

Determine the impact of this condition and make a manual Tech Spec Action Log entry as required in accordance with the Nuclear Operations Manual. Submit any required forms to the Shift Manager for review.

REVIEW	PB
PORC	NO
SQR	YES
QR	NO
50.59	NO

TECHNICAL SPECIFICATION ACTION LOG

UNIT _____ (2 OR 3)

Entry #	TS#	Discovery Date/Time	Equipment ID	System #	Reference #

Condition	Reason	Required Action 1
Is a SFD required? YES / NO Are any other SFDs currently active? YES / NO (If YES, verify SFD is still valid.)		Completion Time Date/Time

Required Action 2	Required Action 3	Required Action 4	Required Action 5
Completion Time Date/Time	Completion Time Date/Time	Completion Time Date/Time	Completion Time Date/Time

Exit Justification	Exit Date/Time	Exit Entries Made By

Effective e: _____

REVIEW	PB
PORC	NO
SQR	YES
QR	NO
50.59	NO

TECHNICAL SPECIFICATION ACTION LOG

UNIT _____ (2 OR 3)

Entry #	TS#	Discovery Date/Time	Equipment ID	System #	Reference #

Condition	Reason	Required Action 1
Is a SFD required? YES / NO Are any other SFDs currently active? YES / NO (If YES, verify SFD is still valid.)		Completion Time Date/Time

Required Action 2	Required Action 3	Required Action 4	Required Action 5
Completion Time Date/Time	Completion Time Date/Time	Completion Time Date/Time	Completion Time Date/Time

Exit Justification	Exit Date/Time	Exit Entries Made By

REVIEW	PB
PORC	NO
SQR	YES
QR	NO
50.59	NO

TECHNICAL SPECIFICATION ACTION LOG

UNIT _____ (2 OR 3)

Entry #	TS#	Discovery Date/Time	Equipment ID	System #	Reference #

Condition	Reason	Required Action 1
Is a SFD required? YES / NO Are any other SFDs currently active? YES / NO (If YES, verify SFD is still valid.)		Completion Time Date/Time

Required Action 2	Required Action 3	Required Action 4	Required Action 5
Completion Time Date/Time	Completion Time Date/Time	Completion Time Date/Time	Completion Time Date/Time

Exit Justification	Exit Date/Time	Exit Entries Made By

REVIEW	PB
PORC	NO
SQR	YES
QR	NO
50.59	NO

TECHNICAL SPECIFICATION ACTION LOG

UNIT _____ (2 OR 3)

Entry #	TS#	Discovery Date/Time	Equipment ID	System #	Reference #

Condition	Reason	Required Action 1
Is a SFD required? YES / NO Are any other SFDs currently active? YES / NO (If YES, verify SFD is still valid.)		Completion Time Date/Time

Required Action 2	Required Action 3	Required Action 4	Required Action 5
Completion Time Date/Time	Completion Time Date/Time	Completion Time Date/Time	Completion Time Date/Time

Exit Justification	Exit Date/Time	Exit Entries Made By

REVIEW	PB
PORC	NO
SQR	YES
QR	NO
50.59	NO

TECHNICAL SPECIFICATION ACTION LOG

UNIT _____ (2 OR 3)

Entry #	TS#	Discovery Date/Time	Equipment ID	System #	Reference #

Condition	Reason	Required Action 1
Is a SFD required? YES / NO Are any other SFDs currently active? YES / NO (If YES, verify SFD is still valid.)		Completion Time Date/Time

Required Action 2	Required Action 3	Required Action 4	Required Action 5
Completion Time Date/Time	Completion Time Date/Time	Completion Time Date/Time	Completion Time Date/Time

Exit Justification	Exit Date/Time	Exit Entries Made By

PECO NUCLEAR
PEACH BOTTOM ATOMIC POWER STATION
JOB PERFORMANCE MEASURE

POSITION TITLE: Unit Reactor Operator/Senior Reactor Operator

TASK-JPM DESIGNATOR: 27301300202 K/A: 2.3.6

URO: 2.1 SRO: 3.1

TASK DESCRIPTION: Knowledge of the requirements for reviewing and approving release permits.

A. NOTES TO EVALUATOR:

1. An asterisk (*) before the step number denotes a CRITICAL STEP. CRITICAL STEPS are those steps which when not performed correctly will prevent the system from functioning properly or prevent successful task completion.

2. System cues included in the performance checklist are to be provided to the examinee when no system response is available.

3. JPM Performance

   a. "Control Room" JPMs are designed to be performed in the simulator. If a "Control Room" JPM is to be performed in the Control Room all perform steps (P) shall be simulated (S).

   b. When performing "In-Plant" JPMs, no equipment will be operated without Shift Management approval.

4. Satisfactory performance of this JPM is accomplished if:

   a. The task standard is met.

   b. JPM completion time requirement is met.

      1) For non-time critical JPMs, completion within double the estimated time (listed in paragraph D.2) is acceptable provided the evaluator determines that the progress to completion is acceptable.

      2) For time critical JPMs, completion within the estimated time (listed in paragraph D.2) is required.

5. The estimated time to complete this JPM, though listed in the task standard, is not to be given to the examinee.

B. TOOLS AND EQUIPMENT

1. Calculator

2. Copy of ST-C-095-805-2 "Liquid Radwaste Discharge", Rev. 8, completed through step 6.11.

3. A calculation error made in step 6.10.1.2.

C. REFERENCES

1. ST-C-095-805-2, Rev. 8, "Liquid Radwaste Discharge".

D. TASK STANDARD

1. Satisfactory task completion of this task is indicated when the Shift Management review has been completed , the errors in the procedure have been identified and the release is disapproved pending resolution of the problems.

2. Estimated time to complete: 15 minutes Non-Time Critical

E. DIRECTIONS TO EXAMINEE

When given the initiating cue, perform the necessary steps to review a Liquid Radwaste discharge, using appropriate procedures. I will describe initial plant conditions and provide you access to the materials required to complete this task.

F. TASK CONDITIONS/PREREQUISITES

1. Unit 2 is operating at 100% power.

2. The Floor Drain Sample Tank (FDST) needs to be discharged.

3. Chemistry has completed ST-C-095-805-2, "Liquid Radwaste Discharge" through step 6.11.

4. RIS-0-17-350 "Radwaste Effluent" Radiation Monitor is operable.

5. FS-0-20-493 "RWS Low Purity Waste" High Flow Trip Set Pot and the associated flow control valve are operable.

6. The discharge Canal-To-Intake Pond crosstie gate is closed.

7. The Shift Management review and approval has not been completed.

G. INITIATING CUE

You are the Control Room Supervisor. Complete Section 6.12 of ST-C-095-805-2, "Liquid Radwaste Discharge".

H. PERFORMANCE CHECKLIST

STEP NO	STEP	ACT	STANDARD
1	Review ST-C-095-805-2 for completeness.	P	Visually verify all CT actions in steps 6.1 through 6.11 have been completed satisfactorily and initial step 6.12.1 SAT.
*2	Verify calculations.	P	Perform all calculations that were done in section 6.8 and 6.10 and verify they are correct and recorded on Data Sheet 3 & 4.
*3	Recognize Calculation error.	P	Recognize error in step 6.10.1.2 for High Flow Discharge setting. Initial step 6.12.2 UNSAT.
*4	Disapprove the Radwaste Discharge. Cue: Acknowledge the disapproval.)	P	Disapprove the discharge and return the paperwork to the Chemistry Department.

***** NOTE *****

Terminate the exercise when the activities listed above are performed.

Under "ACT" P - must perform
S - must simulate

I. TERMINATING CUE

When the review of ST-C-095-805-2 has been completed, and the release is disapproved, terminate the exercise.

TASK CONDITIONS/PREREQUISITES

1. Unit 2 is operating at 100% power.

2. The Floor Drain Sample Tank (FDST) needs to be discharged.

3. Chemistry has completed ST-C-095-805-2, "Liquid Radwaste Discharge" through step 6.11.

4. RIS-0-17-350 "Radwaste Effluent" Radiation Monitor is operable.

5. FS-0-20-493 "RWS Low Purity Waste" High Flow Trip Set Pot and the associated flow control valve are operable.

6. The discharge Canal-To-Intake Pond crosstie gate is closed.

7. The Shift Management review and approval has not been completed.

INITIATING CUE

You are the Control Room Supervisor. Complete Section 6.12 of ST-C-095-805-2, "Liquid Radwaste Discharge".

ST-C-095-805-2 **LIQUID RADWASTE DISCHARGE**

12/10/99

TEST FREQUENCY: Unscheduled (See Section 1.0)
TECH SPEC: 5.5.1 **AND** ODCMS Sections 4.8.B.1.1, 4.8.B.1.2, 4.8.B.1.3, 4.8.B.3.1, 4.8.B.3.2, Table 4.8.B.1. Func. 1 **AND** Func. 4,4.8.B.4.3, 4.8.B.4.4, **AND** 4.8.B.4.5
APPLICABILITY: At all times

1

TANK To Be DISCHARGED:	SOURCE: FAST CSAR No: 021-01

Approved By SMgt: N/A (Printed Name) ____ (Time) __/__/__ (Date) ____ (Initials)

2 **INITIAL** one of the following Test Results:

A: All * steps are **SATISFACTORY** ____

B: One **OR** More * steps are **UNSATISFACTORY** [redacted]
Refer to Section 9.0 for Tech Spec LCO's

	Printed Name	Time	Date	Initials
Performed By: (CT)	CHEMISTRY TECH	XXXX	2/XX/01	CT
Reviewed By: (SMgt)			__/__/__	
Completed By: (CTR)			__/__/__	

UNSAT Notification: (**N/A IF** SAT) ____ SMgt Discretion: Plant Mgr **OR** Others

Notified By: (**N/A IF** SAT) ____ ____ __/__/__ ____

3 **IF** other portions of the test did **NOT** function properly, **OR** other discrepancies were noted, **THEN COMPLETE** the following:

DESCRIBE discrepancies/actions taken: A/R **OR** ETT #: ____

4 Reviewed/Approved CHEM Staff: ____ (Printed Name) ____ (Time) __/__/__ (Date) ____ (Initials)

1.0 PURPOSE

This procedure prescribes normal methods to be used for the discharge of planned batch releases of liquid radioactive waste to the discharge canal. Also provided is the mechanism to verify initial conditions, complete required calculations **AND** record specified data associated with radioactive liquid effluents. This procedure satisfies Offsite Dose Calculation Manual (ODCM) surveillance requirements for 4.8.B.1.1, 4.8.B.1.2, 4.8.B.1.3, 4.8.B.3.1, 4.8.B.3.2, Table 4.8.B.1.Func. 1 **AND** Func. 4, 4.8.B.4.3, 4.8.B.4.4, **AND** 4.8.B.4.5. This procedure may be TC'ed. However, a thorough review of the UFSAR (for example, Section 9.2, Liquid Radioactive Waste System) must be completed as part of the TC process. **WHEN** TCing **OR** revising this document, **THEN** ensure that the requirements of the procedure, as described in the UFSAR, are satisfied.

2.0 TEST EQUIPMENT

None

3.0 PREREQUISITES

Initial

3.1 Document Review

3.1.1 **ENSURE** procedure is current revision. CT / CT

3.1.2 **OBTAIN** CH-401 "Sampling and Analysis of Liquid Radioactive Waste" for tank to be released. CT / CT

3.2 Other Prerequisite Activities

3.2.1 **RECORD** the tank to be discharged Source **AND** CSAR No. in Section 1 of this test's cover sheet. CT / CT

3.3 Test Initiation

3.3.1 This test has been initiated in accordance with CH-401.

3.4 Equipment Configuration

None

3.5 Required Redundant Safety Related Equipment

None

3.6 Approval to Start Test

None

4.0 PRECAUTIONS, LIMITATIONS, AND GENERAL INSTRUCTIONS

4.1 Plant Impact Statement

4.1.1 This procedure does **NOT** impact plant availability in any manner **AND** may be performed in any Reactor Mode.

4.2 Precautions

None

4.3 Limitations

4.3.1 **IF** the discharge Canal-To-Intake pond Crosstie is OPEN, **THEN** the following alarms shall be clear prior to **AND** during release:

1. Alarm Panel 204 Window F-4 "OUTER SCREEN STRUCTURE HI HI DIFF WTR LVL"

2. Alarm Panel 304 Window F-4 "OUTER SCREEN STRUCTURE HI HI DIFF WTR LVL"

4.3.2 **IF** the discharge Canal-To-Intake pond Crosstie is OPEN, **THEN** the "E" cooling Tower shall **NOT** be in operation at any time during discharge.

4.3.3 **IF** the discharge Canal-To-Intake pond Crosstie is OPEN, **THEN** a minimum of three circulating water pumps must be in operation during the release of radioactive liquid to the discharge canal.

4.3.4 **IF** the release is terminated for lack of dilution flow, **THEN** it only may be restarted **WHEN** the calculated release conditions are reestablished.

4.4 General Instructions

4.4.1 The Chemistry Technician (CT) initiates this test as required by CH-401 criteria **AND** performs all CT initialed steps. The CT forwards this test to Shift Supervisor (SMgt) for review **AND** approval; completing all SMgt initialed steps. SMgt **THEN** forwards test to Plant Reactor Operator (PRO). The PRO performs all PRO initial steps **AND** forwards to Radwaste Operator (RWO). The RWO **THEN** performs all RWO initialed steps **AND** forwards this test to SMgt for review of all Operations' responsible steps. The SMgt places this test in the Chemistry bin in the Main Control Room for retrieval **AND** review by Chemistry Technician Reviewer (CTR).

4.0 PRECAUTIONS, LIMITATIONS, AND GENERAL INSTRUCTIONS (Continued)

4.4.2 **IF** any procedure step can **NOT** be completed **OR** produces an unexpected response, **THEN STOP** the test **AND RETURN** the equipment to a safe condition **AND NOTIFY** the RO **OR** SMgt **AND** Chemistry Supervision.

4.4.3 **IF** any Black Box is initialed, **THEN STOP** the test **AND RETURN** the equipment to a safe condition **AND NOTIFY** the RO **OR** SMgt **AND** Chemistry Supervision.

4.4.4 This procedure shall be aborted **WHEN** it is discovered that a Tank is **NOT** going to be released.

4.4.5 **IF** procedure is aborted, **THEN NOTIFY** SMgt **AND WRITE "TEST ABORTED"** in Section 3 of Cover Page.

4.4.6 All persons who initial steps in Sections 3.0, 6.0, **OR** 7.0 are responsible for completing Section 10.0.

4.4.7 All applicable * steps are identified immediately in front of the initials.

5.0 ACCEPTANCE CRITERIA

The following conditions must be met:

1. Copy of Gamma Isotopic Analysis Report attached to this procedure.

2. Tank to be released has been processed through one **OR** more of these systems: Waste Collector Filter **AND** Demineralizer, Floor Drain Filter, Fuel Pool Filter Demineralizer, Chemical/Oily Waste Cleanup. (Epicore oil/water emulsion), Laundry Drain Filter **OR** Projected Body Dose for Month is less than 0.12 mRem **AND** Projected Organ Dose for Month is less than 0.40 mRem.

3. RIS-0-17-350 "Rad Waste Effluent" Rad Monitor operable.

4. FR-0-20-441 "RWS Low Purity Waste" Flow Recorder/Monitor operable.

5. FS-0-20-493 "RWS Low Purity Waste" High Flow Trip Set Pot **AND** associated Flow Control Valve are operable.

6. Actual No. of Circ Pumps Providing Dilution is greater than **OR** equal to the Required No. of Circ Pumps Providing Dilution.

7. RIS-0-17-350 HI Trip Setpoint is less than **OR** equal to Required HI Trip CPS.

5.0 ACCEPTANCE CRITERIA (Continued)

8. RIS-0-17-350 HI HI Trip Setpoint is less than **OR** equal to Required HI HI Trip CPS.

9. Actual Maximum Release Rate GPM is less than **OR** equal to the Required Maximum Release Rate value.

10. Actual % Setting for Discharge is less than **OR** equal to the Required Maximum % Setting for Discharge.

11. Sample retained for Monthly Composite.

12. Every release Start **AND** Stop Time has been recorded on the appropriate data chart.

6.0 PERFORMANCE STEPS

	Initial Sat	Initial UnSat

> **NOTE**
>
> Steps 6.1 and 6.2 may be performed in any order or concurrently

6.1 **RECORD** chemistry data from the Chemistry Sampling **AND** Analysis Record (CSAR) of CH-401, the tank source **AND** the associated CSAR No. on Data Sheet 1 below. **CM-1** — CT _____ CT

6.2 **RECORD** the tank source **AND** its associated CSAR No. on all other applicable data sheets. **CM-1** — CT _____ CT

6.0 PERFORMANCE STEPS

Initial
Sat Unsat

NOTE

1. **IF** water is transferred per RW-591, Transfer of Processed Waste Water to the "B" Laundry Drain Tank (Documented on RW-625 Exhibit 9.3), **THEN** all Laundry Drain Tank contents are considered processed liquid radwaste.

2. Laundry Drain Tank Water that is **NOT** processed by the Epicore Water Emulsion System shall be dispositioned per RW-592, "Transfer of Unprocessed Waste Water to the "B" Laundry Drain Tank". In this case, the Laundry Drain Tank contents are considered as either unprocessed water **OR** water that will be processed by the Laundry Drain Filter. (Documented on RW-592 Exhibit 9.1.)

6.3 **IF** tank to be discharged has **NOT** been processed through a Radwaste system, as specified in ODCMS 3.8.B.4, **THEN CALCULATE AND RECORD** Projected Body Dose **AND** Projected Organ Dose for Month on Data Sheet 1. **OTHERWISE, N/A** the applicable blocks for this step **AND** on Data Sheet 1. (ODCMS 3.8.B.4) CT CT

6.3.1 **VERIFY** Projected Organ Dose is less than 0.40 mRem. * N/A CT ☐

6.3.2 **VERIFY** Projected Body Dose is less than 0.12 mRem. * N/A CT ☐

DATA SHEET 1

TANK TO BE DISCHARGED SOURCE: FDST **CSAR No.** 021 - 01

REASON FOR DISCHARGE _____

ANALYSIS	ANALYSIS RESULT	LIMIT FOR DISCHARGE	REMARKS
CONDUCTIVITY	80 uS/cm	< 2500 uS/cm [V]	
pH	7.2	4.0 - 10.0 [A]	
TEMPERATURE	30 C	AS READ	
TURBIDITY	27 NTU	< 30 NTU [V]	
GAMMA SCAN TOTAL ACTIVITY	$2.57E^{-7}$ µCi/mL	<1 N4 µCi/mL [V]	
ESTIMATED BODY DOSE	0 mRem	0.05 mRem [V]	
ESTIMATED ORGAN DOSE	0 mRem	0.15 mRem [V]	
THE FOLLOWING IS REQUIRED FOR RELEASE OF UNPROCESSED TANKS ONLY (ODCM ACCEPTANCE CRITERIA)			
PROJECTED BODY DOSE FOR MONTH	N/A mRem	0.12 mRem [D]	
PROJECTED ORGAN DOSE FOR MONTH	N/A mRem	0.40 mRem [D]	

[V] = AN ADMINISTRATIVE LIMIT FOR WHICH A VARIANCE MAY BE OBTAINED FROM CHEMISTRY SUPERVISION **OR** ON-CALL INDIVIDUAL.

[A] = CORRECTION OF pH FOR RELEASES MAY BE MADE BY DILUTION. THE pH LIMIT DOES **NOT** APPLY **IF** CONDUCTIVITY OF TANK IS LESS THAN 2.5 µS/cm.

[D] = THIS LIMIT APPLIES ONLY TO RELEASES **WHEN** THE SAMPLED TANK'S CONTENTS HAVE **NOT** BEEN PROCESSED THROUGH AT LEAST ONE RADWASTE SUBSYSTEM **OR** EQUIVALENT PER ODCMS BASES B 3.8. (See CH-401)

6.0 PERFORMANCE STEPS (Continued)

Initial
Sat UnSat

6.4 **VERIFY** tank sample results recorded on Data Sheet 1 are Satisfactory for release to discharge canal per CH-401. CT _____ CT

> **NOTE**
>
> 1. Variances may **NOT** be granted for any projected dose limit which has been exceeded.
>
> 2. **IF** a Variance is Required **AND NOT** granted, **THEN** this test should be aborted.

6.5 **IF** any chemical analysis exceeds its Limit For Discharge, **THEN RECORD** "Variance Required" in remarks section of Data Sheet 1 **AND** obtain approval for Discharge with a "Variance". **OTHERWISE, N/A** this Step. **CM-2** N/A _____ CT

6.5.1 **IF** a "Variance" was required for discharge, **THEN CONTACT** Chemistry Supervision **OR** on-call individual for Variance **AND RECORD** Name of Chemistry Supervisor **OR** responsible Staff person granting "Variance(s)" below:

(**IF** a Variance is **NOT** required, **THEN N/A** these spaces for this step.)

N/A _____ N/A _____ / N/A _____ N/A _____ CT
Name Time Date

6.6 **ATTACH** a copy of the Gamma Isotopic Analysis Report to this test. (ODCMS 4.8.B.1.1, 4,8.B.1.2, 4.8.B.1.3, Table 4.8.B.1 Func. 1 & 4) * CT _____ CT

6.0 PERFORMANCE STEPS (Continued)

Initial
Sat UnSat

6.7 **VERIFY** a portion of sample (approx 1 Liter) retained for Monthly composite. CT ____ CT

> **NOTE**
>
> Chemistry Management approved computer programs may be used, **AND** is the preferred method, to perform the worker verification for the calculation of the values for the alarm setpoints (Section 6.8) **AND** the radwaste discharge pump high **AND** low flow setpoints (Section 6.10).

6.8 **OBTAIN** the Background Count Rate for RIS-0-17-350 in counts per second (CPS) from the PRO **AND CALCULATE** RIS-0-17-350 "Rad Waste Effluent" Monitor HI Trip **AND** HI HI Trip Settings using formulas below. (Calculations are in accordance with ODCM.)

6.8.1 **CALCULATE** Monitor Net CPS.

0.532 X 3 (Well Counter net cpm/mL) = 1.59 (Monitor Net CPS)

CT ____ CT

6.8.2 **CALCULATE** Gross CPS

150 (RIS-0-17-350 CPS Background Count Rate) + 1.59 (Monitor Net CPS) = 151.6 (Gross CPS)

CT ____ CT

6.8.3 **DETERMINE** log CPS from Gross CPS.

log (151.6 (Gross CPS)) = 2.18 (log CPS)

CT ____ CT

6.0 PERFORMANCE STEPS (Continued)

Initial
Sat UnSat

6.8.4 **CALCULATE** Adjusted Log CPS

1.37 X 2.18 = 2.99
Log CPS Adjusted Log CPS

CT
CT

6.8.5 **CALCULATE** RIS-0-17-350 HI Trip Setpoint **AND RECORD** results as Required RIS-0-17-350 HI Trip Value on Data Sheet 3. (ODCMS 3.8.B.3.C)

1.44 + 2.99 = 4.43
Adjustment Log CPS Hi Trip Setting

CT
CT

6.8.6 **CALCULATE** RIS-0-17-350 HI HI Trip Setpoint **AND RECORD** results as Required RIS-0-17-350 HI HI Trip Value on Data Sheet 3. (ODCMS 3.8.B.3.C)

1.47 + 2.99 = 4.46
Adjustment Log CPS Hi Hi Trip Setting

CT
CT

NOTE
Chemistry Management approved computer programs may be used, **AND** is the preferred method, to perform the worker verification for the calculation of the values for the alarm setpoints (Section 6.8) **AND** the radwaste discharge pump high **AND** low flow set points (Section 6.10).

6.8.7 **PERFORM** a Worker Verification of calculations made in Section 6.8. Any discrepancies between the results of section 6.8 **AND** the worker verification shall be resolved prior to the release of the affected tank.

CT
CT

6.0 PERFORMANCE STEPS (Continued)

Initial
Sat UnSat

6.9 **CALCULATE** the Maximum Allowed Tank Release Rate as follows: (ODCMS 4.8.B.1.1)

6.9.1 **OBTAIN** position of Discharge Canal-To-Intake crosstie gate from the PRO **AND CIRCLE** the position (OPEN **OR** CLOSED) in Section 1.0 of Data Sheet 2. CT CT

1. **IF** Crosstie Gate is CLOSED, **THEN PERFORM** the following to complete Data Sheet 2 **AND** Data Sheet 3, **OTHERWISE, N/A** the spaces in this step.

   a. **RECORD "N/A"** in spaces of Section 2.0 of Data Sheet 2. CT CT

   b. **OBTAIN** the Actual Number of Circ Pumps Operating from the PRO **AND RECORD** this number in Sections 3.0 **AND** 5.0 of Data Sheet 2 **AND ENTER** "1" for the "Required No. of Circ Pumps Operating" on Data Sheet 3. CT CT

2. **IF** the Crosstie Gate is OPEN, **THEN PERFORM** the following to complete Data Sheet 2 **AND** Data Sheet 3, **OTHERWISE, N/A** the spaces in this step.

   a. **OBTAIN** the River-To-Intake Pond Differential Level Readings from the PRO **AND RECORD** in Section 2.0 of Data Sheet 2. N/A CT

6.0 PERFORMANCE STEPS (Continued)

Initial
Sat UnSat

b. **OBTAIN** the Actual Number of Circ Pumps Operating from the PRO **AND RECORD** in Section 3.0 of Data Sheet 2. Also **RECORD** "3" for the "Required No. of Circ. Pumps Operating" on Data Sheet 3. (A minimum of three circ pumps must be operating.)

N/A CT

c. Using Section 4.0 of Data Sheet 2, **DETERMINE** the No. Of Circ. Pumps Providing Dilution **AND RECORD** this value in Section 5.0.

N/A CT

DATA SHEET 2
CALCULATION OF NUMBER OF CIRC PUMPS PROVIDING DILUTION
(PRE-RELEASE DATA)

TANK TO BE DISCHARGE SOURCE: FAST **CSAR No.** 021 - 01

1.0 Discharge Canal-To-Intake crosstie gate	**POSITION:** OPEN OR (CLOSED) (Circle current position)

	Traveling Screens Outer Screens ΔL	
2.0 RIVER-TO-INTAKE POND DIFFERENTIAL LEVEL READINGS	< At Control Room >	
	DLI-2207 @ Console 20C007A	DLI-3207 @ Console 30C007A
	N/A "H_2O	N/A "H_2O

3.0 NUMBER OF CIRC PUMPS OPERATING	6

4.0 USING THE CHART BELOW DETERMINE THE NUMBER OF PUMPS PROVIDING DILUTION FOR THIS RELEASE. TAKE THE ACTUAL NUMBER OF CIRC PUMPS OPERATING FROM SECTION 3.0 OF THIS DATA SHEET, READ DOWN THE COLUMN TO THE HIGHEST DIFFERENTIAL LEVEL RECORDED IN SECTION 2.0 OF THIS DATA SHEET, MOVE ACROSS THE ROW AND FIND THE NUMBER OF CIRC PUMPS PROVIDING DILUTION.

	ACTUAL NUMBER OF CIRC PUMPS OPERATING				No. OF CIRC PUMPS PROVIDING DILUTION
	3	4	5	6	
Δ LEVEL " WATER	----	----	----	0 - 1.8	5
	----	----	0 - 2.4	1.8 - 10	4
	----	0 - 2.7	2.4 - 10	----	3
	0 - 3.1	2.7 - 10	----	----	2
	3.1 - 10	----	----	----	1

5.0 No. OF CIRC PUMPS PROVIDING DILUTION	6

6.0 PERFORMANCE STEPS (Continued)

Initial
Sat UnSat

6.9.2 **OBTAIN** the Max Discharge Flow (gpm) from the Gamma Isotopic Analysis Report **AND ENTER** for maximum rate to discharge canal on Data Sheet 4. CT _____ CT

6.10 **CALCULATE** the High **AND** Low Flow Set Points as directed below: (Calculations are in accordance with the ODCM.)

> **NOTE**
>
> **IF** the calculated value is greater than 100%, **THEN RECORD** 100% for the setting values.

6.10.1 **DETERMINE** Maximum Allowable discharge settings as follows **AND RECORD** as "High Flow" **AND** "Low Flow" in applicable spaces on Data Sheet 4. (ODCMS 3.8.B.3c)

1. High Flow Discharge

$$\frac{1.2 \text{ X Max Release Rate}}{3.0} \quad 300 \text{ GPM} = \underset{\text{Setting}}{100\ \%}$$

CT _____ CT

2. Low Flow Discharge

$$\frac{1.2 \text{ X Max Release Rate}}{0.15} \quad 300 \text{ GPM} = \underset{\text{Setting}}{24\ \%}$$

CT _____ CT

6.0 PERFORMANCE STEPS (Continued)

Initial
Sat UnSat

NOTE

Chemistry Management approved computer programs may be used, **AND** is the preferred method, to perform the worker verification for the calculation of the values for the alarm setpoints (Section 6.8) **AND** the radwaste discharge pump high **AND** low flow set points (Section 6.10).

6.10.2 **PERFORM** a Worker Verification of calculations made in Section 6.10. Any discrepancies between the results of section 6.10 **AND** the worker verification shall be resolved prior to the release of the affected tanks. CT _____ CT

6.11 **REVIEW** all CT responsible steps in Sections 6.1 through 6.10 for completeness, **RECORD** name **AND** initials in Section 10.0, Participants Record, **SIGN** cover sheet of this test at "Performed By:" **AND FORWARD** this procedure to SMgt. CT _____ CT

6.12 SMgt Review **AND** Signature

6.12.1 **VERIFY** all CT steps to this point have been Initialed **AND** completed Satisfactorily. _____ _____ SMgt

6.12.2 **VERIFY**, using an appropriate calculating device, the calculations performed in Section 6.8 **AND** Section 6.10 by the CT are correct **AND** that the correct results have been recorded on Data Sheet 3 **AND** Data Sheet 4. _____ _____ SMgt

6.12.3 **VERIFY** that the sample tank named on the cover sheet of this test is intended to be released. _____ _____ SMgt

6.12.4 **GRANT** Permission to operate HV-0-20C-144 "Waste Sample PP Disch To Pond" **AND** HV-0-20C-146 "Outer Block Valve for Waste Sample Tank Disch to River". **OTHERWISE, N/A** this step. _____ _____ SMgt

6.0 PERFORMANCE STEPS (Continued)

Initial
Sat UnSat

6.12.5 **VERIFY** RIS-0-17-350 "Rad Waste Effluent" Rad Monitor is operable. (ODCMS 3.8.B.3a) * _____ ☐ SMgt

6.12.6 **VERIFY** FS-0-20-493 "RWS Low Purity Waste" High Flow Trip Set Pot **AND** associated Flow Control Valve are operable (This means that there are **NO** ETTs **OR** A/Rs against this equipment). (ODCMS 3.8.B.3c) * _____ ☐ SMgt

6.12.7 **RECORD** name **AND** initials in Section 10.0, Participants Record. _____ _____ SMgt

6.12.8 **FORWARD** this test to the PRO. _____ _____ SMgt

DATA SHEET 3		
TANK TO BE DISCHARGED SOURCE: FDST	**CSAR No.** 021-01	
PLANT SYSTEM REQUIRED PARAMETERS FOR LIQUID RADWASTE RELEASE	REQUIRED VALUE	
Required No. of Circ. Pumps Operating	6	PUMPS
Required RIS-0-17-350 HI Trip Setpoint	4.43	POT SETTING
Required RIS-0-17-350 HI HI Trip Setpoint	4.46	POT SETTING

6.0 PERFORMANCE STEPS (Continued)

Initial
Sat UnSat

6.13 PRO Review **AND** set-up of Plant in Preparation For Discharge

6.13.1 **RECORD** the Actual No. of Circ. Pumps Operating below **AND VERIFY** the Actual No. of Circ. Pumps Operating is greater than **OR** equal to the required No. of Circ. Pumps as recorded on Data Sheet 3. (ODCMS 4.8.B.1.1)

Actual No. of Circ. Pumps Operating ____

* _____ ☐
PRO

6.13.2 **SET** RIS-0-17-350 HI Trip Setpoint to less than **OR** equal to Required value from Data Sheet 3 **AND RECORD** Actual Setpoint POT value below: (ODCMS 3.8.B.3.c)

Actual HI Trip Pot Setting _____ * _____ ☐
PRO

6.13.3 **SET** RIS-0-17-350 HI HI Trip Setpoint to less than **OR** equal to Required value **AND RECORD** the Actual HI HI Setpoint Pot value below: (ODCMS 3.8.B.3.c)

Actual HI HI Trip Pot Setting _____ * _____ ☐
PRO

6.13.4 **IF** the discharge Canal-To-Intake Pond crosstie gate is OPEN, **THEN VERIFY** the following. **OTHERWISE, N/A** the spaces in this step.

1. Alarm Panel 204 Window F-4 "OUTER SCREEN STRUCTURE HI HI DIFF WTR LVL" is CLEAR. _____ _____ PRO

2. Alarm Panel 304 Window F-4 "OUTER SCREEN STRUCTURE HI HI DIFF WTR LVL" is CLEAR. _____ _____ PRO

3. "E" Cooling Tower is **NOT** in Operation. _____ _____ PRO

6.0 PERFORMANCE STEPS (Continued)

Initial
Sat UnSat

6.13.5 **REVIEW** all PRO steps, to this point, in Section 6.13 for completeness. _____ _____ PRO

6.13.6 **RECORD** name **AND** initials in Section 10.0, Participants Record, **AND FORWARD** this test to the Radwaste Operator (RWO). _____ _____ PRO

DATA SHEET 4	
TANK TO BE DISCHARGED SOURCE: FAST	**CSAR No.** 021-01
RADWASTE SYSTEM REQUIRED PARAMETERS PRIOR TO LIQUID RADWASTE RELEASE	REQUIRED VALUE
FS-0-20-493 "RWS Low Purity Waste" High Flow Trip Set Pot	100 %
FS-0-20-493 "RWS Low Purity Waste" Low Flow Trip Set Pot	24 %
MAXIMUM Release Rate to Discharge Canal	300 GPM

6.14 RWO ESTABLISHMENT OF RADWASTE DISCHARGE (At Radwaste Control Room Panel 00C077)

6.14.1 **VERIFY** tank to be discharged, as written in Section 1 of the coversheet, is the same tank intended to be released. * _____ ☐ RWO

6.14.2 **VERIFY** tank to be discharged has been processed through one **OR** more of these systems: Waste Collector Filter **AND** Demineralizer, Floor Drain Filter, Fuel Pool Filter Demineralizer, **AND** Chemical/Oily Waste Cleanup (EPICORE Oil/Water Emulsion), Laundry Drain Filter **OR** Projected Body Dose **AND** Projected Organ Dose for the Month have been recorded on Data Sheet 1. (ODCMS 3.8.B.4) * _____ ☐ RWO

6.0 PERFORMANCE STEPS (Continued)

Initial
Sat UnSat

6.14.3 **SET** FS-0-20-493 "RWS Low Purity Waste" High Flow Trip Set Pot to less than **OR** equal to Required Maximum % Setting for High Flow Discharge as found on Data Sheet 4 above, **AND RECORD** the Actual Setting below:

Actual FS-0-20-493 High Flow Trip Set Pot Setting _____

* _____ ☐
RWO

6.14.4 **SET** FS-0-20-493 "RWS Low Purity Waste" Low Flow Trip Set Pot to less than **OR** equal to Required Maximum % Setting for Low Flow Discharge, as found on Data Sheet 4 above, **AND RECORD** the Actual Setting below:

Actual FS-0-20-493 Low Flow Trip Set Pot Setting _____

* _____ ☐
RWO

6.14.5 **RECORD** RR-0-17-337 **OR** RIS-0-17-350 before Discharge CPS below:

_____ CPS

_____ _____
RWO

6.14.6 **COMMENCE** release of the Sampled **AND** Analyzed Tank per the applicable procedure (See Section 8.2).

_____ _____
RWO

6.0 PERFORMANCE STEPS (Continued)

Initial
Sat UnSat

NOTE

1. Portions of the following Section must be completed during the release.

2. **IF** the release is terminated early for lack of dilution flow, **THEN** it may only be restarted **WHEN** the original release conditions are re-established.

3. The following Steps may be repeated, as applicable, for each release start **AND** stop time.

4. The RIS-0-17-350 Trip Setpoints recorded on Data Sheet 3 correspond to 125% (HI) **AND** 135% (HI-HI) of the radiation monitor reading expected during the release. Typically, any appreciable change in the radiation monitor readings during the release is unusual **AND** should be reported to SMgt.

6.14.7 **RECORD** each release Start Time, Start Date, Stop Time, Stop Date, Start Tank %, Stop Tank %, the FR-0-20-441 Flow (GPM) reading **AND** the RR-0-17-337 (CPS) **OR** RIS-0-17-350 (CPS) as required in chart below: **(N/A** spaces **NOT** used.) (ODCMS 4.8.B.2.1, 4.8.B.3.1, 4.8.B.3.2)

	TIME	DATE	TANK LEVEL	FR-0-20-441	RR-0-17-337 **OR** RIS-0-17-350
START			%	GPM	CPS
STOP			%		

* _____

RWO

6.0 **PERFORMANCE STEPS** (Continued)

Initial
Sat UnSat

	TIME	DATE	TANK LEVEL	FR-0-20-441	RR-0-17-337 **OR** RIS-0-17-350
START			%	GPM	CPS
STOP			%		

* _____ [redacted]

RWO

	TIME	DATE	TANK LEVEL	FR-0-20-441	RR-0-17-337 **OR** RIS-0-17-350
START			%	GPM	CPS
STOP			%		

* _____ [redacted]

RWO

6.14.8 **RECORD** below the actual maximum Release Rate GPM value from FR-0-20-441 observed during the release **AND VERIFY** the actual Release Rate is less than **OR** equal to the value recorded on Data Sheet 4. (ODCMS 3.8.B.3.C)

Actual Maximum Release Rate FR-0-20-441

_____ GPM

* _____ [redacted]

RWO

6.14.9 **IF** this release is **NOT** immediately followed by another discharge, **THEN PERFORM** the following post release steps. **OTHERWISE, N/A** these Steps.

1. **RECORD** RR-0-17-337 recorder CPS Reading BEFORE FLUSH.

_____ CPS

_____ _____
RWO

6.0 **PERFORMANCE STEPS** (Continued)

Initial
Sat UnSat

2. **PERFORM** SO 20C.5.B "Liquid Radwaste Discharge Radiation Monitor Flushing." _____ RWO

3. **RECORD** RR-0-17-337 recorder CPS Reading after flush.

   _____ CPS. _____ RWO

6.14.10 **IF** a Waste Sample Tank was Released, **THEN PERFORM** the following. **OTHERWISE N/A** these Steps:

1. **CLOSE** HV-0-20C-144 "Waste Sample PP DISCH To Pond". _____ RWO

2. **CLOSE** HV-0-20C-146 "Outer Block Valve For Waste Sample Tank Disch To River". _____ RWO

6.14.11 **REVIEW** all RWO Steps, to this step, in Section 6.14 for accuracy **AND** completeness. _____ RWO

6.14.12 **RECORD** name **AND** initials in Section 10.0, Participants Record, **AND FORWARD** this test to SMgt for review. _____ RWO

6.15 SMgt REVIEW OF OPERATIONS' PERFORMANCE AFTER DISCHARGE

6.15.1 **REVIEW** this test to this point for completeness paying attention to the Steps requiring PRO **AND** RWO data entry **AND** initials. _____ SMgt

6.15.2 **SIGN** coversheet of this test at "Reviewed By:" _____ SMgt

6.15.3 **PLACE** this test in the Chemistry bin located in the Main Control Room. _____ SMgt

6.0 PERFORMANCE STEPS (Continued)

Initial
Sat UnSat

6.16 CHEMISTRY TECHNICIAN REVIEWER (CTR) COMPLETE THE TEST.

6.16.1 **VERIFY** sample Retained (approximately 1 Liter) for Monthly Radwaste Composite per ST-C-095-833-2, "P-32, FE-55, SR-89 and SR-90, and Tritium Analysis in Liquid Radwaste". (ODCMS Table 4.8.1) * _____ CTR

6.16.2 **USE** Data from this release, as applicable, to update the Radwaste File on the Computer System. _____ _____ CTR

6.16.3 **ENTER** Required Data for applicable waste tanks into the Chemistry Data Management System (DMS). _____ _____ CTR

7.0 PROCEDURE COMPLETION

Initial

7.1 Independent Verification

None

7.2 Records Completion

7.2.1 **REVIEW** all Sections of this test **AND VERIFY** these are complete. _____ CTR

7.2.2 **VERIFY** copy of the Gamma Isotopic Analysis Report attached to this test. _____ CTR

7.2.3 **COMPLETE** Section 2 of this test's coversheet by signing at "Completed By:" (**AND** Section 3 **IF** applicable) **AND FORWARD** this test to Chemistry Supervision **OR** Staff for review. _____ CTR

8.0 REFERENCES

8.1 Governing

8.1.1 ODCMS 3.8.B.3

8.1.2 ODCMS 3.8.B.4

8.1.3 ODCMS 4.8.B.1.1

8.1.4 ODCMS 4.8.B.1.2

8.1.5 ODCMS 4.8.B.1.3

8.1.6 ODCMS 4.8.B.3.1

8.1.7 ODCMS 4.8.B.3.2

8.1.8 ODCMS Table 4.8.B.1

8.1.9 ODCMS 4.8.B.4.3

8.1.10 ODCMS 4.2.B.4.4

8.1.11 ODCMS 4.8.B.4.5

8.1.12 ODCMS Bases B 3.8

8.1.13 CM-1, Licensed Event Report 2-91-036

8.1.14 CM-2, NRC Inspection Report Doc No. 76070103

8.2 Interfacing

8.2.1 PBAPS Offsite Dose Calculation Manual (ODCM)

8.2.2 CH-401, Sampling and Analysis of Liquid Radioactive Waste

8.2.3 ST-C-095-833-2, P-32, FE-55, SR-89 and 90, and Tritium Analysis in Liquid Radwaste

8.2.4 SO 20A.1.E, Floor Drain Sample Tank Release to the Conowingo Pond

8.2.5 SO 20C.7.N, Waste Sample Tank Release to Conowingo Pond

8.2.6 SO 20B.7.A Laundry Drain Tank Release to Conowingo Pond

8.2.7 RW-591, Transfer of Processed Waste Water to the "B" Laundry Drain Tank

8.2.8 RW-592, Transfer of Unprocessed Waste Water to the "B" Laundry Drain Tank

8.0 REFERENCES (Continued)

8.2.9 SO 20C.5.B, Liquid Radwaste Discharge Radiation Monitor Flushing

8.3 Developmental

8.3.1 CH-600, Determination of Gamma Isotopic Activity with the Canberra Gamma Spectrometers

8.3.2 10 CFR 20 Appendix B, Table 2, Column 2

8.3.3 10 CFR 50

8.3.4 LR-C-13, 10 CFR 50.59 Reviews

8.3.5 NPDES Permit No. PA0009733

8.3.6 UFSAR Section 9.2.4.2.4

8.3.7 UFSAR Section 9.2.4.3

8.3.8 UFSAR Section 9.2.5

8.3.9 UFSAR Section 9.2.7

8.3.10 Prints

E-540-55, Sht.1, Console 20C007A Condensate Enhancement Arrangement

M-370, Shts. 1, 2, & 3, Radwaste Process & Disposal System-Liquid

M-371, Sht 5, Radwaste Process and Disposal-Solid

8.3.11 This procedure supersedes ST 7.1.8

9.0 ODCMS LIMITING CONDITIONS FOR OPERATION (LCOs)

Section 3.8.B

10.0 PARTICIPANTS RECORD

Printed Name	Initials
CHEMISTRY TECH	CT

PECO NUCLEAR
PEACH BOTTOM ATOMIC POWER STATION
JOB PERFORMANCE MEASURE

REVISED

POSITION TITLE: Unit Reactor Operator/Senior Reactor Operator

TASK-JPM DESIGNATOR: 2007510502 K/A: 2.4.41

URO: 2.3 SRO: 4.1

TASK DESCRIPTION: Fission Product Barrier EAL Classification - Site Area Emergency

A. NOTES TO EVALUATOR:

1. An asterisk (*) before the step number denotes a CRITICAL STEP. CRITICAL STEPS are those steps which when not performed correctly will prevent the system from functioning properly or prevent successful task completion.

2. System cues included in the performance checklist are to be provided to the examinee when no system response is available.

3. JPM Performance

   a. "Control Room" JPMs are designed to be performed in the simulator. If a "Control Room" JPM is to be performed in the Control Room all perform steps (P) shall be simulated (S).

   b. When performing "In-Plant" JPMs, no equipment will be operated without Shift Management approval.

4. Satisfactory performance of this JPM is accomplished if:

   a. The task standard is met.

   b. JPM completion time requirement is met.

      1) For non-time critical JPMs, completion within double the estimated time (listed in paragraph D.2) is acceptable provided the evaluator determines that the progress to completion is acceptable.

      2) For time critical JPMs, completion within the estimated time (listed in paragraph D.2) is required.

5. The estimated time to complete this JPM, though listed in the task standard, is not to be given to the examinee.

B. TOOLS AND EQUIPMENT

1. A copy of ERP-101, Rev. 22, "Classification of Emergencies" Attachment 1.

C. REFERENCES

1. ERP-101, Rev. 22, "Classification of Emergencies" Attachment 1.

D. TASK STANDARD

1. Satisfactory task completion is indicated when plant conditions have been classified as a Site Area Emergency in accordance with ERP-101 Attachment 1.

2. Estimated time to complete: 15 minutes Time Critical

E. DIRECTIONS TO EXAMINEE

When given the initiating cue, perform necessary steps to classify the event using appropriate procedures. I will describe initial plant conditions and provide you access to the materials required to complete this task.

F. TASK CONDITIONS/PREREQUISITES

1. Unit 2 is shutdown following a LOCA during which level dropped to –190".

2. ECCS is slowly raising reactor level. Current reactor level is –176".

3. Reactor pressure of 100 psig and slowly lowering.

4. No release in progress.

5. Containment radiation on RI-8103A-D is 2.4E+4 R/hr.

6. Containment pressure on PR-2508 is 12 psig.

7. The TSC and EOF are not yet activated.

G. INITIATING CUE

As the Emergency Director, classify the event per ERP-101, "Classification of Emergencies".

H. PERFORMANCE CHECKLIST

STEP NO	STEP	ACT	STANDARD
1	Obtain a copy of procedure ERP-101.	P	A copy of procedure ERP-101 is obtained.
2	Review ERP-101 Attachment 1.	P	ERP-101 attachment 1, section 3.1 and Table 3.2 are referenced.
*3	Classify the event. (Cue: Classification is acknowledged.)	P	Recognize < -172" is a Potential loss of the Fuel Cladding and a Loss of the Reactor Coolant System. Classify the event as a Site Area Emergency based on EAL 3.1.3.

***** NOTE *****

Terminate the exercise when the activities listed above are performed.

Under "ACT" P - must perform
S - must simulate

I. TERMINATING CUE

When the event is classified the evaluator will terminate the exercise.

TASK CONDITIONS/PREREQUISITES

1. Unit 2 is shutdown following a LOCA during which level dropped to –190".

2. ECCS is slowly raising reactor level. Current reactor level is –176".

3. Reactor pressure of 100 psig and slowly lowering.

4. No release in progress.

5. Containment radiation on RI-8103A-D is 2.4E+4 R/hr.

6. Containment pressure on PR-2508 is 12 psig.

7. The TSC and EOF are not yet activated.

INITIATING CUE

As the Emergency Director, classify the event per ERP-101, "Classification of Emergencies".

PECO NUCLEAR
PEACH BOTTOM UNITS 2 AND 3
EMERGENCY RESPONSE PROCEDURE

(This is a complete rewrite)

ERP-101 CLASSIFICATION OF EMERGENCIES

1.0 RESPONSIBILITIES

1.1 Shift Management:

1.1.1 Recognize and classify an event or condition.

1.1.2 Assume duties of Emergency Director (ED).

1.2 Plant Manager or designated alternate:

1.2.1 Relieve acting ED.

1.2.2 Assume duties of ED.

2.0 INITIAL ACTIONS

NOTE
THE JUDGMENT OF THE EMERGENCY DIRECTOR TAKES PRECEDENCE OVER GUIDANCE IN THE PROCEDURE.

NOTE
IDENTIFICATION AND CLASSIFICATION OF EMERGENCIES SHOULD BE ACCOMPLISHED WITHIN 15 MINUTES AFTER THE APPLICABLE EMERGENCY ACTION LEVELS (EALs) ARE MET.

2.1 Emergency Director shall:

2.1.1 Select categories appropriate for station events or conditions.

2.1.2 Review Emergency Action Level (EALs) for categories selected.

2.1.3 IF the event trigger is known to be spurious, THEN do not classify the event (i.e., false high reading, false radiation monitor readings, etc.)

2.1.4 Classify the event based on selected categories and most severe EALs.

2.1.5 IF the event or condition classifies as an emergency,
THEN assume duties of ED and implement ERP-200.

3.0 CONTINUING ACTIONS

NOTE

IT IS PREFERABLE TO OBTAIN EMERGENCY RESPONSE MANAGER (ERM) CONCURRENCE PRIOR TO DE-ESCALATION.

3.1 IF emergency conditions dictate, THEN escalate or de-escalate emergency classification.

4.0 FINAL CONDITIONS

4.1 Emergency conditions have been terminated, or ERP-C-1900, Recovery Phase Implementation has been implemented.

5.0 ATTACHMENTS AND APPENDICES

5.1 Attachment 1 - EAL Table of Contents and Tables 1 through 9. **CM-1, CM-2, CM-3, CM-5**

5.2 Attachment 2 - Terms and Definitions

6.0 SUPPORTING INFORMATION

6.1 Purpose

6.1.1 To provide the method for classifying an event or condition into one of four (4) emergency classifications described in the Nuclear Emergency Plan.

6.1.2 To provide pre-determined Protective Action Recommendations (PARs) for specific plant conditions whenever a General Emergency is declared.

6.2 Criteria For Use

6.2.1 Implement whenever conditions meet or exceed EALs listed in the Tables.

NOTE

ISSUANCE OF A PAR REQUIRES A GENERAL EMERGENCY CLASSIFICATION AND CONVERSELY A GENERAL EMERGENCY CLASSIFICATION REQUIRES THE ISSUANCE OF A PAR.

6.2.2 PAR information in the tables, is expected to be used when an event rapidly progresses to a General Emergency or when the PAR is based only on plant conditions. Dose Assessment based PAR information may be obtained from the Dose Assessment Coordinator or the Dose Assessment Team Leader. In either case, the most conservative PAR available is to be used.

6.2.3 Whenever the Emergency Operations Facility (EOF) is activated, then all PAR information from the ED should be submitted to the ERM. **CM-4**

6.3 Special Equipment

None

6.4 References

6.4.1 EPA-400-R-92-001, Manual of Protective Action Guides and Protective Actions for Nuclear Incidents

6.4.2 ERP-200, Emergency Director (ED)

6.4.3 ERP-C-1900, Recovery Phase Implementation

6.4.4 Nuclear Emergency Plan

6.4.5 NUMARC/NESP-007, Methodology for Development of Emergency Action Levels

6.4.6 NUREG 0654, FEMA-REP-1, Criteria for Preparations and Evaluation of Radiological Emergency Response Plans in Support of Nuclear Power Plants

6.4.7 PBAPS Technical Specifications

6.4.8 PBAPS Offsite Dose Calculation Manual

6.4.9 PBAPS Updated Final Safety Analysis Report

6.4.10 Reference Manual: Identification and Evaluation of Potentially Reportable Items

6.4.11 SE-1, Plant Shutdown from the Remote Shutdown Panel

6.4.12 SE-5, Earthquake

6.4.13 SE-10, Plant Shutdown from the Alternative Shutdown Panels

6.4.14 T-101, Reactor Pressure Vessel Control

6.4.15 T-102, Primary Containment Control

6.4.16 T-103, Secondary Containment Control

6.4.17 T-104, Radioactivity Release Control

6.4.18 T-116, RPV Flooding

6.4.19 T-200, Primary Containment Venting

6.4.20 SO 67.7A, Verification of Suspected Earthquake or Seismic System Activation

6.4.21 US NRC Regulatory Guide 1.101, Emergency Planning and Preparedness for Nuclear Power Reactors

6.4.22 US NRC Response Technical Manual

6.5 Commitment Annotation

6.5.1 CM-1, NRC Inspection Report 50-277, 278/ 88-12/12 (T00349), (see Attachment 1, tables 1 through 9)

6.5.2 CM-2, Event INV Report 3-90-031, corrective action #7, (T00826), (see Attachment 1, table 1 for Reactor Fuel and table 3 for Fission Product Barrier)

6.5.3 CM-3, NRC URI 85-17-03, IN Inspection Report 86-06/06, (T01934), (see Attachment 1, table 9)

6.5.4 CM-4, Peach Bottom Inspection Report 92-19/19 (T02540), (see section 6.2.3)

6.5.5 CM-5, NRC Inspection 92-03/03, (T02541), (see Attachment 1, table 3 for Fission Product Barrier)

Attachment 1
EAL Table of Contents

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9.0 Other **CM-3**
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MODE	
1	Run
2	Startup
3	Shutdown (hot)
4	Shutdown (cold)
5	Refueling
D	Defueled

1.0 Reactor Fuel

1.1 Coolant Activity

CLASSIFICATION	EMERGENCY ACTION LEVEL
UNUSUAL EVENT	**IC** Fuel Clad Degradation **1.1.1.a** Applicable Modes: ALL Reactor Coolant activity ***> 4 μCi/gm*** Dose Equivalent Iodine 131 **1.1.1.b** Applicable Modes: 1, 2, 3 SJAE Discharge Radiation ***> 2.5x10^3 mR/hr***
ALERT	*None*
SITE AREA EMERGENCY	*None*
GENERAL EMERGENCY	*None*

1.0 Reactor Fuel

1.2 Irradiated Fuel or New Fuel

CLASSIFICATION	EMERGENCY ACTION LEVEL
UNUSUAL EVENT	IC Unexpected Rise in Plant Radiation or Airborne Concentration. **1.2.1.a** Applicable Modes: ALL Uncontrolled water level drop in the spent fuel pool with all irradiated fuel assemblies remaining covered by water **1.2.1.b** Applicable Modes: ALL Unexpected Skimmer Surge Tank low level alarm **AND** Visual observation of an uncontrolled water level drop below the fuel pool skimmer surge tank inlet IC Unexpected Rise in Plant Radiation **1.2.1.c** Applicable Modes: ALL Radiological readings exceed **600 mR/hr** one foot away **OR** **1200 mR/hr** at the external surface of any dry storage system
ALERT	IC Major Damage to Irradiated Fuel, or Loss of Water Level that Has or Will Result in the Uncovering of Irradiated Fuel Outside the Reactor Vessel **1.2.2.a** Applicable Modes: ALL Unplanned general area radiation ***> 500 mR/hr*** on the refuel floor (Table 1-1) **1.2.2.b** Applicable Modes: ALL Report of visual observation of irradiated fuel uncovered **1.2.2.c** Applicable Modes: 5 (With Reactor Refueling Cavity Flooded) Water Level ***< 458" above RPV instrument zero*** for the Reactor Refueling Cavity that will result in Irradiated Fuel uncovering **1.2.2.d** Applicable Modes: ALL Water Level ***< 232ft 3 inches plant elevation*** for the Spent Fuel Pool that will result in Irradiated Fuel uncovering
SITE AREA EMERGENCY	*None*
GENERAL EMERGENCY	*None*

Table 1-1 Refuel Floor ARMs

3-7 (7-9)	Steam Separator Pool
3-8 (7-10)	Refuel Slot
3-9(7-11)	Fuel Pool
3-10(7-12)	Refueling Bridge

2.0 Reactor Pressure Vessel

2.1 Reactor Water Level

CLASSIFICATION	EMERGENCY ACTION LEVEL
UNUSUAL EVENT	**IC** Reactor Coolant System Leakage **2.1.1** Applicable Modes: 1, 2, 3, 4 The following conditions exist: Unidentified Primary System Leakage **> *10 gpm*** into the Drywell **OR** Identified Primary System Leakage **> *25 gpm*** into the Drywell
ALERT	*None*
SITE AREA EMERGENCY	**IC** Loss of Water Level in the Reactor Vessel That Has or Will Uncover fuel in the Reactor Vessel **2.1.3** Applicable Modes: 4, 5 RPV level **< *-172 "***
GENERAL EMERGENCY	*None*

2.0 Reactor Pressure Vessel

2.2 Reactor Power

CLASSIFICATION	EMERGENCY ACTION LEVEL
UNUSUAL EVENT	*None*
ALERT	**IC** Failure of Reactor Protection System Instrumentation to Complete or Initiate an Automatic Reactor Scram Once a Reactor Protection System Setpoint Has Been Exceeded and Manual Scram Was Successful **2.2.2** Applicable Modes: 1, 2 Automatic RPS SCRAM should occur due to RPS Setpoint being exceeded **AND** Failure of Automatic RPS SCRAM to make Reactor shutdown
SITE AREA EMERGENCY	**IC** Failure of Reactor Protection System Instrumentation to Complete or Initiate an Automatic Reactor Scram Once a Reactor Protection System Setpoint Has Been Exceeded and Manual Scram Was NOT Successful **2.2.3** Applicable Modes: 1, 2 RPS SCRAM should occur due to RPS Setpoint being exceeded **AND** Failure of Automatic RPS, ARI **AND** Manual SCRAM to reduce reactor power ***< 4%***
GENERAL EMERGENCY	**IC** Failure of the Reactor Protection System to Complete an Automatic Scram and Manual Scram was NOT Successful and There is Indication of an Extreme Challenge to the Ability to Cool the Core **2.2.4** Applicable Modes: 1, 2 RPS SCRAM should occur due to RPS Setpoint being exceeded **AND** Failure of Automatic RPS, ARI **AND** Manual SCRAM to reduce reactor power ***< 4%*** **AND** Torus Temperature is on the **"UNSAFE"** side of the Heat Capacity Temperature Limit (HCTL) curve (T-102, T/T-1) **OR** RPV level **<-200 "** *****PAR***** Evacuate 2 mile radius, evacuate affected sector(s) plus 1 sector on each side of affected sector(s) for 2-5 miles.

3.0 Fission Product Barrier Table

3.1 Initiating Condition Matrix

USE TABLE 3.2, "FISSION PRODUCT BARRIER STATUS TABLE" FOR CLASSIFYING EVENT

CLASSIFICATION	EMERGENCY ACTION LEVEL
UNUSUAL EVENT	**3.1.1** Applicable Modes: 1, 2, 3 ANY Loss **OR** ANY Potential Loss of Primary Containment
ALERT	**3.1.2** Applicable Modes: 1, 2, 3 ANY Loss **OR** ANY Potential Loss of EITHER Fuel Clad **OR** RCS
SITE AREA EMERGENCY	**3.1.3** Applicable Modes: 1, 2, 3 Loss of BOTH Fuel Clad **AND** RCS **OR** Potential Loss of BOTH Fuel Clad **AND** RCS **OR** Potential Loss of EITHER Fuel Clad **OR** RCS, **AND** Loss of ANY Additional Barrier
GENERAL EMERGENCY	**3.1.4** Applicable Modes: 1, 2, 3 Loss of ANY Two Barriers **AND** Potential Loss of Third Barrier *****PAR***** Evacuate 2 mile radius, evacuate affected sector(s) plus 1 sector on each side of affected sector(s) for 2-5 miles. (See Fission Product Barrier Table 3.2 for exception based on extremely Hi Containment Radiation Levels.)

NOTES:

1. If a "Loss" condition is satisfied, the "Potential Loss" category can be considered satisfied. This is accounted for in the matrix contained in the Fission Product Barrier Table 3.2 used to determine the proper classification based on Fission Product Barrier status.

2. For all conditions listed in Fission Product Barrier Table 3.2, the barrier failure column is only satisfied if it fails when called upon to mitigate an accident. For example, failure of both containment isolation valves to isolate with a downstream pathway to the environment is only a concern during an accident. If this condition exists during normal power operations, it will be an active Technical Specification Action Statement. However, during accident conditions, this will represent a breach of containment.

3.2 Fission Product Barrier Status Table
Applicable Modes: 1, 2, 3

Barrier / Parameter	Fuel Clad Loss	Fuel Clad Potential Loss	Reactor Coolant System Loss	Reactor Coolant System Potential Loss	Primary Containment Loss	Primary Containment Potential Loss
Reactor Coolant Activity	Reactor Coolant activity > ***300 μCi/gm*** Dose Equivalent Iodine 131	N/A	N/A	N/A	N/A	N/A
RPV Level	RPV level < ***-200 "***	RPV level < ***-172 "***	RPV level < ***-172 "***	N/A	N/A	RPV level cannot be restored above ***-200 "*** within the time limit of the "SAFE" region of the Maximum Core Uncovery Time Limit Curve (T-116, RF-1)
RPV Level Unknown	N/A	N/A	N/A	RPV level cannot be determined	N/A	RPV level cannot be determined **AND** RPV Flooding cannot be established as indicated by inability to maintain 5 ADS/SRVs open with RPV pressure at least 60 psig above Torus pressure per T-116
RCS Leak Rate	N/A	N/A	N/A	RCS leakage ***>50 gpm***	N/A	N/A
Drywell Pressure	N/A	N/A	Drywell Pressure ***> 2.0 psig*** **AND** Indication of a leak inside drywell	N/A	Rapid, unexplained drop in Drywell Pressure following initial rise **OR** Drywell pressure response not consistent with LOCA conditions	Drywell Pressure ***> 49 psig*** and rising **OR** Drywell Hydrogen > ***6%*** **AND** Drywell Oxygen > ***5%***
Drywell Radiation	Drywell Rad Monitor reading ***> $8x10^4$ R/hr***	N/A	Drywell Rad Monitor reading ***> 15 R/hr***	N/A	N/A	Drywell Rad Monitor reading ***> $6x10^5$ R/hr*** *****PAR***** **Evacuate 5 mile radius, evacuate affected sector(s) plus 1 sector on each side of affected sector(s) for 5-10 miles.**

3.2 Fission Product Barrier Status Table

Applicable Modes: 1, 2, 3

Barrier / Parameter	Fuel Clad Loss	Fuel Clad Potential Loss	Reactor Coolant System Loss	Reactor Coolant System Potential Loss	Primary Containment Loss	Primary Containment Potential Loss
Containment Isolation	N/A	N/A	N/A	Unisolable primary system leakage outside drywell as indicated by T-103, **Temperature Action Level** is exceeded in ONE area requiring a SCRAM **OR** Unisolable primary system leakage outside drywell as indicated by T-103, **Radiation Action Level** is exceeded in ONE area requiring a SCRAM	Failure of both valves in any one line to close **AND** downstream pathway to the environment exists **OR** Intentional venting per T-200 is required **OR** Unisolable primary system leakage outside drywell as indicated by T-103, **Temperature Action Level** is exceeded in ONE area requiring a SCRAM **OR** Unisolable primary system leakage outside drywell as indicated by a T-103, **Radiation Action Level** is exceeded in ONE area requiring a SCRAM	N/A
Emergency Director Judgment	Any condition in the judgment of the Emergency Director that indicates Loss or Potential Loss of the FUEL CLAD barrier		Any condition in the judgment of the Emergency Director that indicates Loss or Potential Loss of the RCS barrier		Any condition in the judgment of the Emergency Director that indicates Loss or Potential Loss of the Primary Containment barrier	

In the table below, circle all of the appropriate X's in each applicable row for each Loss or Potential Loss of Fission Product Barrier as determined by the table above.

Classify the event as identified in the table heading if all X's in a column under that heading are circled.

Fission Product Barrier Status	Unusual Event		ALERT				SITE AREA EMERGENCY								GENERAL EMERGENCY			
Fuel Clad - Loss			X				X		X		X				X	X		X
Fuel Clad - Potential Loss				X				X		X		X					X	
Reactor Coolant System - Loss					X		X			X			X		X	X	X	
Reactor Coolant System-Potential Loss						X		X	X					X				X
Primary Containment - Loss	X										X	X	X	X	X		X	X
Primary Containment - Potential Loss		X														X		

******PAR******
Evacuate 2 mile radius, evacuate affected sector(s) plus 1 sector on each side of affected sector(s) for 2-5 miles. (Upgrade PAR for D/W Rad > *$6x10^5$ R/hr*)

4.0 Secondary Containment Bypass

4.1 Main Steam Line

CLASSIFICATION	EMERGENCY ACTION LEVEL
UNUSUAL EVENT	**IC** Fuel Clad Degradation **4.1.1** Applicable Modes: 1, 2, 3 Main Steam Line HiHi Radiation (10xNFPB)
ALERT	**IC** RCS Leak Rate **4.1.2** Applicable Modes: 1, 2, 3 Indication of a Main Steam Line Break: Hi Steam Flow Annunciator **AND** Hi Steam Tunnel Temperature Annunciator **OR** Direct report of steam release
SITE AREA EMERGENCY	*None*
GENERAL EMERGENCY	*None*

5.0 Radioactivity Release

5.1 Effluent Release and Dose

CLASSIFICATION	EMERGENCY ACTION LEVEL
UNUSUAL EVENT	IC Any Unplanned Release of Gaseous or Liquid Radioactivity to the Environment that Exceeds Two Times the Radiological Technical Specifications for 60 Minutes or Longer **5.1.1.a** Applicable Modes: ALL A valid reading on one or more of the following radiation monitors that exceeds **TWO TIMES** the HiHi alarm setpoint value for ***> 60 minutes:*** Main Stack, Vent Stack, Radwaste Discharge, Service Water Discharge **AND** Calculated maximum offsite dose rate using computer dose model exceeds ***0.114 mRem/hr TPARD OR 0.342 mRem/hr child thyroid CDE*** based on a 60 minute average Note: If the required dose projections cannot be completed within the 60 minute period, then the declaration must be made based on the valid sustained monitor reading. **5.1.1.b** Applicable Modes: ALL Confirmed sample analyses for gaseous or liquid releases indicates concentrations or release rates exceeding **TWO TIMES** Tech Specs (Liquid Release ODCM 3.8.B.1 and Gaseous Release ODCM 3.8.C.1.b) for ***> 60 minutes***
ALERT	IC Any Unplanned Release of Gaseous or Liquid Radioactivity to the Environment that Exceeds 200 Times Radiological Technical Specifications for 15 Minutes or Longer **5.1.2.a** Applicable Modes: ALL A valid reading on one or more of the following radiation monitors that exceeds **TWO HUNDRED TIMES** the HiHi alarm setpoint value for ***> 15 minutes:*** Main Stack, Vent Stack, Radwaste Discharge, Service Water Discharge **AND** Calculated maximum offsite dose rate exceeds **11.4 mRem/hr TPARD OR 34.2 mRem/hr child thyroid CDE** based on a 15 minute average Note: If the required dose projections cannot be completed within the 15 minute period, then the declaration must be made based on the valid sustained monitor reading. **5.1.2.b** Applicable Modes: ALL Confirmed sample analyses for gaseous or liquid releases indicates concentrations or release rates exceeding **TWO HUNDRED TIMES** Tech Specs (Liquid Release ODCM 3.8.B.1 and Gaseous Release ODCM 3.8.C.1.b) for ***> 15 minutes***

SITE AREA EMERGENCY	**IC** Boundary Dose Resulting from an Actual or Imminent Release of Gaseous Radioactivity Exceeds 100 mR Whole Body or 500 mR Child Thyroid for the Actual or Projected Duration of the Release **5.1.3** Applicable Modes: ALL A valid reading on one or more of the following radiation monitors that exceeds or is expected to exceed the value shown for ***> 15 minutes*** **AND** Dose Projections are not available: Main Stack 5.84 µCi/cc Vent Stack 2.08E-3 µCi/cc Torus Vent 203 cpm Note: If the required dose projections cannot be completed within the 15 minute period, then the declaration must be made based on the valid sustained monitor reading. **OR** Projected offsite dose using computer dose model exceeds ***100 mRem TPARD*** **OR** ***500 mRem*** **child thyroid CDE** **OR** Analysis of Field Survey results indicate site boundary whole body dose rate exceeds ***100 mRem/hr*** expected to continue for more than one hour, **OR** Analysis of Field Survey results indicate child thyroid dose commitment of ***500 mRem*** for one hour of inhalation
GENERAL EMERGENCY	**IC** Boundary Dose Resulting from an Actual or Imminent Release of Gaseous Radioactivity that Exceeds 1000 mR Whole Body or 5000 mR Child Thyroid for the Actual or Projected Duration of the Release Using Actual Meteorology **5.1.4** Applicable Modes: ALL A valid reading on one or more of the following radiation monitors that exceeds or is expected to exceed the value shown for ***> 15 minutes*** **AND** Dose Projections are not available: Main Stack 58.4 µCi/cc Vent Stack 2.08E-2 µCi/cc Torus Vent 2000 cpm Note: If the required dose projections cannot be completed within the 15 minute period, then the declaration must be made based on the valid sustained monitor reading. **OR** Projected offsite dose using computer dose model exceeds ***1000 mRem TPARD*** **OR** ***5000 mRem*** **child thyroid CDE** **OR** Analysis of Field Survey results indicate site boundary whole body dose rate exceeds ***1000 mRem/hr*** expected to continue for more than one hour, **OR** Analysis of Field Survey results indicate child thyroid dose commitment of ***5000 mRem*** for one hour of inhalation *****PAR***** Evacuate 2 mile radius, evacuate affected sector(s) plus 1 sector on each side of affected sector(s) for 2-5 miles.

NOTE: CDE = Committed Dose Equivalent, TPARD = Total Protective Action Recommendation Dose

5.0 Radioactivity Release

5.2 In-Plant Radiation

CLASSIFICATION	EMERGENCY ACTION LEVEL
UNUSUAL EVENT	**IC** Unexpected Rise in Plant Radiation or Airborne Concentration **5.2.1** Applicable Modes: ALL Valid Direct Area Radiation Monitor readings rise by a factor of 1000 over normal* levels * Normal levels can be considered as the highest reading in the past twenty-four hours excluding the current peak value.
ALERT	**IC** Release of Radioactive Material or Rises in Radiation Levels Within the Facility That Impedes Operation of Systems Required to Maintain Safe Operations or to Establish or Maintain Cold Shutdown **5.2.2.a** Applicable Modes: ALL Valid radiation level readings > ***5000 mR/hr*** in areas requiring infrequent access to maintain plant safety functions as identified in procedure SE-1, SE-10 **AND** Access is required for safe plant operation, but is impeded, due to radiation dose rates **5.2.2.b** Applicable Modes: ALL Valid Control Room **OR** Central Alarm Station radiation reading > ***15 mR/hr***
SITE AREA EMERGENCY	*None*
GENERAL EMERGENCY	*None*

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6.0 Loss of Power

6.1 Loss of AC or DC Power

CLASSIFICATION	EMERGENCY ACTION LEVEL
UNUSUAL EVENT	**IC** Loss of All Offsite Power to Essential Busses for Greater Than 15 Minutes **6.1.1.a** Applicable Modes: ALL The following conditions exist: Loss of Power to 2 and 3 Startup and Emergency Aux. Transformers and 343 Startup Transformer for ***>15 minutes*** **AND** At least ***Two*** Diesel Generators are supplying power to their respective 4 KV emergency busses **IC** Unplanned Loss of Required DC Power During Cold Shutdown or Refueling Mode for Greater than 15 Minutes **6.1.1.b** Applicable Modes: 4, 5 Unplanned Loss of ALL safety related DC Power indicated by ***< 107.5 VDC*** on DC Panels 2(3)0D21, 22, 23, 24 for ***>15 minutes***
ALERT	**IC** AC power capability to essential busses reduced to a single power source for greater than 15 minutes such that any additional single failure would result in station blackout **6.1.2.a** Applicable Modes: 1, 2, 3 The following conditions exist: Loss of Power to 2 and 3 Startup and Emergency Aux. Transformers and 343 Startup Transformer for ***>15 minutes*** **AND** Only ***One*** 4 KV emergency bus powered from a Single Onsite Power Source due to the Loss of: Three of Four Division Diesel Generators, D/G Output Breakers, or 4 KV Emergency Busses as indicated by bus voltage **IC** Loss of All Offsite Power and Loss of All Onsite AC Power to Essential Busses During Cold Shutdown Or Refueling Mode **6.1.2.b** Applicable Modes: 4, 5, D The following conditions exist: Loss of Power to 2 and 3 Startup and Emergency Aux. Transformers and 343 Startup Transformer **AND** Failure to restore power to at least ***One*** 4 KV emergency bus ***within 15 minutes*** from the time of loss of both offsite and onsite AC power

SITE AREA EMERGENCY	IC Loss of All Offsite Power and Loss of All Onsite AC Power to Essential Busses **6.1.3.a** Applicable Modes: 1, 2, 3 The following conditions exist: Loss of Power to 2 and 3 Startup and Emergency Aux. Transformers and 343 Startup Transformer **AND** Failure to restore power to at least ***One*** 4 KV emergency bus ***within 15 minutes*** from the time of loss of both offsite and onsite AC IC Loss of All Vital DC Power **6.1.3.b** Applicable Modes: 1, 2, 3 Loss of ALL Safety Related DC Power indicated by ***< 107.5 VDC*** on DC Panels 2(3)0D21, 22, 23, 24 for ***> 15 minutes***
GENERAL EMERGENCY	IC Prolonged Loss of All Offsite Power and Prolonged Loss of All Onsite AC Power **6.1.4** Applicable Modes: 1, 2, 3 Prolonged loss of all offsite and onsite AC power as indicated by: Loss of Power to 2 and 3 Startup and Emergency Aux. Transformers and 343 Startup Transformer **AND** Failure of ALL Emergency Diesel Generators to supply power to 4 KV emergency busses **AND** At least one of the following conditions exist: • Restoration of at least ***One*** emergency bus within ***2 hours*** is ***NOT*** likely **OR** • Reactor Water Level cannot be maintained ***> -172 "*** **OR** • Torus temperature is on the **"UNSAFE"** side of the Heat Capacity Temperature Limit (HCTL) curve (T-102, T/T-1) *****PAR***** Evacuate 2 mile radius, evacuate affected sector(s) plus 1 sector on each side of affected sector(s) for 2-5 miles.

7.0 Internal Events

7.1 Technical Specification & Control Room Evacuation

CLASSIFICATION	EMERGENCY ACTION LEVEL
UNUSUAL EVENT	**IC** Inability to Reach Required Shutdown Mode Within Technical Specification Limits **7.1.1** Applicable Modes: 1, 2, 3 Inability to reach required shutdown mode within Tech. Spec. LCO required action completion time.
ALERT	**IC** Control Room Evacuation Has Been Initiated **7.1.2** Applicable Modes: ALL Entry into SE-1 or SE-10 procedure for Control Room evacuation
SITE AREA EMERGENCY	**IC** Control Room Evacuation Has Been Initiated and Plant Control Cannot Be Established **7.1.3** Applicable Modes: ALL The following conditions exist: Control room evacuation has been initiated **AND** Control of the plant cannot be established per SE-1or SE-10 within ***15 minutes***
GENERAL EMERGENCY	*None*

7.0 Internal Events

7.2 Loss of Decay Heat Removal Capability

CLASSIFICATION	EMERGENCY ACTION LEVEL
UNUSUAL EVENT	*None*
ALERT	**IC** Inability to Maintain Plant in Cold Shutdown **7.2.2** Applicable Modes: 4, 5 The following conditions exist: Unplanned Loss of <u>ALL</u> Tech Spec required systems available to provide Decay Heat Removal functions <u>AND</u> Uncontrolled Temperature rise that either: • Exceeds ***212 °F*** (Excluding a <15 minute rise >212° F with a heat removal function restored) <u>OR</u> • Results in temperature rise approaching ***212 °F*** (with <u>NO</u> heat removal function restored)
SITE AREA EMERGENCY	**IC** Complete Loss of Function Needed to Achieve or Maintain Hot Shutdown **7.2.3** Applicable Modes: 1, 2, 3 Loss of TORUS heat sink capabilities as evidenced by T-102 T/T legs directing a T-112 Emergency Blowdown
GENERAL EMERGENCY	*None*

7.0 Internal Events

7.3 Loss of Assessment / Communication Capability

CLASSIFICATION	EMERGENCY ACTION LEVEL
UNUSUAL EVENT	**IC** Unplanned Loss of Most or All Safety System Annunciation or Indication in The Control Room for Greater Than 15 Minutes **7.3.1.a** Applicable Modes: 1, 2, 3 Unplanned loss of most or all safety system annunciators (Table 7-1) <u>OR</u> indicators (Table 7-2) for > **15 minutes** requiring increased surveillance to safely operate the unit(s). **IC** Unplanned Loss of All Onsite or Offsite Communications Capabilities **7.3.1.b** Applicable Modes: ALL Loss of ALL Onsite communications (Table 7-3) affecting the ability to perform routine operations <u>OR</u> Loss of ALL Offsite communications (Table 7-3)
ALERT	**IC** Unplanned Loss of Most or All Safety System Annunciation or Indication In Control Room With Either (1) a Significant Transient in Progress, or (2) Compensatory Non-Alarming Indicators are Unavailable **7.3.2** Applicable Modes: 1, 2, 3 Unplanned loss of most or all safety system annunciators (Table 7-1) <u>OR</u> indicators (Table 7-2) for > **15 minutes** requiring increased surveillance to safely operate the unit(s) <u>AND EITHER</u> A significant plant transient is in progress (Table 7-4) <u>OR</u> the plant monitoring system (PMS) is unavailable.
SITE AREA EMERGENCY	**IC** Inability to Monitor a Significant Transient in Progress **7.3.3** Applicable Modes: 1, 2, 3 Loss of safety system annunciators (Table 7-1) <u>AND</u> indicators (Table 7-2) <u>AND</u> PMS <u>AND</u> a significant plant transient is in progress. (Table 7-4)
GENERAL EMERGENCY	*None*

Table 7-1 Safety System Annunciators

ECCS
Containment Isolation
Reactor Trip
Process Radiation Monitoring

Table 7-2 Safety Function Indicators

Reactor Power
Decay Heat Removal
Containment Safety Functions

Table 7-3 Communications

	Onsite	Offsite
Site Phones (GTE System)	X	X
OMNI System	X	X
Plant Public Address	X	
Station Radio	X	
NRC (FTS-2000)		X
PA State Police Radio		X
Load Dispatcher Radio		X
PECO Dial Network		X

Table 7-4 Significant Plant Transients

SCRAM
Recirc Runbacks > 25% thermal power
Sustained power oscillations 25% peak to peak
Stuck open relief valve(s)
ECCS injection

8.0 External Events

8.1 Security Threats

CLASSIFICATION	EMERGENCY ACTION LEVEL
UNUSUAL EVENT	IC Confirmed Security Event Which Indicates a Potential Degradation in the Level of Safety of the Plant **8.1.1** Applicable Modes: ALL Credible sabotage or bomb threat within the Protected Areas **OR** Credible intrusion and attack threat to the Protected Areas **OR** Attempted intrusion and attack to the Protected Areas **OR** Attempted sabotage discovered within the Protected Areas **OR** Hostage/Extortion situation that threatens normal plant operations
ALERT	IC Security Event in a Plant Protected Area **8.1.2** Applicable Modes: ALL Intrusion into plant protected areas by a hostile force **OR** Confirmed bomb, sabotage or sabotage device discovered in the Protected Areas
SITE AREA EMERGENCY	IC Security Event in a Plant Vital Area **8.1.3** Applicable Modes: ALL Intrusion into plant Vital area by a hostile force **OR** Confirmed bomb, sabotage or sabotage device discovered in a Vital Area
GENERAL EMERGENCY	IC Security Event Resulting in Loss of Ability to Reach and Maintain Cold Shutdown **8.1.4** Applicable Modes: ALL Loss of physical control of the control room due to security event **OR** Loss of physical control of all remote shutdown capability due to security event *****PAR***** Evacuate 2 mile radius, evacuate affected sector(s) plus 1 sector on each side of affected sector(s) for 2-5 miles.

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8.0 External Events

8.2 Fire / Explosion and Toxic / Flammable Gases

CLASSIFICATION	EMERGENCY ACTION LEVEL
UNUSUAL EVENT	IC Fire Within Protected Area Boundary Not Extinguished Within 15 Minutes of Detection **8.2.1.a** Applicable Modes: ALL Fire within ON-114 Plant Vital Structures (Table 8-1) which is not extinguished within ***15 minutes*** of control room notification or verification of a control room alarm IC Release of Toxic or Flammable Gasses Deemed Detrimental to Safe Operation of the Plant **8.2.1.b** Applicable Modes: ALL Report or detection of toxic or flammable gases that could enter within the site area boundary in amounts that can affect normal operation of the plant **OR** Report by Local, County or State Officials for potential evacuation of site personnel based on offsite event IC Natural and Destructive Phenomena Affecting the Protected Area **8.2.1.c** Applicable Modes: ALL Report by plant personnel of an unanticipated explosion within protected area boundary resulting in visible damage to permanent structure or equipment
ALERT	IC Fire or Explosion Affecting the Operability of Plant Safety Systems Required to Establish or Maintain Safe Shutdown **8.2.2.a** Applicable Modes: ALL The following conditions exist: Fire or explosion which potentially makes inoperable: *Two or More* subsystems of a Safe Shutdown System (Table 8-2) **OR** *Two or More* Safe Shutdown Systems **OR** Plant Vital Structures containing Safe Shutdown Equipment **AND** Safe Shutdown System or Plant Vital Structure is required for the present Operational Mode

ALERT	IC Release of Toxic or Flammable Gases Within a Facility Structure Which Jeopardizes Operation of Systems Required to Maintain Safe Operations or to Establish or Maintain Cold Shutdown **8.2.2.b** Applicable Modes: ALL Report or detection of toxic gases within Plant Vital Structures (Table 8-1) in concentrations that will be life threatening to plant personnel **OR** Report or detection of flammable gases within Plant Vital Structures (Table 8-1) in concentrations affecting the safe operation of the plant
SITE AREA EMERGENCY	*None*
GENERAL EMERGENCY	*None*

Table 8-1 Plant Vital Structures

Power Block
Diesel Generator Building
Emergency Pump Structure
Inner Screen Structure
Emergency Cooling Tower

Table 8-2 Safe Shutdown Systems

Diesel Generators	4KV Safeguard Buses	ADS
HPCI	RCIC	RHR (All Modes)
Core Spray	HPSW	ESW
SBGTS	ECW	CAC/CAD
PCIS	Control Room Ventilation	

8.0 External Events

8.3 Man-Made Events

CLASSIFICATION	EMERGENCY ACTION LEVEL
UNUSUAL EVENT	IC Destructive Phenomena Affecting the Protected Area **8.3.1.a** Applicable Modes: ALL Vehicle crash within protected area boundary that may potentially damage plant structures containing functions and systems required for safe shutdown of the plant. **8.3.1.b** Applicable Modes: ALL Report of turbine failure resulting in casing penetration or damage to turbine or generator seals.
ALERT	IC Destructive Phenomena Affecting the Plant Vital Area **8.3.2** Applicable Modes: ALL Vehicle crash affecting Plant Vital Structures (Table 8-1) **OR** Turbine failure generated missiles result in any visible structural damage to or penetration of any Plant Vital Structures (Table 8-1)
SITE AREA EMERGENCY	*None*
GENERAL EMERGENCY	*None*

Table 8-1 Plant Vital Structures

Power Block
Diesel Generator Building
Emergency Pump Structure
Inner Screen Structure
Emergency Cooling Tower

8.0 External Events

8.4 Natural Events

CLASSIFICATION	EMERGENCY ACTION LEVEL
UNUSUAL EVENT	**IC** Natural and Destructive Phenomena Affecting the Protected Area **8.4.1.a** Applicable Modes: ALL Earthquake ***>.01 g*** as determined by procedure SO 67.7.A **8.4.1.b** Applicable Modes: ALL Report by plant personnel of tornado striking within protected areas **OR** Wind speeds ***> 75 mph*** as indicated on site Meteorological data for ***> 15 minutes*** **8.4.1.c** Applicable Modes: ALL Assessment by the control room that an event has occurred. (Natural and Destructive Phenomena Affecting the Protected Areas) **8.4.1.d** Applicable Modes: All High River level **> 112'** **OR** Low River level **< 98.5'**
ALERT	**IC** Natural and Destructive Phenomena Affecting the Plant Vital Area **8.4.2.a** Applicable Modes: ALL Earthquake ***>.05 g*** (Operating Basis Earthquake OBE) as determined by procedure SO 67.7.A **8.4.2.b** Applicable Modes: ALL Tornado or wind speeds ***> 75 mph*** causing damage to Plant Vital Structures (Table 8-1) **8.4.2.c** Applicable Modes: ALL Report of any visible structural damage to any Plant Vital Structure (Table 8-1) **8.4.2.d** Applicable Modes: All High River level **> 116'** **OR** Low River level **< 92.5'**
SITE AREA EMERGENCY	*None*
GENERAL EMERGENCY	*None*

able 8-1 Plant Vital Structures

Power Block
Diesel Generator Building
Emergency Pump Structure
Inner Screen Structure
Emergency Cooling Tower

9.0 Other

9.1 General

CLASSIFICATION	EMERGENCY ACTION LEVEL
UNUSUAL EVENT	IC Other Conditions Existing Which in the Judgment of the Emergency Director Warrant Declaration of an Unusual Event **9.1.1** Applicable Modes: ALL Other conditions exist which in the judgment of the Emergency Director indicate a potential degradation of the level of safety of the plant
ALERT	IC Other Conditions Existing Which in the Judgment of the Emergency Director Warrant Declaration of an Alert **9.1.2** Applicable Modes: ALL Other conditions exist which in the Judgment of the Emergency Director indicate that plant safety systems may be degraded and that increased monitoring of plant functions is warranted
SITE AREA EMERGENCY	IC Other Conditions Existing Which in the Judgment of the Emergency Director Warrant Declaration of Site Area Emergency **9.1.3** Applicable Modes: ALL Other conditions exist which in the Judgment of the Emergency Director indicate actual or likely major failures of plant functions needed for protection of the public
GENERAL EMERGENCY	IC Other Conditions Existing Which in the Judgment of the Emergency Director Warrant Declaration of General Emergency **9.1.4** Applicable Modes: ALL Other conditions exist which in the Judgment of the Emergency Director indicate: (1) actual or imminent substantial core degradation with potential for loss of containment, or (2) potential for uncontrolled radionuclide releases. These releases can reasonably be expected to exceed EPA PAG plume exposure levels outside the site boundary *****PAR***** Evacuate 2 mile radius, evacuate affected sector(s) plus 1 sector on each side of affected sector(s) for 2-5 miles.

Attachment 2
TERMS AND DEFINITIONS

EMERGENCY ACTION LEVEL (EAL)	Plant parameters or other condition which if met or exceeded the emergency classification level and requires a declaration of emergency.
OPERABLE	System, subsystem, train, component, or device, and all auxiliaries required for their operation, is capable of performing its specified function in the intended manner.
PROTECTIVE ACTION RECOMMENDATIONS (PAR)	Recommendation made to the state action to be taken to avoid or reduce projected dose to the public.
PROJECTED DOSE	An estimate of radiation dose which affected individuals could potentially receive if protective actions are not taken.
TPARD	Total Protective Action Recommendation Dose. (TPARD = External Dose & Internal Dose & Dose Due to 4-Day Shine)
CDE	Committed Dose Equivalent. (CDE = internal Organ Dose from Ingestion)
CEDE	Committed Effective Dose Equivalent. (CEDE = Internal Whole Body Dose from Ingestion)
TEDE	Total Effective Dose Equivalent. (TEDE = Deep Dose Equivalent & CEDE Dose)
PROTECTIVE ACTION GUIDE (PAG)	Action guidelines based on projections for the total integrated dose a member of the public would receive for the duration of the emergency.
SABOTAGE	An act conducted by a person or persons with the intent of damaging or impairing the operation of the plant.
SECURITY COMPROMISE	A security threat as illustrated by attempted entry or sabotage with the intent to gain physical control of the plant.

UNUSUAL EVENT	Events in progress or have occurred, that indicate a potential degradation of the level of safety of the plant. No releases of radioactive material requiring off-site response or monitoring are expected unless further degradation of safety systems occurs.
ALERT	Events in progress or have occurred that involve actual or potential substantial degradation of the level of safety of the plant. Any releases of radioactive material are expected to be limited to small fractions of the Environmental Protective Agency (EPA) Protective Action Guidelines (PAG) exposure levels.
SITE AREA EMERGENCY	Events in progress or which have occurred that involve actual or likely major failures of plant functions needed for protection of the public. Any releases of radioactive material are not expected to exceed EPA PAG exposure levels except near site boundary.
GENERAL EMERGENCY	Events in progress or which have occurred that involve actual or imminent substantial core degradation or melting with potential for loss of containment integrity. Releases of radioactive material can be reasonably expected to exceed EPA PAG exposure levels off-site for more than the immediate site area.

DRAFT
RO/Part A operating

PECO NUCLEAR
PEACH BOTTOM ATOMIC POWER STATION
JOB PERFORMANCE MEASURE

POSITION TITLE: Unit Reactor Operator/Senior Reactor Operator

TASK-JPM DESIGNATOR: 3421130302 K/A: 2.2.11

URO: 2.5 SRO: 3.4

TASK DESCRIPTION: Prepare a Partial Procedure

A. NOTES TO EVALUATOR:

1. An asterisk (*) before the step number denotes a CRITICAL STEP. CRITICAL STEPS are those steps which when not performed correctly will prevent the system from functioning properly or prevent successful task completion.

2. System cues included in the performance checklist are to be provided to the examinee when no system response is available.

3. JPM Performance

   a. "Control Room" JPMs are designed to be performed in the simulator. If a "Control Room" JPM is to be performed in the Control Room all perform steps (P) shall be simulated (S).

   b. When performing "In-Plant" JPMs, no equipment will be operated without Shift Management approval.

4. Satisfactory performance of this JPM is accomplished if:

   a. The task standard is met.

   b. JPM completion time requirement is met.

      1) For non-time critical JPMs, completion within double the estimated time (listed in paragraph D.2) is acceptable provided the evaluator determines that the progress to completion is acceptable.

      2) For time critical JPMs, completion within the estimated time (listed in paragraph D.2) is required.

5. The estimated time to complete this JPM, though listed in the task standard, is not to be given to the examinee.

B. TOOLS AND EQUIPMENT

1. A blank copy of ST-O-010-401-2, Rev. 0, "RHR Manual Isolation Valves Remote Position Indication Verification"

C. REFERENCES

1. A-3, Rev. 18, "Temporary Changes to Procedures and Partial Procedure Use"

2. ST-O-010-401-2, Rev. 0, "RHR Manual Isolation Valves Remote Position Indication Verification"

D. TASK STANDARD

1. Satisfactory task completion is indicated when the candidate has correctly prepared ST-O-010-401-2, "RHR Manual Isolation Valves Remote Position Indication Verification" as a partial for the completion of Post Maintenance Testing on the "B" RHR Loop Manual Isolation Valve.

2. Estimated time to complete: 15 minutes Non-Time Critical

E. DIRECTIONS TO EXAMINEE

When given the initiating cue, perform necessary steps to prepare a partial procedure for Post Maintenance Testing of the "B" RHR Loop Manual Isolation Valve using appropriate procedures. I will describe initial plant conditions and provide you access to the materials required to complete this task.

F. TASK CONDITIONS/PREREQUISITES

1. An outage is in progress on Unit 2.

2. The plant is in Mode 4.

3. Work has been performed on HV-2-10-081B, "RHR Loop B Manual Isolation Valve".

4. Maintenance has completed repairs on the valve and it is ready for Post Maintenance Testing.

G. INITIATING CUE

The Control Room Supervisor directs you to prepare a Partial Procedure using ST-O-010-401-2, "RHR Manual Isolation Valves Remote Position Indication Verification" to complete Post Maintenance Testing of the HV-2-10-081B. Submit the completed partial procedure for review and approval.

H. PERFORMANCE CHECKLIST

STEP NO	STEP	ACT	STANDARD
1	Obtain a copy of the procedure. Note: Partial Procedures are completed in accordance with A-3, "Temporary Changes to Procedures and Partial Procedure Use". The candidate may refer to this procedure during the JPM.	P	A copy of ST-O-010-401-2 is obtained.
*2	Enter the word "PARTIAL" on the first page of the procedure.	P	The word "PARTIAL" is entered on the front page.
*3	Record the reason for the partial and whether additional testing is required to fulfill surveillance test requirements.	P	Candidate writes words that indicate the partial is being used as Post Maintenance Test and that it will meet the surveillance requirements for the position indication of the "B" manual isolation valve.
*4	Indicate changes on the procedure to those steps or portions of the procedure that are not required to be performed.	P	Steps which do not support the testing of the "B" RHR Loop Manual Isolation Valve are changed or crossed out. • Steps 6.1.2 through 6.1.5 should be crossed out. • Step 7.1.1 should be crossed out. • Information for HV-2-10-081A on Data Sheet 1 should be crossed out.
5	Submit the partial for approval. (Cue: Accept partial for approval.)	P	Candidate will give evaluator the marked up procedure for approval.

***** NOTE *****

Terminate the exercise when the activities listed above are performed.

Under "ACT" P - must perform
S - must simulate

I. TERMINATING CUE

When the candidate submits the Partial Procedure for approval, the evaluator will then terminate the exercise.

TASK CONDITIONS/PREREQUISITES

1. An outage is in progress on Unit 2.

2. The plant is in Mode 4.

3. Work has been performed on HV-2-10-081B, "RHR Loop B Manual Isolation Valve".

4. Maintenance has completed repairs on the valve and it is ready for Post Maintenance Testing.

INITIATING CUE

The Control Room Supervisor directs you to prepare a Partial Procedure using ST-O-010-401-2, "RHR Manual Isolation Valves Remote Position Indication Verification" to complete Post Maintenance Testing of the HV-2-10-081B. Submit the completed partial procedure for review and approval.

ST-O-010-401-2 **RHR MANUAL ISOLATION VALVES REMOTE POSITION INDICATION VERIFICATION**

TEST FREQUENCY: Once/24 months
TECH SPEC: Section 5.5.6
APPLICABILITY: Modes 1, 2, 3, 4, 5

1 **CHECK** why this procedure is being performed:

☐ Schedule ☐ OVF ☐ Retest Due To Unsat Test

☐ Other Reason: _____

Approved By SMgt: _____ Printed Name _____ Time __/__/__ Date _____ Initials

2 **INITIAL** one of the following Test Results:

A: All ***/I** steps are **SATISFACTORY** _____

B: One or More ***/I** steps are **UNSATISFACTORY** ☐
Refer to Section 9.0 for Tech Spec LCO's

Performed By: _____ Printed Name _____ Time __/__/__ Date _____ Initials

RO/PRO Informed of Test Completion: _____ _____ __/__/__ _____

SMgt Informed of Test Results: _____ _____ __/__/__ _____

UNSAT Notification: _____
SMgt Discretion: Plant Mgr or Others

Notified By: _____ _____ __/__/__ _____

3 **IF** other portions of the test did **NOT** function properly, **OR** other discrepancies were noted, **DESCRIBE** discrepancies/ actions taken: A/R or ETT #: _____

_____

_____

_____

4 Reviewed/Approved Plant Staff: _____ Printed Name _____ Time __/__/__ Date _____ Initials

1.0 PURPOSE

This test verifies the RHR Manual Isolation Valves remote position indication are accurate by observation of local and remote indications during valve operation. This test satisfies the requirements of Tech Spec Section 5.5.6 and Spec M-710, PBAPS Third Ten Year Interval Inservice Testing Program, which implements the requirements of 10CFR50.55a.

2.0 TEST EQUIPMENT

2.1 Locked Valve Key for:

NUMBER	DESCRIPTION	NORMAL POSITION
HV-2-10-081A	RHR Loop A Manual Isolation Valve	LOCKED OPEN
HV-2-10-081B	RHR Loop B Manual Isolation Valve	LOCKED OPEN

3.0 PREREQUISITES

Initial

3.1 Test Initiation

3.1.1 **COMPLETE** Section 1 of cover page. _____

3.2 Document Review

3.2.1 **ENSURE** procedure is current revision. _____

3.3 Equipment Configuration

3.3.1 **VERIFY** Unit 2 is in Mode 4 or 5. _____

3.4 Required Redundant Safety Related Equipment

None

3.5 Approval to Start Test

3.5.2 **OBTAIN** RO Permission to begin.

_____ __/__/__ _____
Time Date RO

4.0 PRECAUTIONS, LIMITATIONS, AND GENERAL INSTRUCTIONS

4.1 Plant Impact Statement

4.1.1 Closure of HV-2-10-081A will make the RHR Loop A INOPERABLE. Closure of HV-2-10-081B will make the RHR Loop B INOPERABLE. This test verifies the proper operation of the RHR valves remote position indication by observation of both local and remote valve position indication during manual operation. This test must be performed in modes 4 or 5.

4.2 Precautions

None

4.3 Limitations

4.3.1 Valves to be operated shall be within the limits of current plant conditions and should not interfere with other planned operations.

4.4 General Instructions

4.4.1 Communications will be required between the Control Room and each RHR valve area.

4.4.2 **IF** any procedure step can **NOT** be completed **OR** produces an unexpected response **THEN STOP** the test **AND NOTIFY** the RO or SMgt.

4.4.3 **IF** any Black Box is initialed **THEN STOP** the test **AND NOTIFY** the RO or SMgt.

4.4.4 **IF** procedure is aborted, **THEN NOTIFY** SMgt **AND WRITE "TEST ABORTED"** in Section 3 of Cover Page.

4.4.5 All persons who initial steps in Sections 3.0, 6.0, or 7.0 are responsible for completing Section 10.0.

4.4.6 All applicable ***/I** steps are identified immediately in front of the initials.

5.0 ACCEPTANCE CRITERIA

Remote valve position indication agrees with local valve position indication.

6.0 PERFORMANCE STEPS

Initial

6.1 RHR Valves Remote Position Indication Verification

NOTE

1. Signoffs for step performance are on Data Sheet 1.
2. Valves on Data Sheet 1 may be tested in any order and each valve may be tested in either direction first.
3. If a remote position indication check has been performed on a valve during the performance of another test, then credit for that testing may be taken in this test.

6.1.1 **IF** credit for remote position indication testing by another test is to be taken for a valve, **THEN RECORD** the test number and date of the test in the Remarks section of Data Sheet 1. _____

6.1.2 **NOTIFY** Shift Management that performing the next steps will make RHR Loop A INOPERABLE. **VERIFY** compliance with Tech Spec Sections 3.4.8, 3.5.2, 3.9.7 and 3.9.8, as required. _____

6.1.3 **CLOSE** HV-2-10-081A, "RHR Loop A Manual Isolation Valve". _____

6.1.4 **VERIFY** remote position indication and local position indication agree. _____

6.1.5 **OPEN** HV-2-10-081A, "RHR Loop A Manual Isolation Valve" **AND VERIFY** remote position indication and local position indication agree. _____

6.1.6 **NOTIFY** Shift Management that performing the next steps will make RHR Loop B INOPERABLE. **VERIFY** compliance with Tech Spec Sections 3.4.8, 3.5.2, 3.9.7 and 3.9.8, as required. _____

6.1.7 **CLOSE** HV-2-10-081B, "RHR Loop B Manual Isolation Valve". _____

6.0 PERFORMANCE STEPS (Continued) Initial

6.1.8 **VERIFY** remote position indication and local position indication agree. _____

6.1.9 **OPEN** HV-2-10-081B, "RHR Loop B Manual Isolation Valve" **AND VERIFY** remote position indication and local position indication agree. _____

6.1.10 **RECORD** any information concerning the RHR valves' operation (such as sticking, packing leakage, etc.) in Remarks column of Data Sheet 1. _____

7.0 PROCEDURE COMPLETION

7.1 Independent Verification

< At U/2 MS Line Isol VV Lvl, Az 270, 147' 2", D/W2-21 >

7.1.1 **VERIFY** HV-2-10-081A, "RHR Loop A Manual Isolation Valve" is LOCKED OPEN. _____ IV

< At U/2 MS Line Isol VV Lvl, Az 90, 147' 2", D/W2-16 >

7.1.2 **VERIFY** HV-2-10-081B, "RHR Loop B Manual Isolation Valve" is LOCKED OPEN. _____ IV

7.2 Records Completion

7.2.1 **COMPLETE** Section 2 of Cover Page (and Section 3 if applicable). _____

8.0 REFERENCES

8.1 Governing

8.1.1 Tech Spec Section 5.5.6

8.1.2 Spec M-710, PBAPS Third Ten Year Interval Inservice Testing Program

8.1.3 ASME OM Code, Code for Operation and Maintenance of Nuclear Power Plants

8.0 REFERENCES (Continued)

8.2 Interfacing

8.2.1 A-C-8, Control of Locked Valves and Devices

8.3 Developmental

8.3.1 Prints:

M-361, Shts. 1 and 2, Residual Heat Removal System

ISI-362, Shts. 1 and 2, ASME Section XI ISI Boundaries, Residual Heat Removal System

9.0 TECH SPEC LIMITING CONDITIONS FOR OPERATION (LCOs)

9.1 Tech Spec Sections 3.4.8, 3.5.2, 3.9.7 and 3.9.8

10.0 PARTICIPANTS RECORD

Printed Name	Initials

DATA SHEET 1
RHR INBOARD INJECTION VALVES REMOTE POSITION INDICATION VERIFICATION

RHR VALVE NO.	LOCATION	OPEN VERIF SAT UNSAT	CLOSED VERIF SAT UNSAT	REMARKS
~~HV-2-10-081A~~	D/W Az 270 El. 147'2"	*/I _____ ☐	*/I _____ ☐	
HV-2-10-081B	D/W Az 90 El. 147'2"	*/I _____ ☐	*/I _____ ☐	

PORC	YES
SQR	YES
QR	YES
50.59	YES
RESP MGR.	YES

PECO Energy Company
Peach Bottom Atomic Power Station

TEMPORARY CHANGES TO PROCEDURES AND PARTIAL PROCEDURE USE

1.0 PURPOSE

1.1 To establish the administrative requirements, controls, and responsibilities for making Temporary Changes (TCs) to procedures and partial procedure use.

2.0 SCOPE

2.1 This procedure shall be used to initiate, document and control Temporary Changes to approved procedures. A change that would result in a 50.59 Safety Evaluation per LR-C-13 is NOT within the scope of this procedure.

2.2 This procedure contains the requirements for partial procedure use.

3.0 SOURCES AND REFERENCES

3.1 SOURCE DOCUMENTS

3.1.1 ANSI N18.7-1972, Administrative Controls for Nuclear Power Plants

3.1.2 PBAPS Quality Assurance Program, UFSAR Appendix D

3.1.3 NRC Regulatory Guide 1.33 - 1972

3.1.4 PBAPS UFSAR Section 13.6

3.1.5 CM-1, Ltr to NRC 07/22/88 (T00295)

3.1.6 CM-2, Ltr to NRC 08/31/87 (T00364)

3.1.7 CM-3, Ops Incident Rpt 2-89-21 (T00617)

3.1.8 CM-4, NRC PB URI 91-30-02 (T01666)

3.1.9 CM-5, Ltr to NRC 05/15/91 (T01022)

3.1.10 CM-6, Ltr to NRC 12/29/93 (T03245)

3.1.11 CM-7, Failure of Maintenance Procedures to comply with A-3 (Q0001535)

3.1.12 CM-8, Permanent Revisions TC's are not being revised in a timely manner (I0003541)

3.1.13 CM-9, Letter to NRC from G.A. Hunger, Jr. dated Sept. 29, 1994 transmitting TSCR 93-16 (Reference A/R A0905549 E94, Subsequent revisions to these sections require NRB approval)

3.2 **CROSS REFERENCES**

3.2.1 A-C-4.2, Station Qualified and Quality Reviewer Program

3.2.2 DC-CG-2, Processing and Retrieval of Quality Records

3.2.3 LR-C-10, Performance Enhancement Program (PEP)

3.2.4 LR-C-13, 10CFR50.59 Reviews

3.2.5 RE-C-40, Core Component Transfer Authorization Sheet Generation and Administration

4.0 **DEFINITIONS**

4.1 **CHANGE OF INTENT** - Any change in the function or conceptual method of the activity, the specific task, or goal. Refer to Exhibit A-3-1. **CM-3, CM-4**

4.2 **CONDITIONAL TC** - A Temporary Change approved for use through the duration of a defined plant or component condition, but NOT intended to permanently alter the procedure.

4.3 **EVALUATORS** - All persons involved with a TC, both pre-implementation and post implementation.

4.4 **PARTIAL PROCEDURES** - Properly authorized sections of a procedure when such use is not previously specified in the scope of the procedure. Partial procedures are NOT TCs and are processed in accordance with section 7.7.

4.5 **PERMANENT REVISION TC** - A Temporary Change approved for continuous use until distribution of the next revision of the affected procedure.

4.6 **PLANT MANAGEMENT STAFF** - Those individuals who are authorized to review and approve Temporary Changes at the time of implementation. This consists of two reviews. One

review is done by a Station Qualified Reviewer. The second review is done by Senior Reactor Operator.

4.7 **SENIOR REACTOR OPERATOR** - Any individual who is temporarily or permanently assigned to the Operations Section, who currently holds a valid Senior Reactor Operators License.

4.8 **SINGLE USE TC** - A Temporary change that is approved for one procedure performance, not intended for incorporation into a permanent revision and NOT be expected to be used again.

4.9 **TEMPORARY CHANGE (TC)** - An approved alteration to a controlled procedure which clearly does NOT change the intent of the original procedure and is valid over a defined duration.

4.10 **TC-CONTROLLED LOCATION** - Location in which TCs are captured.

4.11 **TC PACKAGE** - Original Exhibit A-3-3 and original altered procedure pages.

5.0 RESPONSIBILITY AND AUTHORITY

5.1 **PLANT MANAGEMENT STAFF** - Reviews and approves proposed Temporary Changes prior to their use. This consists of two Reviews, one done by an SQR, the other by an SRO.

5.2 **DOCUMENT SERVICES (DS)** - Collects, logs, and distributes copies of approved TCs and maintains TC database.

5.3 **INITIATOR** - Identifies the need for a temporary change to a procedure, properly prepares the TC, and completes required documentation.

5.4 **RESPONSIBLE SUPERINTENDENT (RS)** - Approves items within this program in accordance with A-C-4.2. In the post implementation review the SQR CANNOT be the same person as the RS.

5.5 **SENIOR REACTOR OPERATOR (SRO)** - Reviews and approves proposed temporary changes prior to their use and determines potential affect of TC on Operations activities.

5.6 **TC ADMINISTRATOR** - A person designated by Operations to update the TC Log, issue TC numbers and forward TC packages to the designated area at the end of each shift.

5.7 **STATION QUALIFIED REVIEWER (SQR)** - An appointed person knowledgeable in the functional area affected who is NOT the preparer of the item. The SQR may be from the same organization as the preparer.

6.0 PREREQUISITES

None

7.0 **PROCEDURE**

7.1 **GENERAL**

7.1.1 The evaluators shall be responsible for review of Exhibit A-3-1 to ensure no change of intent and the validity of the TC in question. **CM-3, CM-4**

7.1.2 TCs may be initiated for the following circumstances:

1. When the existing procedure is in error and time constraints prevent processing a procedure revision.

2. When the plant or component configuration is temporarily in conflict with that assumed by the procedure and time constraints prevent delay of performance.

7.2 INITIATION

7.2.1 TCs shall be prepared and processed in accordance with Exhibit A-3-2.

7.2.2 TC classification shall be assigned based on whether or not the TC use for subsequent performances of the procedure is appropriate:

1. PERMANENT REV (R) - TCs due to procedure error should be used until incorporation into the next procedure revision.

2. CONDITIONAL (C) - TCs due to a conflict with current Plant or System configuration which will exist until condition is resolved, and it is expected that the procedure is going to be performed more than once while the condition exists.

3. SINGLE USE (S) - TCs that will ONLY be needed for use ONE TIME. Plant or System configuration is expected to return to its initial condition.

7.2.3 The initiator shall present the TC to the SQR and SRO for review and approval PRIOR to obtaining a TC number.

7.3 **PRE-IMPLEMENTATION REVIEW**

7.3.1 Two members of Plant Management Staff who meet the following criteria shall review each TC: **CM-9**

1. The first reviewer shall be an SQR, who is an appointed person knowledgeable in the functional area affected. The SQR may be from the same organization as the preparer.

2. The second reviewer shall be a member of the Operation Section, who currently holds a valid Senior Reactor Operator License. **CM-9**

7.3.2 Reviewers shall verify that the proposed TC will NOT change the intent of the procedure and is within the scope of the TC process. Exhibit A-3-1 will determine the validity of the TC in question. **CM-3, CM-4, CM-9**

7.3.3 The SQR and SRO approval shall be documented on Exhibit A-3-3.

7.4 **PROCESSING AND DISTRIBUTION**

7.4.1 After the pre-implementation reviews and approvals are complete, the initiator shall obtain a TC number from the TC Administrator.

7.4.2 The TC Administrator shall complete appropriate log entries and forward all TC packages to the designated area for post implementation review and approval.

7.4.3 CONDITIONAL and PERMANENT REV TCs shall be distributed by DS to designated TC-controlled locations during the next scheduled distribution.

7.5 **POST IMPLEMENTATION REVIEW**

7.5.1 The SQRs shall review procedures/programs/guidelines that their group, or groups under their purview, have responsibility or sponsorship for revising or generating the entire document, or significant responsibility in performing the entire document. The additional SQR shall be performed to determine if a Change of Intent was made to the procedure in accordance with Exhibit A-3-1. **CM-3, CM-4, CM-9**

7.5.2 The SQR shall recommend either approval or disapproval of the TC to the RS and shall document such on Exhibit A-3-3. The RS and the SQR shall NOT be the same individual.

7.5.3 Should the TC be disapproved, the SQR shall take remedial action to resolve the unsatisfactory aspect of the TC including:

1. Halting the use of the TC.

2. Ensuring removal of the TC from distribution.

3. Presenting documented resolution of the recommended actions to RS.

4. Initiating a PEP in accordance with LR-C-10.

7.5.4 The SQR ensures the required date is entered on Exhibit A-3-3 as follows:

1. Permanent Revision **CM-8**

   - For RT, SI, ST, the test shall be revised and implemented prior to the next scheduled date, except weekly and bi-weekly tests which shall be revised and implemented within 30 days from the initiated date

   - For a procedure that does not have a schedule frequency, from the time the TC was initiated, the procedure shall be revised and implemented within 60 days for station procedures and 120 days for common procedures.

2. Conditional

   - If closure date is known, enter that required date

   - If closure date is not known, enter 1/20/20

7.5.5 The RS shall approve or disapprove TCs within 14 days of implementation. **CM-9**

7.6 **TEMPORARY CHANGE MAINTENANCE CM-1, CM-5**

7.6.1 DS shall maintain a TC database for Responsible Group action and accountability.

7.6.2 Responsible Groups shall use the TC PIMS database to ensure the continued validity of all open TCs and satisfaction of the 14 day requirement.

7.6.3 Responsible Groups shall refer to the TC database during procedure reviews to ensure that coincidental revisions incorporate any open Permanent Revision TCs.

7.6.4 The organization that initiated the TC shall notify DS of conditional TCs which need to be removed from distribution and the TC database.

7.6.5 DS shall update the TC database in response to requests and remove conditional TCs from distribution during their next scheduled distribution.

7.6.6 If a TC for permanent revision has not been revised and implemented by its required date, then initiate a PEP in accordance with LR-C-10.

7.7 **PARTIAL PROCEDURE USE CM-2, CM-7**

7.7.1 If the task authorized for performance is <u>more limited in scope</u> than the procedure being used, authorization to disregard the unnecessary portions of the procedure may be obtained.

For example: Following maintenance on the "A" Core Spray Pump, only the portion of ST-O-014-300-2 which pertains to the "A" Pump need be performed.

7.7.2 With the exception of COLs, if the task to be performed is intended to accomplish the <u>entire scope</u> of a procedure a TC shall be processed.

7.7.3 The SQR shall be a person knowledgeable in the functional area affected and verify the procedure is valid as it is intended to be performed and that it accomplishes its objectives.

1. Enter the word PARTIAL on the first page of the procedure. Record the reasons for partial versus complete performance and whether additional testing is required to fulfill surveillance test requirements, where applicable.

2. Indicate on the procedure those steps or portions of the procedure that are not required to be performed.

3. Review the procedure to verify that the Partial performance will be valid and to confirm that it will accomplish its objective.

4. Initial and date the affected steps or pages.

5. Proper restoration of the affected equipment.

8.0 **DOCUMENTATION**

8.1 The Temporary Change package is filed in accordance with DC-CG-2 following final approval.

8.2 Common Nuclear Procedure TCs initiated by either site, will be available to the other site for **information only** from DS.

8.3 Partial Procedures are forwarded through the governing work and test control processes to DS by the performing organization for final storage.

8.4 The TC Log is not considered to be a permanent record and can be disgarded after all entries are completed.

9.0 **EXHIBITS**

9.1 Exhibit A-3-1, "Temporary Change Screening Matrix"

9.2 Exhibit A-3-2, "Completing and Processing a Temporary Change"

9.3 Exhibit A-3-3, "Temporary Change Form"

PORC	YES
SQR	YES
QR	YES
50.59	YES
Resp. Mgr.	YES

TEMPORARY CHANGE SCREENING MATRIX

	COMMENTS/NOTES
Changes to the following procedures: **(1)** • Administrative (-type) as defined in AA-C-5 (Exc:A-8 Exhibits) • Emergency Response Procedures • Fire Guides and Procedures (T-300) • Prefire Strategy • Special Event (Exc:SE-10.1 App's) • Trips, OTs, ONs • Core Component Transfer Authorization Sheets **(2)**	**(1)** Excluded from A-3 process. **(2)** See RE-C-40 for change method.
Deletion of SQR and SRO approval or authorization steps	Excluded from A-3 scope.
Changes to procedures which contain a statement prohibiting Temporary changes against them	Excluded from A-3 scope.
Changes to procedure usage level.	Excluded from A-3 scope.
Change resulting in activity in conflict with one or more of the following: • Emergency Plan • Environmental Protection Plan • Fire Protection Plan/Program • QA Program • Security Plan • Technical Specifications Bases • UFSAR • NRC/PECO Safety Evaluation Reports	Changes to the SAR Excluded from A-3 scope
The following are NOT considered to be temporary changes: (This is not intended to be a complete list) • Discrepancy in the page headers • Changes to notes or caution statements • Plant location designations (eg., R2-22, in place of R2-21) • One or two incorrect designators, where the correct designation has been consistently used throughout the document (eg. HV-3-03-04425 should be HV-2-03-04425) **(3)** • A description of a Alarm Window or Tag has a slight variation and the meaning is the same (eg. It should be "Hi" and it reads "High")	**Use as is. Initiate a** PPIS. **(3)** Applies ONLY to Unit specific procedures ie. common procedures shall be TC'ed
Changes being made for the purpose of protecting personnel and equipment during operations maintenance and modification activities	Use Clearance & Tagging process or other approved methods. **CM-6**
Performance of only certain portions of a procedure which do not change the intent of the procedure, when properly authorized per A-3.	TC not required. Use PARTIAL process.
Changes to a Special Procedure or Modification Acceptance Test	**Initiate single use TC only**
Changes to tolerances on Maintenance procedures. These changes must be within the recognized design boundary of the equipment. Other tolerances changes cannot be processed as a TC.	The SQR for pre-implementation shall be from a maintenance discipline area. **Initiate single use TC only**
Change to scope/performance section which changes the purpose of procedure	Change of intent.
Changes to or Elimination of acceptance criteria in a test (e.g., delete an asterisk or black box step from an ST)	Change of intent.
Changes to calculation/formulas critical to achievement of procedure goal, <u>NOT</u> previously 10CFR50.59 evaluated	Change of intent.
Changes that eliminate QV hold points.	Change of Intent.
Changes to or deletion of procedure steps annotated to Flag commitments or other corrective measures.	Change of Intent.

PORC	NO
SQR	YES
QR	NO
50.59	NO
Resp. Mgr.	YES

COMPLETING AND PROCESSING A TEMPORARY CHANGE

1.0 **INSTRUCTIONS**

1.0.1 Prior to initiation of a TC, the initiator shall determine if the TC is valid. Use Exhibit A-3-1 to determine the validity of the TC in question.

1.1 **TC INITIATION**

1.1.1 This section provides additional help for the following:

1. When to supersede existing TCs

2. Preparation of the procedure changes

1.1.2 TC CLASSIFICATION should be selected by the TC initiator based on whether or not future procedure users will need the same procedure changes in order to perform the procedure correctly.

1.1.3 TCs marked "CONDITIONAL" shall include one of the following actions to ensure TC closure at the appropriate time:

1. For changes associated with maintenance to plant equipment, have the TC number added to the Action Request (A/R) or Work Order by initiating an additional evaluation or activity to track the TC as a closure mechanism.

2. For changes associated with testing, have the TC number added to the A/R by initiating an additional Evaluation.

3. For other programs such as Nonconformance Reports (NCR), add the TC number to the NCR and make it part of the NCR closure mechanism.

4. If the TC does not fit the above categories the initiator shall generate an A/R and assign the A/R to the responsible System Manager/Owner of the procedure as a closure mechanism.

1.1.4 The initiator shall NOT include changes of different classifications on the same TC.

1.1.5 When preparing the temporary change for approval, a Working Copy, obtained preferably from Lotus Notes or DS, shall be used for TC preparation. TCs **shall** be prepared on **clean pages**.

1. Only one type of TC classification (ie. Conditional, Permanent Revision, or Single Use) may be applied to a given page within a procedure.

2. The application of a new TC to a page will supersede any existing temporary change.

1.1.6 All superseded TCs will be deleted and removed from distribution. For this reason the Initiator shall:

1. Ensure that all changes have been included or addressed by the new TC.

2. List all TCs being superseded on Exhibit A-3-3, Part A, step 6.

1.1.7 The step shall be shown by marking the procedure in a clear and legible manner, with BLACK INK:

1. Draw a single line through items to be changed.

2. Enter new text as close to the affected step(s) as possible (preferably below the affected step) or if new text cannot be added near the affected step(s) then perform the following:

   a. Enter "CONTINUED ON PAGE ___ A of ___" (where A is the first added page, B is the second page added etc.)

   b. On top of the continued pages include the following:

      - Procedure number
      - Revision
      - Page ___ A of __

3. Include the following information in the left margin next to each changed procedure step. The right margin may be used when no space is available on the left.

   a. Initials/Date of SQR

   b. Initials/Date of SRO

1.2 **TEMPORARY CHANGE REVIEWERS**

1.2.1 The Initiator shall present Exhibit A-3-3 and the entire procedure prepared with the change(s) to the SQR and SRO for review and approval prior to obtaining a TC number.

1.2.2 The **SQR** shall be a person knowledgeable in the functional area affected **for the type of procedure** which is being altered or a Technical Reviewer shall be consulted.

1.2.3 The **SRO** shall be a member of the Operation Section, who currently holds a valid Senior Reactor Operator License.

1.3 **TC PRE-IMPLEMENTATION REVIEW AND APPROVAL**

1.3.1 Both TC Reviewers (SQR and SRO) evaluate the proposed change to ensure that the TC is required and valid. Exhibit A-3-1 will determine the validity of the TC in question. **CM-3**, **CM-4**

1. If the proposed TC is identified as a change of intent, or is prohibited by Exhibit A-3-1 exit this procedure.

1.3.2 Both TC Reviewers shall examine the altered procedure and answer the questions listed in Part B on Exhibit A-3-3.

1. If any of the questions 1 through 4 are answered "NO", then the TC shall not be approved.

2. If question 5 is "NO", correct the selected classification.

3. If question 6 or 7 is answered "YES", then the additional conditions or requirements shall be listed on Exhibit A-3-3 Part B.

1.3.3 The SRO shall also determine if the potential impact of the TC on upcoming Operations activities merits immediate attachment to the Control Room procedure. Document the decision on Exhibit A-3-3, Part B-8:

1. NORMAL DISTRIBUTION allows attachment to wait until the next DS scheduled distribution run. For example, a TC initiated on Friday evening would be distributed to the Control Room the following Monday.

2. IMMEDIATE DISTRIBUTION will indicate that the TC Administrator shall attach the TC to the procedure **THAT SHIFT**.

1.3.4 As each Reviewer is satisfied with all aspects of the Temporary Change, the Reviewer shall:

1. Initial and date in the space provided in the margin next to each changed portion of the procedure.

2. Print name, initial, time, and date on Exhibit A-3-3, Part B.

1.4 **TEMPORARY CHANGE NUMBER**

1.4.1 When SQR and SRO review and approval are complete, then the Initiator obtains a TC Number from the TC Administrator.

1.4.2 The TC Administrator assigns the next sequential number from the TC Log. Sequential numbers shall be assigned in the format XX-YYYY, where XX are the last two digits of the calendar year and YYYY is the current total number of initiated TCs for that year.

1.4.3 The TC Administrator shall stamp the assigned TC number on Exhibit A-3-3 and at the top of each affected page.

1.5 **TC ADMINISTRATOR CHECK**

1.5.1 The TC Administrator shall verify that all log entries are complete, the 14 day time limit is established, and signs Exhibit A-3-3 Part C.

1.5.2 The TC Administrator is responsible to make one copy of Exhibit A-3-3 and one copy of the affected procedure pages.

1.5.3 The TC Administrator is responsible to provide a copy of Exhibit A-3-3 and a copy of affected procedure pages to the initiator. Initiator retains a copy of the TC package.

1.5.4 If "IMMEDIATE DISTRIBUTION" has been advised on Exhibit A-3-3 Part B-8, the initiator shall incorporate the TC into field working copies and the TC Administrator shall incorporate the TC into the Control Room procedure books and consumables immediately by:

1. Making single sided copies of the procedure and TC package on blue paper. **CM-5**

2. Attaching a copy of Exhibit A-3-3 to the front of the procedure.

3. Replace corresponding page with the affected TC page.

4. If there are additional TC pages added to the procedure (e.g., 5a, 5b), they shall be added after the corresponding page.

1.5.5 At the end of each shift, the TC Administrator shall deliver the TC package(s) to the designated area.

1.6 **CONTROL AND DISTRIBUTION**

1.6.1 After receiving the TC Package, DS performs the following:

1. Copies the TC for distribution.

2. Enters the TC into Lotus Notes on top of the corresponding procedure. **CM-5**

3. Forwards the TC package(s) to the responsible group.

4. Distributes copies of the TC to the designated TC-controlled locations.

1.6.2 For normal distribution in the Control Room, and other designated TC-controlled locations DS shall capture the TC by performing the following:

1. Making single sided copies of the procedure and TC package on blue paper. **CM-5**

2. Attaching Exhibit A-3-3 to the front of the procedure.

3. Replace the corresponding page with the affected TC page.

4. If there are additional TC pages added to the procedure (e.g., 5a, 5b), they shall be added after the corresponding page.

1.7 **POST IMPLEMENTATION REVIEW, APPROVAL, AND DISPOSITION**

1.7.1 SQR shall review TCs within 14 days of implementation for the following aspects:

1. Does the TC meet the requirements of Exhibit A-3-1? **CM-3, CM-4**

2. Does it appear that the TC was proper with regard to technical accuracy and nuclear safety?

1.7.2 If the SQR determines that the TC for permanent revision is appropriate, it shall be approved within the time frame requirements of A-3 and processed as follows:

1. To determine the next scheduled date for RT, SI and ST procedures perform the following in PIMS.

   - =4.2..11

   - Procedure NBR; e.g., <u>ST- O-60F-400</u>

   - Enter the required revision date based on the next scheduled start date on Exhibit A-3-3, Part D-2.

2. For procedures without scheduled date, enter the required date on Exhibit A-3-3, Part D-2.

1.7.3 SQR shall recommend either approval or disapproval of the TC to the RS and shall sign on Exhibit A-3-3, Part D-3a.

1.7.4 The RS shall review the TC within 14 days of performance (implementation) and document approval or disapproval Exhibit A-3-3, Part D-3b.

1.7.5 The TC package is forwarded to DS for logging and final storage.

1.8 **TEMPORARY CHANGE DISAPPROVAL**

NOTE
The following applies to TC disapproval during the 14-day review only.

1.8.1 If the TC is disapproved during post-implementation review for any reason, then:

1. The SQR/RS shall note the basis on Exhibit A-3-3, Part D and check the "Approved - NO" box, sign and date Exhibit A-3-3, Part D.
2. The activities completed during the TC use shall be evaluated for adverse impact.
3. Remedial corrective actions shall be recommended to resolve the unsatisfactory aspect of the TC.
4. Initiate a PEP in accordance with LR-C-10.

1.8.2 Exhibit A-3-3, Part D, shall be completed and DS notified that the TC is to be removed from distribution.

1.8.3 DS shall remove disapproved TCs from TC-controlled locations.

1.9 **TEMPORARY CHANGE TRACKING AND MAINTENANCE CM-1, CM-5**

1.9.1 Using TC database, the responsible group reviews the TC computer log (via fastpath =0.5..16 responsible group <u>or</u> =0.5..9 TC Number) to verify:

1. Listed TCs are still valid.
2. Existing Conditional TCs against procedures which are being revised are re-initiated, if still valid.
3. If a TC for permanent revision has not been revised and implemented by its required date, then initiate a PEP in accordance with LR-C-10.

1.10 **TC CANCELLATIONS**

> **NOTE**
>
> A new procedure revision will supersede <u>all</u> TCs applied to the previous revision.

1.10.1 Conditional TCs which are no longer valid can be removed by:

1. The organization that initiated the TC verifies the Conditional TC is no longer required and the activity e.g., A/R, Work Order has been closed out.

   a. This organization shall notify DS to remove the TC by giving the TC number, procedure number and the activity number that closed out the TC.

2. Document Services shall verify the activity associated with the TC has been closed out and make necessary distribution and TC database changes.

1.10.2 DS shall remove all copies of the cancelled or superseded TCs from TC-controlled location. DS shall update the TC database to reflect the TC closure.

1.11 **USE OF EXISTING TCs**

1.11.1 When a working copy of a procedure is provided for use with an attached TC, the following shall be completed PRIOR to performance by the person performing the procedure:

1. Attach Exhibit A-3-3 to the front of the procedure.

2. Replace the corresponding page with the affected TC Page.

3. If there are additional TC pages (e.g., 5a, 5b) they shall be added after the corresponding page.

PORC	NO
SQR	YES
QR	NO
50.59	NO
Resp. Mgr.	YES

TEMPORARY CHANGE FORM

PART A - INITIATION

TC NUMBER -

1. UNIT APPLICABILITY: 2 ☐ 3 ☐ Common ☐
2. TC CLASSIFICATION (Select one box):
   - Conditional (C) (See NOTE) ☐
   - Permanent Rev (R)_ _ _ _ ☐
   - Single Use (S) _ _ _ _ _ ☐

   NOTE: Enter the activity No. which will restore system/ component & eliminate need for Conditional TC.

   (Circle One)
   A/R or W/O No:_____
3. PROCEDURE NUMBER:_____ REV:_____
4. PROCEDURE TITLE:_____
5. PAGES AFFECTED:_____
6. Does this TC supersede or replace existing TCs? NO ☐ YES ☐
   If YES, list TCs to be DELETED and removed from distribution:_____
7. TC DESCRIPTION: _____
8. REASON for TC: _____
9. INITIATOR: _____/_____ _____ _____ _____
   (print name) (initial) (date) (work group) (ext)

PART B - REVIEW & APPROVAL

ITEMS 1 thru 4 MUST BE YES TO OBTAIN TC APPROVAL.

	SQR (Circle One)		SRO (Circle One)	
1. ARE THE CHANGES IN ACCORDANCE WITH THE INTENT OF THE PROCEDURE per Exhibit A-3-1?	Yes	No	Yes	No
2. Is the change TECHNICALLY AND OPERATIONALLY CORRECT?	Yes	No	Yes	No
3. Is the change SAFE from the standpoint of NUCLEAR & INDUSTRIAL SAFETY?	Yes	No	Yes	No
4. Is the change IN CONFORMANCE WITH TECHNICAL SPECIFICATIONS?	Yes	No	Yes	No
5. Is the CLASSIFICATION of the Temporary Change PROPERLY ESTABLISHED?	Yes	No	Yes	No
*6. Are TCs required to OTHER PROCEDURES (e.g., other unit) as a result of this change?	Yes	No	Yes	No
*7. Are SPECIAL ASSIGNMENTS or TRAINING required to implement this TC?	Yes	No	Yes	No
8. Does potential Ops Impact of this TC warrant IMMEDIATE DISTRIBUTION to MCR procedures?			Yes	No

*If answered YES, explain here: _____

NOTE: The SQR and SRO shall verify that the above steps are completed prior to signature.

STATION QUALIFIED REVIEWER: _____/_____ _____
(print name) (initial) (date)

SENIOR REACTOR OPERATOR: _____/_____ _____
(print name) (initial) (date)

TEMPORARY CHANGE FORM

PART C - TC ADMINISTRATOR CHECK

TC NUMBER -

1. All Temporary Change Log entries are complete and TC number assigned.
2. DATE BY WHICH THE TEMPORARY CHANGE MUST BE ACTED UPON BY THE SQR/RS - - - - - - - - - - - - - - - - 14TH DAY: ____
   (14 days after the implementation date)

TC ADMINISTRATOR: ______________________ / ________ ________
(print name) (initial) (date)

PART D - POST IMPLEMENTATION REVIEW AND APPROVAL

1. Did the TC meet the requirements of A-3 and Exhibit A-3-1? YES ☐ NO ☐
2. If the answer to number 1 is YES, then enter the required date for permanent revision or the expected removal date for conditional. Required by: ____
3. If the answer to step 1 is NO, then the TC shall be disapproved

3a. SQR: ______________________ / ________ ________
(print name) (initial) (date)

APPROVAL RECOMMENDED: YES ☐ NO ☐

3b. RS: ______________________ / ________ ________
(print name) (initial) (date)

APPROVED: YES ☐ NO ☐

4. If Temporary Change is NOT approved, describe CORRECTIVE ACTION to resolve matter AND complete DS box below to remove the TC from distribution:

DS, pull from distribution: YES ☐

PECO NUCLEAR
PEACH BOTTOM ATOMIC POWER STATION
JOB PERFORMANCE MEASURE

POSITION TITLE: Unit Reactor Operator/Senior Reactor Operator

TASK-JPM DESIGNATOR: 2830090101 K/A: 2.1.20

URO: 4.3 SRO: 4.2

TASK DESCRIPTION: Perform a Manual Heat Balance

A. NOTES TO EVALUATOR:

1. An asterisk (*) before the step number denotes a CRITICAL STEP. CRITICAL STEPS are those steps which when not performed correctly will prevent the system from functioning properly or prevent successful task completion.

2. System cues included in the performance checklist are to be provided to the examinee when no system response is available.

3. JPM Performance

   a. "Control Room" JPMs are designed to be performed in the simulator. If a "Control Room" JPM is to be performed in the Control Room all perform steps (P) shall be simulated (S).

   b. When performing "In-Plant" JPMs, no equipment will be operated without Shift Management approval.

4. Satisfactory performance of this JPM is accomplished if:

   a. The task standard is met.

   b. JPM completion time requirement is met.

      1) For non-time critical JPMs, completion within double the estimated time (listed in paragraph D.2) is acceptable provided the evaluator determines that the progress to completion is acceptable.

      2) For time critical JPMs, completion within the estimated time (listed in paragraph D.2) is required.

5. The estimated time to complete this JPM, though listed in the task standard, is not to be given to the examinee.

B. TOOLS AND EQUIPMENT

1. Calculator

C. REFERENCES

1. RE-C-05, Rev. 1, "Manual Heat Balance"

D. TASK STANDARD

1. Satisfactory task completion is indicated when Core Thermal power has been calculated and recorded.

2. Estimated time to complete: 20 minutes Non-Time Critical

E. DIRECTIONS TO EXAMINEE

When given the initiating cue, perform the necessary steps to calculate a manual heat balance using the appropriate procedure. I will describe initial plant conditions and provide you access to the materials required to complete this task.

F. TASK CONDITIONS/PREREQUISITES

1. You have been directed to perform a manual heat balance.

2. The "Manual Heat Balance" procedure RE-C-05, is in progress and is complete through step 6.2.

3. The Reactor Engineer has determined that Data Sheet #1 (PMS Computer Data) is to be used for plant data.

G. INITIATING CUE

Perform a manual heat balance in accordance with RE-C-05, "Manual Heat Balance".

PECO NUCLEAR
PEACH BOTTOM ATOMIC POWER STATION
JOB PERFORMANCE MEASURE

POSITION TITLE: Unit Reactor Operator/Senior Reactor Operator

TASK-JPM DESIGNATOR: 2830090101 K/A: 2.1.20

URO: 4.3 SRO: 4.2

TASK DESCRIPTION: Perform a Manual Heat Balance

A. NOTES TO EVALUATOR:

1. An asterisk (*) before the step number denotes a CRITICAL STEP. CRITICAL STEPS are those steps which when not performed correctly will prevent the system from functioning properly or prevent successful task completion.

2. System cues included in the performance checklist are to be provided to the examinee when no system response is available.

3. JPM Performance

   a. "Control Room" JPMs are designed to be performed in the simulator. If a "Control Room" JPM is to be performed in the Control Room all perform steps (P) shall be simulated (S).

   b. When performing "In-Plant" JPMs, no equipment will be operated without Shift Management approval.

4. Satisfactory performance of this JPM is accomplished if:

   a. The task standard is met.

   b. JPM completion time requirement is met.

      1) For non-time critical JPMs, completion within double the estimated time (listed in paragraph D.2) is acceptable provided the evaluator determines that the progress to completion is acceptable.

      2) For time critical JPMs, completion within the estimated time (listed in paragraph D.2) is required.

5. The estimated time to complete this JPM, though listed in the task standard, is not to be given to the examinee.

B. TOOLS AND EQUIPMENT

1. Calculator

C. REFERENCES

1. RE-C-05, Rev. 1, "Manual Heat Balance"

D. TASK STANDARD

1. Satisfactory task completion is indicated when Core Thermal power has been calculated and recorded.

2. Estimated time to complete: 20 minutes Non-Time Critical

E. DIRECTIONS TO EXAMINEE

When given the initiating cue, perform the necessary steps to calculate a manual heat balance using the appropriate procedure. I will describe initial plant conditions and provide you access to the materials required to complete this task.

F. TASK CONDITIONS/PREREQUISITES

1. You have been directed to perform a manual heat balance.

2. The "Manual Heat Balance" procedure RE-C-05, is in progress and is complete through step 6.2.

3. The Reactor Engineer has determined that Data Sheet #1 (PMS Computer Data) is to be used for plant data.

G. INITIATING CUE

Perform a manual heat balance in accordance with RE-C-05, "Manual Heat Balance".

H. PERFORMANCE CHECKLIST

STEP NO	STEP	ACT	STANDARD
1	Obtain a copy of procedure RE-C-05.	P	A copy of procedure RE-C-05 is obtained.
*2	Complete the Preliminary Calculations Worksheet item #16 for feedwater flow.	P	Calculate feedwater flow as 10.26 MLB/HR by adding Data Sheet #1 items 1, 2, and 3. 0 + 5.13 + 5.13 = 10.26 MLB/HR
*3	Complete the Preliminary Calculations Worksheet item #17 for feedwater temperature.	P	Calculate feedwater temperature as 360 deg. F by adding Data Sheet #1 items 4, 5, 6, & 6a, and dividing by four. 360 + 360 + 360 + 360 = 1440/4 = 360
*4	Complete the Preliminary Calculations Worksheet item #23 for total Reactor Water Cleanup (RWCU) flow.	P	Calculate RWCU flow as 1.155×10^{-6} MLB/HR by adding Data Sheet #1 items 12 & 13, multiplying by 8.021×10^{-6} and dividing by v (specific volume of saturated liquid for the temp in item #14). $(.072 + .072)(8.021 \times 10^{-6}) = 1.155 \times 10^{-6}$ MLB/HR
*5	Complete the Preliminary Calculations Worksheet item #24 for CRD flow.	P	Determine CRD flow as .030 MLB/HR by inputting the computer point value for item #7.
*6	Complete the Preliminary Calculations Worksheet item #9A for reactor pressure.	P	Calculate RX pressure as 1000 psia by adding 14.7 psi to Data Sheet #1 item #9. 14.7 + 985.3 = 1000 psia
7	Sign the Preliminary Calculation Worksheet complete.	P	Initial and date step 6.3.
*8	Complete the Steam Table Data sheet item #18.	P	Calculate feedwater Enthalpy h_{fw} as 333.57 BTU/LB by plotting feedwater temperature (item #17) and RX Pressure (item #9A) on Appendix 'B'.
*9	Complete the Steam Table Data sheet item #19.	P	Calculate saturated steam Enthalpy h_{st} by plotting RX Pressure (item #9A) on Appendix 'A'. An interpolation of these numbers will result in 1191.8 BTU/LB (acceptable range from 1186 to 1193 BTU/LB).

STEP NO	STEP	ACT	STANDARD
*10	Complete the Steam Table Data sheet item #20.	P	Calculate the Enthalpy of Reactor Water Cleanup (RWCU) h_{cuo} from the core as 499.69 BTU/LB, by plotting RWCU inlet temp. (item #14) and RX Pressure (item #9A) on Appendix 'B'
*11	Complete the Steam Table Data sheet item #21.	P	Calculate the Enthalpy of Reactor Water Cleanup (RWCU) h_{cui} into the core as 375.96 BTU/LB, by plotting RWCU inlet temperature (item #15) and RX Pressure (item #9A) on Appendix 'B'.
*12	Complete the Steam Table Data sheet item #22.	P	Calculate the Enthalpy of CRD h_{crd} as 80.57 BTU/LB, by plotting RWCU inlet temp. (item #8) and RX Pressure (item #9A) on Appendix 'B'.
13	Sign the Steam Table Data sheet complete.	P	Initial and Date step 6.4.
*14	Complete the Calculation Worksheet item #25 for the mass flow rate of steam.	P	Calculate the mass flow rate of steam as 10.29 MLB/HR by adding items #16 and 24 from the Preliminary Calculations worksheet. 10.26 + .030 = 10.29MLB/HR
*15	Complete the Calculation Worksheet item #26 for the energy of the steam.	P	Calculate the steam energy rate as 3593.24 MW, by adding multiplying items #25 x #19 x 0.293. 10.29 x 1191.9 x .293 = 3593.24 MW
*16	Complete the Calculation Worksheet item #27 for the RWCU energy rate out of the core.	P	Calculate the RWCU energy rate out of the core as 1.69×10^{-4} MW, by multiplying items #23 x #20 x 0.293. $(1.155 \times 10^{-6}) \times 499.69 \times 0.293 =$ 1.69×10^{-4} MW
*17	Complete the Calculation Worksheet item #28 for the feedwater energy rate.	P	Calculate the feedwater energy rate as 1002.77 MW, by multiplying items #16 x 18 x 0.293. 10.26 x 333.57 x 0.293 = 1002.77 MW

STEP NO	STEP	ACT	STANDARD
*18	Complete the Calculation Worksheet item #29 for the CRD energy rate.	P	Calculate the CRD energy rate as 0.708 MW, by multiplying items #24 x 22 x 0.293. .030 x 80.57 x 0.293 = 0.708 MW
*19	Complete the Calculation Worksheet item #30 for the RWCU energy rate into the core.	P	Calculate the RWCU energy rate into the core as 1.27×10^{-4} MW, by multiplying items #23 x 21 x 0.293. $(1.155 \times 10^{-6}) \times 375.96 \times 0.293 =$ 1.27×10^{-4} MW
*20	Complete the Calculation Worksheet item #31 for the power input from the Reactor Recirc. Pumps.	P	Calculate the Recirc. Pumps power input as 1.21 MW, by adding items #10 & 11, and multiplying by .948. (.64 + .64) x .948 = 1.21 MW
*21	Complete the Calculation Worksheet for the Core Thermal Power.	P	Calculate Core Thermal Power as 2530.87 MW, by adding items #26 & 27 + 2.1 and subtracting the sum of items #28, 29, 30, and 31. (3593.24+1.69E-4+2.1) - (1002.77+.708+30+31) = 2530.87 MW (Acceptable range of 2514 to 2535 MW depending on enthalpy identified in JPM step 9 (procedure step 19).
*22	Record Core Thermal Power.	P	Record Core Thermal Power in step 6.6, and initial and date.

***** NOTE *****

Terminate the exercise when the activities listed above are performed.

Under "ACT" P - must perform
S - must simulate

I. TERMINATING CUE

When Core Thermal Power has been calculated, the evaluator will then terminate the exercise.

TASK CONDITIONS/PREREQUISITES

1. You have been directed to perform a manual heat balance.

2. The "Manual Heat Balance" procedure RE-C-05, is in progress and is complete through step 6.2.

3. The Reactor Engineer has determined that Data Sheet #1 (PMS Computer Data) is to be used for plant data.

INITIATING CUE

Perform a manual heat balance in accordance with RE-C-05, "Manual Heat Balance".

Effective Date:

	LGS	PBAPS
PORC	No	No
SQR	Yes	Yes
NQA	No	No
50.59	Yes	Yes

PECO Energy Company
NUCLEAR GENERATION GROUP

MANUAL HEAT BALANCE

1.0 PURPOSE

This procedure provides methods of manually calculating Core Thermal Power using operating parameters.

2.0 SCOPE

This procedure applies to performing manual heat balance calculations by using PMS Computer Points or by using Control Room Instrumentation.

The thermal power of the reactor core is determined by a heat balance on the reactor vessel using operating data. Under steady-state conditions, the reactor vessel heat output is obtained as the difference between the total heat removed from the vessel minus the heat added in the flow streams returning to the vessel. In symbol form the equation is:

$$CTP = (Q_{st} + Q_{cuo} + Q_{rad}) - (Q_{fw} + Q_{crd} + Q_{cui} + W)$$

Where:

CTP = Core Thermal Power

Q_{st} = Steam Energy Rate

Q_{cuo} = Clean-up Energy Rate Out of Core

Q_{rad} = Radiative Losses and unmonitored losses

Q_{fw} = Feedwater Energy Rate

Q_{crd} = Control Rod Drive Cooling Water Energy Rate

Q_{cui} = Clean-up Energy Rate into Core

W = Power Input from Recirc. Pumps

3.0 SOURCES AND REFERENCES

3.1 SOURCES

3.1.1 General Electric Mechanical & Nuclear Training, Station Nuclear Engineering Manual, Volume I NEDO-24810C, September 1986 and Volume II (Process Computer),NEDE-24810, January 1987. (PBAPS)

3.1.2 NSS Design Specifications for Core Thermal Power (CTPSUB), SR-1. (PBAPS)

3.1.3 Station Nuclear Engineering Training Manual, Vol. II Process Computer. (LGS)

4.0 PREREQUISITES

4.1 Reactor should be in a steady state condition with Feedwater flow on scale.

SRO 2/xx/01
INITIALS/DATE

4.2 Verify that no Emergency Core Cooling System (ECCS) is in operation or is being functionally tested.

SRO 2/xx/01
INITIALS/DATE

4.3 IF this procedure is being performed to support RE-C-22, "Core Performance Monitoring Without the NSSS Software Computers", THEN data collection for both procedures shall be performed concurrently.

5.0 PRECAUTIONS AND LIMITATIONS

5.1 PRECAUTIONS

5.1.1 This test should be performed under steady state reactor conditions to ensure a high degree of accuracy. Reactor transients will reduce the accuracy of the thermal power calculation.

5.1.2 Since steam flow measurements are not very accurate, steam flow should be determined used the following equation:

$$\dot{M}_{st} = \dot{M}_{fw} + \dot{M}_{crd}$$

Where:

$\dot{M}_{st}$ = Mass Flow Rate of Steam (MLB/HR)

$\dot{M}_{fw}$ = Mass Flow Rate of Feedwater (MLB/HR)

$\dot{M}_{crd}$ = Mass Flow Rate of Control Rod Drive Water (MLB/HR)

5.1.3 IF the cleanup system is in vessel to vessel mode (valves to condenser and waste surge tank are fully closed and dump flow indicating zero), THEN the core thermal power calculation should be accurate. IF the cleanup system is in dump mode (dumping to condenser), THEN the core thermal power calculation will give an artificially higher value. This is acceptable since the calculated core thermal power will be more conservative (higher) than the actual core thermal power.

5.1.4 Peer checking shall be performed for data collection.

5.2 LIMITATION

5.2.1 IF values obtained from control room indication are used, THEN there is no control room instrumentation to read the CRD temperature. A constant value of 120 °F should be used for the CRD temperature.

NOTE

WHEN required to verify the fulfillment of technical specifications, THEN this calculation will be performed by two different people OR performed by one AND checked by another.

6.0 PROCEDURE

NOTE

This procedure provides two different methods for performing the manual heat balance calculation. The two Tables attached (Data Sheet 1 - PMS Computer Points, and Data Sheet 2 - Control Room Instrumentation) may be completed for comparison or system analysis.

6.1 Have the Reactor Engineer determine which Table is to be used.

RE Data Sheet 1 -(PMS Computer Data)

_____ Data Sheet 2 -(Control Room Instrumentation)

SRO 2/xx/01
INITIALS/DATE

NOTE

IF this procedure is being performed to support RE-C-22, "Core Performance Monitoring Without the NSSS Software Computers", THEN data collection for both procedures shall be performed concurrently.

6.2 Obtain the values listed on the required Data Sheet. SRO 2/xx/01 PC
INITIALS/DATE

6.3 Complete the Preliminary Calculations Worksheet.
INITIALS/DATE

6.4 Complete Data Sheet 3 - Steam Table Data.
INITIALS/DATE

6.5 Complete the attached Calculation Worksheet.
INITIALS/DATE

6.6 Record CTP from Calculation Worksheet below.

CTP = _____ (MW)
INITIALS/DATE

7.0 DOCUMENTATION

None

8.0 EXHIBITS

8.1 Data Sheet 1 - PMS Computer Data

8.2 Data Sheet 2 - Control Room Instrumentation

8.3 Preliminary Calculations

8.4 Data Sheet 3 - Steam Table Data

8.5 Core Thermal Power Calculation Worksheet

8.6 Appendix A - Steam Table

8.7 Appendix B - Compressed Water Table

9.0 TECHNICAL SPECIFICATIONS

No Technical specifications are applicable to this procedure; however, this procedure can be used to verify that rated power as defined in Tech Specs is not exceeded.

Data Collected on (select one):
LGS1 ____
LGS2 ____
PBAPS2 ____
PBAPS3 ____

DATA SHEET 1

PMS Computer Points

Item #	Parameter	LIMERICK		PEACH BOTTOM	
		Computer Point ID	Data	Computer Point ID	Data
1	Feedwater Flow A	K000NSS	MLB/HR	B*18R	0 MLB/HR
2	Feedwater Flow B	K001NSS	MLB/HR	B*19R	5.13 MLB/HR
3	Feedwater Flow C	K002NSS	MLB/HR	B*20R	5.13 MLB/HR
4	Feedwater Temp A1	K007NSS	°F	B*29R	360 °F
5	Feedwater Temp A2	K008NSS	°F	B*30R	360 °F
6	Feedwater Temp B1	K009NSS	°F	B*31R	360 °F
6a	Feedwater Temp B2	K010NSS	°F	B*32R	360 °F
7	CRD Flow	B020CM	MLB/HR	B*17R	.030 MLB/HR
8	CRD Temp	R000	°F	M*51R	110 °F
9	Reactor Pressure	E*234NSS	PSIG	B*13R	985.3 PSIG
10	A Recirc M/G Pwr	B031	MW	B*23R	0.64 MW
11	B Recirc M/G Pwr	B032	MW	B*24R	0.64 MW
12	RWCU Flow A	B024CM	MLB/HR	B*21R	.072 MLB/HR
13	RWCU Flow B			B*22R	.072 MLB/HR
14	RWCU Inlet Temp (Reac Wtr Out)	B047	°F	B*27R	510 °F
15	RWCU Outlet Temp (Reac Wtr In)	B048	°F	B*28R	400 °F

For LGS * = 1 for Unit 1 and 2 for Unit 2. For PBAPS * = 0 for Unit 2 and 3 for Unit 3.
Date Collected on _____ at _____
Date Time
Person Collecting Data Initials RO

Data Collected on (select one):
LGS1 ____
LGS2 ____
PBAPS2 ____
PBAPS3 ____

DATA SHEET 2

Control Room Instrumentation

Item #	Parameter	LIMERICK			PEACH BOTTOM		
		Instrument	Location	Data	Instrument	Location	Data
1	Feedwater Flow A	FI06-*R604A	*0C603	MLB/HR	FR-*565A or **	*0C005A	MLB/HR
2	Feedwater Flow B	FI06-*R604B	*0C603	MLB/HR	FR-*565B or **	*0C005A	MLB/HR
3	Feedwater Flow C	FI06-*R604C	*0C603	MLB/HR	FR-*565C or **	*0C005A	MLB/HR
4	Feedwater Temp A	TI-03-*01 [46]	*0C668	°F	TR-*151A	*0C005A	°F
5	Feedwater Temp B	TI-03-*01 [47]	*0C668	°F	TR-*151B	*0C005A	°F
6	Feedwater Temp C	TI-03-*01 [48]	*0C668	°F	TR-*151C	*0C005A	°F
7	CRD Flow	FI-46-*R605	*0C603	GPM	FI-*-03-310	*0C005A	GPM
8	CRD Temp	N/A	N/A	120°F	N/A	N/A	120°F
9	Reactor Pressure	PI-42-*R605	*0C603	PSIG	PI-*-06-090A	*0C005A	Ave Press
					PI-*-06-090B	*0C005A	PSIG
10	A Recirc M/G Pwr	B32-*R624A	*0C602	MW	XI-*-02-184-024A	*0C004A	MW
11	B Recirc M/G Pwr	B32-*R624B	*0C602	MW	XI-*-02-184-024B	*0C004A	MW
12	RWCU Flow A	FI-44-*R609 ***	*0C602	GPM ***	FI-*-12-141A	*0C004A	GPM
13	RWCU Flow B				FI-*-12-141B	*0C004A	GPM
14	RWCU Inlet Temp (Reac Wtr Out)	TI-44-*R607 TSS44-1N601 [1]	*0C602	°F	TI-*-12-137 SS-*-12-142 (1)	*0C004A	°F
15	RWCU Outlet Temp (Reac Wtr In)	TI-44-*R607 TSS44-1N601 [4]	*0C602	°F	TI-*-12-137 SS-*-12-142 (4)	*0C004A	°F

* = Unit Identifier
** = Feedwater Flow may be obtained from the digital Feedwater Computer (measures in MLB/HR).
***= Only one parameter for LGS, Treat this value as equal to ((12) + (13)) on calc sheets.

Date Collected on _____ at _____
Date Time

Person Collecting Data Initials _____

PRELIMINARY CALCULATIONS

Feedwater Flow:

FW flow = (1) + (2) + (3)

FW flow = _____ (MLB/HR)
(16)

Feedwater Temperature:

FW Temp = $\frac{(4)+(5)+(6)+(6a)}{4}$ (Data Sheet 1) or $\frac{(4)+(5)+(6)}{3}$ (Data Sheet 2)

FW Temp = _____ (°F)
(17)

Total RWCU Flow:

For Computer Point Data use:

$\dot{M}_{cu}$ = (12) + (13)

For Control Room Indication use:

$$\dot{M}_{cu} = \frac{((12) + (13))}{\nu} \times 8.021 \times 10^{-6} \frac{\text{MIN - MLB - ft}^3}{\text{hr - LB - Gal}}$$

$\dot{M}_{cu}$ = _____ MLB/HR
(23)

Where:

$\dot{M}_{cu}$ = Total RWCU Flow

ν = Specific Volume of Saturated Liquid at Temperature (14) using Appendix A.

CRD Flow:

For Control Room Indication use the following formula, otherwise input the computer point value for (7) into (24).

$$\dot{M}_{crd} = (7) \times (5 \times 10^{-4}) \frac{\text{MIN - MLB - ft}^3}{\text{hr - LB - Gal}}$$

$\dot{M}_{crd}$ = _____ MLB/HR
(24)

Reactor Pressure:

Rx pressure = _____ + 14.7 psi
9

Rx pressure = _____ psia
9A

DATA SHEET 3

Steam Table Data

Item #	Description	Value
18	h_{fw} = Enthalpy of Compressed Water(Feedwater) at temperature (17) and pressure (9A) from Appendix B	BTU/LB
19	h_{st} = Enthalpy of Saturated Steam at pressure (9A) from Appendix A	BTU/LB
20	h_{cuo} = Enthalpy of Compressed Water at temperature (14) and pressure (9A) from Appendix B	BTU/LB
21	h_{cui} = Enthalpy of Compressed Water at temperature (15) and pressure (9A) from Appendix B	BTU/LB
22	h_{crd} = Enthalpy of Compressed Water at temperature (8) and pressure (9A) from Appendix B	BTU/LB

CALCULATION WORKSHEET

$$CTP = (Q_{st} + Q_{cuo} + Q_{rad}) - (Q_{fw} + Q_{crd} + Q_{cui} + W)$$

$$CTP = (M_{st}h_{st}c + M_{cu}h_{cuo}c + Q_{rad}) - (M_{fw}h_{fw}c + M_{crd}h_{crd}c + M_{cu}h_{cui}c + W)$$

Where:

CTP = Core Thermal Power (MW)

Q_{st} = Steam Energy Rate (MW)

Q_{cuo} = Clean-up Energy Rate Out of Core (MW)

Q_{rad} = Radiative Heat Losses and unmonitored losses (assumed to be equal to a constant value of 2.1 MW)

Q_{fw} = Feedwater Energy Rate (MW)

Q_{crd} = Control Rod Drive Cooling Water Energy Rate (MW)

Q_{cui} = Clean-up Energy Rate Into Core (MW)

$\dot{M}_{st}$ = Mass Flow Rate Steam (MLB/HR)

h_{st} = Enthalpy of Steam (BTU/LB)

$\dot{M}_{cu}$ = Mass Flow Rate Reactor Water Cleanup (RWCU) Sys. (MLB/HR)

h_{cuo} = Enthalpy of Reactor Water Out of Vessel to RWCU (BTU/LB)

h_{cui} = Enthalpy of Reactor Water into Vessel from RWCU (BTU/LB)

$\dot{M}_{fw}$ = Mass Flow Rate Feedwater (MLB/HR)

h_{fw} = Enthalpy of Feedwater (BTU/LB)

$\dot{M}_{crd}$ = Mass Flow Rate Control Rod Drive System (MLB/HR)

h_{crd} = Enthalpy of CRD Water (BTU/LB)

W = Power Input from Recirc. Pumps

$W = (A + B)$

A = A Recirc. Pump Power (MW)
B = B Recirc. Pump Power (MW)

c = Unit Conversion Factor = $0.293 \frac{(MW)}{(BTU)} \frac{(hr)}{(MLB)} \frac{(LB)}{}$

CALCULATION WORKSHEET (Cont'd)

A. Steam Energy Rate (Q_{st})

Steam mass flow rate is determined by using the following equation:

$\dot{M}_{st} = \dot{M}_{fw} + \dot{M}_{crd}$

$\dot{M}_{st} = (16) + (24)$

$\dot{M}_{st} =$ _____ (MLB/HR)
(25)

$Q_{st} = \dot{M}_{st} h_{st} c$

$Q_{st} = (25) * (19) * 0.293$

$Q_{st} =$ _____ (MW)
(26)

B. Clean-up Energy Rate Out of Core (Q_{cuo})

$Q_{cuo} = \dot{M}_{cu} h_{cuo} c$

$Q_{cuo} = (23) * (20) * 0.293$

$Q_{cuo} =$ _____ (MW)
(27)

C. Feedwater Energy Rate (Q_{fw})

$Q_{fw} = \dot{M}_{fw} h_{fw} c$

$Q_{fw} = (16) * (18) * 0.293$

$Q_{fw} =$ _____ (MW)
(28)

D. CRD Energy Rate (Q_{crd})

$Q_{crd} = \dot{M}_{crd} h_{crd} c$

$Q_{crd} = (24) * (22) * 0.293$

$Q_{crd} =$ _____ (MW)
(29)

CALCULATION WORKSHEET (Cont'd)

E. Clean-up Energy Rate into Core (Q_{cui})

$Q_{cui} = \dot{M}_{cu} h_{cui} c$

Q_{cui} = (23) * (21) * 0.293

Q_{cui} = _____ (MW)
(30)

F. Power Input from Recirc. Pumps (W)

W = efficiency * (Pump A Power + Pump B Power)

NOTE
The recirc pumps are assigned a 94.8% efficiency value.

W = .948 * ((10) + (11))

W = _____ (MW)
(31)

G. Core Thermal Power (CTP)

CTP = (Q_{st} + Q_{cuo} + Q_{rad}) - (Q_{fw} + Q_{crd} + Q_{cui} + W)

CTP = ((26) + (27) + 2.1) - ((28) + (29) + (30) + (31))

CTP = _____ (MW)
Step 6.6

APPENDIX A

Steam Table

Temp °F	Abs. Press	Specific Volume, ft^3/lbm	Enthalpy, BTU/lbm		Temp °F
	psia	Sat Water	Sat Water	Sat Steam	
100	0.9492	0.01613	67.97	1105.2	100
120	1.6924	0.01620	87.92	1113.7	120
140	2.8886	0.01629	107.89	1122.0	140
160	4.741	0.01639	127.89	1130.2	160
180	7.510	0.01651	147.92	1138.1	180
200	11.529	0.01663	167.99	1145.9	200
220	17.186	0.01677	188.13	1153.4	220
240	24.969	0.01692	208.34	1160.5	240
260	35.429	0.01709	228.64	1167.3	260
280	49.203	0.01726	249.06	1173.8	280
300	67.013	0.01745	269.59	1179.7	300
320	89.66	0.01765	290.28	1185.2	320
340	118.01	0.01787	311.13	1190.1	340
360	153.04	0.01811	332.18	1194.4	360
380	195.77	0.01836	353.45	1198.1	380
400	247.31	0.01864	374.97	1201.0	400
420	308.83	0.01894	396.77	1203.1	420
440	381.59	0.01926	418.90	1204.3	440
460	466.9	0.0196	441.4	1204.6	460
480	566.1	0.0200	464.4	1203.7	480
500	680.8	0.0204	487.8	1201.7	500
520	812.4	0.0209	511.9	1198.2	520
540	962.5	0.0215	536.6	1193.2	540
560	1133.1	0.0221	562.2	1186.4	560
580	1325.8	0.0228	588.9	1177.3	580
600	1542.9	0.0236	617.0	1165.5	600

APPENDIX B
Page 1 of 2

Compressed Water Table
Enthalpy
BTU/lbm

Press psia Temp°F	950	1000	1050	1100
550	_____	_____	549.45	549.33
540	_____	536.69	536.60	536.51
530	524.19	524.12	524.05	523.98
520	511.85	511.79	511.74	511.69
510	499.73	499.69	499.66	499.63
500	487.81	487.79	487.77	487.75
490	476.07	476.06	476.05	476.05
480	464.48	464.49	464.49	464.49
470	453.04	453.05	453.06	453.08
460	441.72	441.74	441.76	441.79
450	430.52	430.55	430.58	430.61
440	419.42	419.45	419.49	419.53
430	408.41	408.46	408.50	408.54
420	397.50	397.55	397.60	397.65
410	386.66	386.72	386.77	386.83
400	375.90	375.96	376.02	376.08
390	365.21	365.27	365.34	365.40
380	354.58	354.65	354.72	354.79
370	344.01	344.08	344.16	344.23
360	333.50	333.57	333.65	333.72
350	323.03	323.11	323.19	323.27
340	312.61	312.69	312.78	312.86
330	302.24	302.32	302.41	302.49
320	291.91	291.99	292.08	292.17
310	281.61	281.70	281.79	281.88

APPENDIX B
Page 2 of 2

Compressed Water Table
Enthalpy
BTU/lbm

Press psia Temp°F	950	1000	1050	1100
300	271.35	271.44	271.54	271.63
290	261.12	261.22	261.32	261.41
280	250.93	251.03	251.13	251.22
270	240.76	240.86	240.96	241.06
260	230.62	230.72	230.83	230.93
250	220.50	220.61	220.71	220.82
240	210.41	210.52	210.62	210.73
230	200.34	200.44	200.55	200.66
220	190.28	190.39	190.50	190.61
210	180.24	180.35	180.46	180.58
200	170.22	170.33	170.44	170.56
190	160.20	160.32	160.44	160.55
180	150.21	150.32	150.44	150.56
170	140.22	140.34	140.45	140.57
160	130.24	130.36	130.48	130.60
150	120.27	120.39	120.51	120.63
140	110.30	110.43	110.55	110.67
130	100.34	100.47	100.59	100.72
120	90.39	90.52	90.65	90.77
110	80.44	80.57	80.70	80.83
100	70.50	70.63	70.76	70.90

PECO NUCLEAR
PEACH BOTTOM ATOMIC POWER STATION
JOB PERFORMANCE MEASURE

POSITION TITLE: Unit Reactor Operator/Senior Reactor Operator

TASK-JPM DESIGNATOR: 2990730101 K/A: 2.2.13

URO: 3.6 SRO: 3.8

TASK DESCRIPTION: Knowledge of tagging and clearance procedures

A. NOTES TO EVALUATOR:

1. An asterisk (*) before the step number denotes a CRITICAL STEP. CRITICAL STEPS are those steps which when not performed correctly will prevent the system from functioning properly or prevent successful task completion.

2. System cues included in the performance checklist are to be provided to the examinee when no system response is available.

3. JPM Performance

   a. "Control Room" JPMs are designed to be performed in the simulator. If a "Control Room" JPM is to be performed in the Control Room all perform steps (P) shall be simulated (S).

   b. When performing "In-Plant" JPMs, no equipment will be operated without Shift Management approval.

4. Satisfactory performance of this JPM is accomplished if:

   a. The task standard is met.

   b. JPM completion time requirement is met.

      1) For non-time critical JPMs, completion within double the estimated time (listed in paragraph D.2) is acceptable provided the evaluator determines that the progress to completion is acceptable.

      2) For time critical JPMs, completion within the estimated time (listed in paragraph D.2) is required.

5. The estimated time to complete this JPM, though listed in the task standard, is not to be given to the examinee.

B. TOOLS AND EQUIPMENT

1. P&ID M-356 sheet 1 Rev. 65

2. Electrical drawing E-8 sheet Rev. 16

C. REFERENCES

1. P&ID M-356 sheet 1 Rev. 65

2. Electrical drawing E-8 sheet 1 Rev. 16

D. TASK STANDARD

1. Satisfactory task completion is indicated when the clearance points for the control rod drive pump have been identified.

2. Estimated time to complete: 15 minutes Non-Time Critical

E. DIRECTIONS TO EXAMINEE

When given the initiating cue, determine the clearance points necessary to replace the outboard pump bearing on the 2B Control Rod drive Pump.

F. TASK CONDITIONS/PREREQUISITES

1. The CRD pump 2BP039 outboard pump bearing needs to be replaced.

2. The Turbine Building Closed Cooling Water (TBCCW) System cooler will not be breached.

G. INITIATING CUE

The Control Room Supervisor directs you to identify the clearance points for the repair of the control rod drive pump bearing. Inform the Control Room Supervisor when complete.

H. PERFORMANCE CHECKLIST

STEP NO	STEP	ACT	STANDARD
1	Locate the component to be repaired on the P&ID drawing. (Cue: Provide the candidate with a copy of M-356 Sheet 1.)	P	Locate CRD Pump 2BP039 on M-356 sheet 1, (C-5).
2	Locate the component to be repaired on electrical print. (Cue: Provide the candidate with a copy of E-8 Sheet 1.)	P	Locate CRD Pump 2BP039 on E-8 Sheet 1.
*3	Determine the clearance points. (Cue: Acknowledge the blocking point selections.)	P	The operator determines the following minimum clearance points on 2BP039: 1. Pump control switch OFF 2. BKR 152-1805 OPEN and racked out. 3. HV 2-3-35B "Suction Block VLV" - CLOSED 4. HV 2-3-36B "Inner Disch Block VLV" - CLOSED 5. HV 2-3-39 "Seal Flood Cross Conn. VLV" - CLOSED 6. HV 2-3-37B "Recirc to CST" - CLOSED 7. HV 2-2A-23045B "CRD PMP Disch VLV to Recirc PMP Seal Purge" - CLOSED 8. HV 2-3-21659B "Blowdown VLV" - OPEN (see note) and/or HV 2-3-21670B "Drain VLV" - OPEN (see note) 9. RTV-2-3-38B "CRD Pp suct-lo" - OPEN 10. IDV-2-3-201B "Inst. drain VLV" - OPEN (see note) NOTE: at least one vent valve and one drain valve is required.

STEP NO	STEP	ACT	STANDARD
4	Inform Control Room Supervisor of task completion. (Cue: The Control Room Supervisor acknowledges the report.)	P	The operator informs the Control Room Supervisor of task completion.
			***** NOTE ***** Terminate the exercise when the activities listed above are performed.

Under "ACT" P - must perform
S - must simulate

I. TERMINATING CUE

When the clearance points have been identified, and the Control Room Supervisor informed, the evaluator will terminate the exercise.

TASK CONDITIONS/PREREQUISITES

1. The CRD pump 2BP039 outboard pump bearing needs to be replaced.

2. The Turbine Building Closed Cooling Water (TBCCW) System cooler will not be breached.

INITIATING CUE

The Control Room Supervisor directs you to identify the clearance points for the repair of the control rod drive pump bearing. Inform the Control Room Supervisor when complete.

PECO NUCLEAR
PEACH BOTTOM ATOMIC POWER STATION
JOB PERFORMANCE MEASURE

POSITION TITLE: Unit Reactor Operator/Senior Reactor Operator

TASK-JPM DESIGNATOR: 2730130202 K/A: 2.3.11

URO: 2.7 SRO: 3.2

TASK DESCRIPTION: Ability to control radiation releases.

A. NOTES TO EVALUATOR:

1. An asterisk (*) before the step number denotes a CRITICAL STEP. CRITICAL STEPS are those steps which when not performed correctly will prevent the system from functioning properly or prevent successful task completion.

2. System cues included in the performance checklist are to be provided to the examinee when no system response is available.

3. JPM Performance

   a. "Control Room" JPMs are designed to be performed in the simulator. If a "Control Room" JPM is to be performed in the Control Room all perform steps (P) shall be simulated (S).

   b. When performing "In-Plant" JPMs, no equipment will be operated without Shift Management approval.

4. Satisfactory performance of this JPM is accomplished if:

   a. The task standard is met.

   b. JPM completion time requirement is met.

      1) For non-time critical JPMs, completion within double the estimated time (listed in paragraph D.2) is acceptable provided the evaluator determines that the progress to completion is acceptable.

      2) For time critical JPMs, completion within the estimated time (listed in paragraph D.2) is required.

5. The estimated time to complete this JPM, though listed in the task standard, is not to be given to the examinee.

B. TOOLS AND EQUIPMENT

1. Copy of ST-C-095-805-2, Rev. 8, completed through step 6.12.8.

C. REFERENCES

1. ST-C-095-805-2, Rev. 8, "Liquid Radwaste Discharge".

D. TASK STANDARD

1. Satisfactory task completion is indicated when section 6.13 has been completed in its entirety.

2. Estimated time to complete: 12 minutes Non-Time Critical

E. DIRECTIONS TO EXAMINEE

When given the initiating cue, perform the necessary steps to set-up the plant in preparation for a Liquid Radwaste discharge. I will describe initial plant conditions and provide you access to the materials required to complete this task.

F. TASK CONDITIONS/PREREQUISITES

1. Both units are operating at 100% power.

2. The Floor Drain Sample Tank (FDST) needs to be discharged.

3. Chemistry and Shift Management have completed ST-C-095-805-2, "Liquid Radwaste Discharge" through step 6.12.8.

4. Six Circulating Water Pumps are in operation.

5. The discharge Canal-To-Intake Pond crosstie gate is closed.

6. The PRO review and set-up has not been completed.

G. INITIATING CUE

You are the PRO. Complete section 6.13 of ST-C-095-805-2 "Liquid Radwaste Discharge".

H. PERFORMANCE CHECKLIST

STEP NO	STEP	ACT	STANDARD
1	Record actual number of operating Circulating Pumps.	P	Visually verify six Circulating Pumps are operating, record and initial step 6.13.1.
*2	Set the HI Trip Setpoint.	P	Manually adjust the HI Setpoint Pot setting for RIS-0-17-350 to $\leq$ 4.43, and record and initial step 6.13.2.
*3	Set the HI HI Trip Setpoint.	P	Manually adjust the HI HI Setpoint Pot setting for RIS-0-17-350 to $\leq$ 4.46, and record and initial step 6.13.3.
4	Review PRO steps.	P	Visually verify all the PRO steps in section 6.13 are complete, and initial step 6.13.5 SAT.
5	Record your name and initials.	P	Print your name and initials in Section 10.0.
6	Forward the test. (Cue: Radwaste Operator has received the test.)	P	Forward this test to the Radwaste Operator, and initial step 6.13.6 SAT.

***** NOTE *****

Terminate the exercise when the activities listed above are performed.

Under "ACT" P - must perform
S - must simulate

I. TERMINATING CUE

When Section 6.13 of ST-C-095-805-2 has been completed, terminate the exercise.

TASK CONDITIONS/PREREQUISITES

1. Both units are operating at 100% power.

2. The Floor Drain Sample Tank (FDST) needs to be discharged.

3. Chemistry and Shift Management have completed ST-C-095-805-2, "Liquid Radwaste Discharge" through step 6.12.8.

4. Six Circulating Water Pumps are in operation.

5. The discharge Canal-To-Intake Pond crosstie gate is closed.

6. The PRO review and set-up has not been completed.

INITIATING CUE

You are the PRO. Complete section 6.13 of ST-C-095-805-2 "Liquid Radwaste Discharge".

ST-C-095-805-2 **LIQUID RADWASTE DISCHARGE** **12/10/99**

TEST FREQUENCY: Unscheduled (See Section 1.0)
TECH SPEC: 5.5.1 **AND** ODCMS Sections 4.8.B.1.1, 4.8.B.1.2, 4.8.B.1.3, 4.8.B.3.1, 4.8.B.3.2, Table 4.8.B.1. Func. 1 **AND** Func. 4,4.8.B.4.3, 4.8.B.4.4, **AND** 4.8.B.4.5
APPLICABILITY: At all times

1

TANK To Be DISCHARGED:	SOURCE: FDST CSAR No: 021-01

Approved By SMgt: N/A (Printed Name) ____ (Time) __/__/__ (Date) ____ (Initials)

2 **INITIAL** one of the following Test Results:

A: All * steps are **SATISFACTORY** ____

B: One **OR** More * steps are **UNSATISFACTORY** [redacted]
Refer to Section 9.0 for Tech Spec LCO's

	Printed Name	Time	Date	Initials
Performed By: (CT)	CHEMISTRY TECH	XXXX	2/XX/01	CT
Reviewed By: (SMgt)			__/__/__	
Completed By: (CTR)			__/__/__	

UNSAT Notification: (**N/A IF** SAT) SMgt Discretion: Plant Mgr **OR** Others

Notified By: (**N/A IF** SAT) ____ ____ __/__/__ ____

3 **IF** other portions of the test did **NOT** function properly, **OR** other discrepancies were noted, **THEN COMPLETE** the following:

DESCRIBE discrepancies/actions taken: A/R **OR** ETT #: ____

4 Reviewed/Approved CHEM Staff: ____ (Printed Name) ____ (Time) __/__/__ (Date) ____ (Initials)

1.0 PURPOSE

This procedure prescribes normal methods to be used for the discharge of planned batch releases of liquid radioactive waste to the discharge canal. Also provided is the mechanism to verify initial conditions, complete required calculations **AND** record specified data associated with radioactive liquid effluents. This procedure satisfies Offsite Dose Calculation Manual (ODCM) surveillance requirements for 4.8.B.1.1, 4.8.B.1.2, 4.8.B.1.3, 4.8.B.3.1, 4.8.B.3.2, Table 4.8.B.1.Func. 1 **AND** Func. 4, 4.8.B.4.3, 4.8.B.4.4, **AND** 4.8.B.4.5. This procedure may be TC'ed. However, a thorough review of the UFSAR (for example, Section 9.2, Liquid Radioactive Waste System) must be completed as part of the TC process. **WHEN** TCing **OR** revising this document, **THEN** ensure that the requirements of the procedure, as described in the UFSAR, are satisfied.

2.0 TEST EQUIPMENT

None

3.0 PREREQUISITES

Initial

3.1 Document Review

3.1.1 **ENSURE** procedure is current revision. CT / CT

3.1.2 **OBTAIN** CH-401 "Sampling and Analysis of Liquid Radioactive Waste" for tank to be released. CT / CT

3.2 Other Prerequisite Activities

3.2.1 **RECORD** the tank to be discharged Source **AND** CSAR No. in Section 1 of this test's cover sheet. CT / CT

3.3 Test Initiation

3.3.1 This test has been initiated in accordance with CH-401.

3.4 Equipment Configuration

None

3.5 Required Redundant Safety Related Equipment

None

3.6 Approval to Start Test

None

4.0 PRECAUTIONS, LIMITATIONS, AND GENERAL INSTRUCTIONS

4.1 Plant Impact Statement

4.1.1 This procedure does **NOT** impact plant availability in any manner **AND** may be performed in any Reactor Mode.

4.2 Precautions

None

4.3 Limitations

4.3.1 **IF** the discharge Canal-To-Intake pond Crosstie is OPEN, **THEN** the following alarms shall be clear prior to **AND** during release:

1. Alarm Panel 204 Window F-4 "OUTER SCREEN STRUCTURE HI HI DIFF WTR LVL"

2. Alarm Panel 304 Window F-4 "OUTER SCREEN STRUCTURE HI HI DIFF WTR LVL"

4.3.2 **IF** the discharge Canal-To-Intake pond Crosstie is OPEN, **THEN** the "E" cooling Tower shall **NOT** be in operation at any time during discharge.

4.3.3 **IF** the discharge Canal-To-Intake pond Crosstie is OPEN, **THEN** a minimum of three circulating water pumps must be in operation during the release of radioactive liquid to the discharge canal.

4.3.4 **IF** the release is terminated for lack of dilution flow, **THEN** it only may be restarted **WHEN** the calculated release conditions are reestablished.

4.4 General Instructions

4.4.1 The Chemistry Technician (CT) initiates this test as required by CH-401 criteria **AND** performs all CT initialed steps. The CT forwards this test to Shift Supervisor (SMgt)for review **AND** approval; completing all SMgt initialed steps. SMgt **THEN** forwards test to Plant Reactor Operator (PRO). The PRO performs all PRO initial steps **AND** forwards to Radwaste Operator (RWO). The RWO **THEN** performs all RWO initialed steps **AND** forwards this test to SMgt for review of all Operations' responsible steps. The SMgt places this test in the Chemistry bin in the Main Control Room for retrieval **AND** review by Chemistry Technician Reviewer (CTR).

4.0 PRECAUTIONS, LIMITATIONS, AND GENERAL INSTRUCTIONS (Continued)

4.4.2 **IF** any procedure step can **NOT** be completed **OR** produces an unexpected response, **THEN STOP** the test **AND RETURN** the equipment to a safe condition **AND NOTIFY** the RO **OR** SMgt **AND** Chemistry Supervision.

4.4.3 **IF** any Black Box is initialed, **THEN STOP** the test **AND RETURN** the equipment to a safe condition **AND NOTIFY** the RO **OR** SMgt **AND** Chemistry Supervision.

4.4.4 This procedure shall be aborted **WHEN** it is discovered that a Tank is **NOT** going to be released.

4.4.5 **IF** procedure is aborted, **THEN NOTIFY** SMgt **AND WRITE "TEST ABORTED"** in Section 3 of Cover Page.

4.4.6 All persons who initial steps in Sections 3.0, 6.0, **OR** 7.0 are responsible for completing Section 10.0.

4.4.7 All applicable * steps are identified immediately in front of the initials.

5.0 ACCEPTANCE CRITERIA

The following conditions must be met:

1. Copy of Gamma Isotopic Analysis Report attached to this procedure.

2. Tank to be released has been processed through one **OR** more of these systems: Waste Collector Filter **AND** Demineralizer, Floor Drain Filter, Fuel Pool Filter Demineralizer, Chemical/Oily Waste Cleanup. (Epicore oil/water emulsion), Laundry Drain Filter **OR** Projected Body Dose for Month is less than 0.12 mRem **AND** Projected Organ Dose for Month is less than 0.40 mRem.

3. RIS-0-17-350 "Rad Waste Effluent" Rad Monitor operable.

4. FR-0-20-441 "RWS Low Purity Waste" Flow Recorder/Monitor operable.

5. FS-0-20-493 "RWS Low Purity Waste" High Flow Trip Set Pot **AND** associated Flow Control Valve are operable.

6. Actual No. of Circ Pumps Providing Dilution is greater than **OR** equal to the Required No. of Circ Pumps Providing Dilution.

7. RIS-0-17-350 HI Trip Setpoint is less than **OR** equal to Required HI Trip CPS.

5.0 ACCEPTANCE CRITERIA (Continued)

8. RIS-0-17-350 HI HI Trip Setpoint is less than **OR** equal to Required HI HI Trip CPS.

9. Actual Maximum Release Rate GPM is less than **OR** equal to the Required Maximum Release Rate value.

10. Actual % Setting for Discharge is less than **OR** equal to the Required Maximum % Setting for Discharge.

11. Sample retained for Monthly Composite.

12. Every release Start **AND** Stop Time has been recorded on the appropriate data chart.

6.0 PERFORMANCE STEPS

	Initial Sat	Initial UnSat

> **NOTE**
>
> Steps 6.1 and 6.2 may be performed in any order or concurrently

6.1 **RECORD** chemistry data from the Chemistry Sampling **AND** Analysis Record (CSAR) of CH-401, the tank source **AND** the associated CSAR No. on Data Sheet 1 below. **CM-1** — CT _____ CT

6.2 **RECORD** the tank source **AND** its associated CSAR No. on all other applicable data sheets. **CM-1** — CT _____ CT

6.0 PERFORMANCE STEPS

Initial
Sat Unsat

NOTE

1. **IF** water is transferred per RW-591, Transfer of Processed Waste Water to the "B" Laundry Drain Tank (Documented on RW-625 Exhibit 9.3), **THEN** all Laundry Drain Tank contents are considered processed liquid radwaste.

2. Laundry Drain Tank Water that is **NOT** processed by the Epicore Water Emulsion System shall be dispositioned per RW-592, "Transfer of Unprocessed Waste Water to the "B" Laundry Drain Tank". In this case, the Laundry Drain Tank contents are considered as either unprocessed water **OR** water that will be processed by the Laundry Drain Filter. (Documented on RW-592 Exhibit 9.1.)

6.3 **IF** tank to be discharged has **NOT** been processed through a Radwaste system, as specified in ODCMS 3.8.B.4, **THEN CALCULATE AND RECORD** Projected Body Dose **AND** Projected Organ Dose for Month on Data Sheet 1. **OTHERWISE**, **N/A** the applicable blocks for this step **AND** on Data Sheet 1. (ODCMS 3.8.B.4) CT _____ CT

6.3.1 **VERIFY** Projected Organ Dose is less than 0.40 mRem. * N/A CT ☐

6.3.2 **VERIFY** Projected Body Dose is less than 0.12 mRem. * N/A CT ☐

DATA SHEET 1

TANK TO BE DISCHARGED SOURCE: FDST **CSAR No.** 021 - 01

REASON FOR DISCHARGE _____

ANALYSIS	ANALYSIS RESULT	LIMIT FOR DISCHARGE	REMARKS
CONDUCTIVITY	80 uS/cm	< 2500 uS/cm [V]	
pH	7.2	4.0 - 10.0 [A]	
TEMPERATURE	30 C	AS READ	
TURBIDITY	27 NTU	< 30 NTU [V]	
GAMMA SCAN TOTAL ACTIVITY	$2.57E^{-7}$ μCi/mL	<1 N4 μCi/mL [V]	
ESTIMATED BODY DOSE	0 mRem	0.05 mRem [V]	
ESTIMATED ORGAN DOSE	0 mRem	0.15 mRem [V]	
THE FOLLOWING IS REQUIRED FOR RELEASE OF UNPROCESSED TANKS ONLY (ODCM ACCEPTANCE CRITERIA)			
PROJECTED BODY DOSE FOR MONTH	N/A mRem	0.12 mRem [D]	
PROJECTED ORGAN DOSE FOR MONTH	N/A mRem	0.40 mRem [D]	

[V] = AN ADMINISTRATIVE LIMIT FOR WHICH A VARIANCE MAY BE OBTAINED FROM CHEMISTRY SUPERVISION **OR** ON-CALL INDIVIDUAL.

[A] = CORRECTION OF pH FOR RELEASES MAY BE MADE BY DILUTION. THE pH LIMIT DOES **NOT** APPLY **IF** CONDUCTIVITY OF TANK IS LESS THAN 2.5 μS/cm.

[D] = THIS LIMIT APPLIES ONLY TO RELEASES **WHEN** THE SAMPLED TANK'S CONTENTS HAVE **NOT** BEEN PROCESSED THROUGH AT LEAST ONE RADWASTE SUBSYSTEM **OR** EQUIVALENT PER ODCMS BASES B 3.8. (See CH-401)

6.0 PERFORMANCE STEPS (Continued)

Initial
Sat UnSat

6.4 **VERIFY** tank sample results recorded on Data Sheet 1 are Satisfactory for release to discharge canal per CH-401. CT ____ CT

> **NOTE**
>
> 1. Variances may **NOT** be granted for any projected dose limit which has been exceeded.
>
> 2. **IF** a Variance is Required **AND NOT** granted, **THEN** this test should be aborted.

6.5 **IF** any chemical analysis exceeds its Limit For Discharge, **THEN RECORD** "Variance Required" in remarks section of Data Sheet 1 **AND** obtain approval for Discharge with a "Variance". **OTHERWISE, N/A** this Step. **CM-2** N/A ____ CT

6.5.1 **IF** a "Variance" was required for discharge, **THEN CONTACT** Chemistry Supervision **OR** on-call individual for Variance **AND RECORD** Name of Chemistry Supervisor **OR** responsible Staff person granting "Variance(s)" below:

(**IF** a Variance is **NOT** required, **THEN N/A** these spaces for this step.)

N/A Name ____ N/A Time ____ / N/A / Date ____ N/A ____ CT

6.6 **ATTACH** a copy of the Gamma Isotopic Analysis Report to this test. (ODCMS 4.8.B.1.1, 4,8.B.1.2, 4.8.B.1.3, Table 4.8.B.1 Func. 1 & 4) * CT ____ CT

6.0 PERFORMANCE STEPS (Continued)

Initial
Sat UnSat

6.7 **VERIFY** a portion of sample (approx 1 Liter) retained for Monthly composite. CT ____ CT

> **NOTE**
>
> Chemistry Management approved computer programs may be used, **AND** is the preferred method, to perform the worker verification for the calculation of the values for the alarm setpoints (Section 6.8) **AND** the radwaste discharge pump high **AND** low flow setpoints (Section 6.10).

6.8 **OBTAIN** the Background Count Rate for RIS-0-17-350 in counts per second (CPS) from the PRO **AND CALCULATE** RIS-0-17-350 "Rad Waste Effluent" Monitor HI Trip **AND** HI HI Trip Settings using formulas below. (Calculations are in accordance with ODCM.)

6.8.1 **CALCULATE** Monitor Net CPS.

0.532 X 3 (Well Counter net cpm/mL) = 1.59 (Monitor Net CPS)

CT ____ CT

6.8.2 **CALCULATE** Gross CPS

150 (RIS-0-17-350 CPS Background Count Rate) + 1.59 (Monitor Net CPS) = 151.6 (Gross CPS)

CT ____ CT

6.8.3 **DETERMINE** log CPS from Gross CPS.

log (151.6 Gross CPS) = 2.18 log CPS

CT ____ CT

6.0 PERFORMANCE STEPS (Continued)

Initial
Sat UnSat

6.8.4 **CALCULATE** Adjusted Log CPS

1.37 X 2.18 = 2.99
Log CPS Adjusted Log CPS

CT
CT

6.8.5 **CALCULATE** RIS-0-17-350 HI Trip Setpoint **AND RECORD** results as Required RIS-0-17-350 HI Trip Value on Data Sheet 3. (ODCMS 3.8.B.3.C)

1.44 + 2.99 = 4.43
Adjustment Log CPS Hi Trip Setting

CT
CT

6.8.6 **CALCULATE** RIS-0-17-350 HI HI Trip Setpoint **AND RECORD** results as Required RIS-0-17-350 HI HI Trip Value on Data Sheet 3. (ODCMS 3.8.B.3.C)

1.47 + 2.99 = 4.46
Adjustment Log CPS Hi Hi Trip Setting

CT
CT

NOTE
Chemistry Management approved computer programs may be used, **AND** is the preferred method, to perform the worker verification for the calculation of the values for the alarm setpoints (Section 6.8) **AND** the radwaste discharge pump high **AND** low flow set points (Section 6.10).

6.8.7 **PERFORM** a Worker Verification of calculations made in Section 6.8. Any discrepancies between the results of section 6.8 **AND** the worker verification shall be resolved prior to the release of the affected tank.

CT
CT

6.0 PERFORMANCE STEPS (Continued)

Initial
Sat UnSat

6.9 **CALCULATE** the Maximum Allowed Tank Release Rate as follows: (ODCMS 4.8.B.1.1)

6.9.1 **OBTAIN** position of Discharge Canal-To-Intake crosstie gate from the PRO **AND CIRCLE** the position (OPEN **OR** CLOSED) in Section 1.0 of Data Sheet 2. CT _____ CT

1. **IF** Crosstie Gate is CLOSED, **THEN PERFORM** the following to complete Data Sheet 2 **AND** Data Sheet 3, **OTHERWISE**, **N/A** the spaces in this step.

   a. **RECORD** "**N/A**" in spaces of Section 2.0 of Data Sheet 2. CT _____ CT

   b. **OBTAIN** the Actual Number of Circ Pumps Operating from the PRO **AND RECORD** this number in Sections 3.0 **AND** 5.0 of Data Sheet 2 **AND ENTER** "1" for the "Required No. of Circ Pumps Operating" on Data Sheet 3. CT _____ CT

2. **IF** the Crosstie Gate is OPEN, **THEN PERFORM** the following to complete Data Sheet 2 **AND** Data Sheet 3, **OTHERWISE**, **N/A** the spaces in this step.

   a. **OBTAIN** the River-To-Intake Pond Differential Level Readings from the PRO **AND RECORD** in Section 2.0 of Data Sheet 2. N/A _____ CT

6.0 PERFORMANCE STEPS (Continued)

Initial
Sat UnSat

b. **OBTAIN** the Actual Number of Circ Pumps Operating from the PRO **AND RECORD** in Section 3.0 of Data Sheet 2. Also **RECORD** "3" for the "Required No. of Circ. Pumps Operating" on Data Sheet 3. (A minimum of three circ pumps must be operating.)

N/A CT

c. Using Section 4.0 of Data Sheet 2, **DETERMINE** the No. Of Circ. Pumps Providing Dilution **AND RECORD** this value in Section 5.0.

N/A CT

DATA SHEET 2
CALCULATION OF NUMBER OF CIRC PUMPS PROVIDING DILUTION
(PRE-RELEASE DATA)

TANK TO BE DISCHARGE SOURCE: FDST **CSAR No.** 021 - 01

1.0 Discharge Canal-To-Intake crosstie gate	**POSITION: OPEN OR CLOSED** (Circle current position)

	Traveling Screens Outer Screens ΔL	
2.0 RIVER-TO-INTAKE POND DIFFERENTIAL LEVEL READINGS	< At Control Room >	
	DLI-2207 @ Console 20C007A	DLI-3207 @ Console 30C007A
	N/A "H_2O	N/A "H_2O

3.0 NUMBER OF CIRC PUMPS OPERATING	6

4.0 USING THE CHART BELOW DETERMINE THE NUMBER OF PUMPS PROVIDING DILUTION FOR THIS RELEASE. TAKE THE ACTUAL NUMBER OF CIRC PUMPS OPERATING FROM SECTION 3.0 OF THIS DATA SHEET, READ DOWN THE COLUMN TO THE HIGHEST DIFFERENTIAL LEVEL RECORDED IN SECTION 2.0 OF THIS DATA SHEET, MOVE ACROSS THE ROW AND FIND THE NUMBER OF CIRC PUMPS PROVIDING DILUTION.

	ACTUAL NUMBER OF CIRC PUMPS OPERATING				No. OF CIRC PUMPS PROVIDING DILUTION
	3	4	5	6	
Δ LEVEL " WATER	----	----	----	0 - 1.8	5
	----	----	0 - 2.4	1.8 - 10	4
	----	0 - 2.7	2.4 - 10	----	3
	0 - 3.1	2.7 - 10	----	----	2
	3.1 - 10	----	----	----	1

5.0 No. OF CIRC PUMPS PROVIDING DILUTION	6

6.0 PERFORMANCE STEPS (Continued)

Initial
Sat UnSat

6.9.2 **OBTAIN** the Max Discharge Flow (gpm) from the Gamma Isotopic Analysis Report **AND ENTER** for maximum rate to discharge canal on Data Sheet 4. CT ____ CT

6.10 **CALCULATE** the High **AND** Low Flow Set Points as directed below: (Calculations are in accordance with the ODCM.)

> **NOTE**
>
> **IF** the calculated value is greater than 100%, **THEN RECORD** 100% for the setting values.

6.10.1 **DETERMINE** Maximum Allowable discharge settings as follows **AND RECORD** as "High Flow" **AND** "Low Flow" in applicable spaces on Data Sheet 4. (ODCMS 3.8.B.3c)

1. High Flow Discharge

$$\frac{1.2 \text{ X Max Release Rate}}{3.0} \quad 300 \text{ GPM} = \frac{100\ \%}{\text{Setting}}$$

CT ____ CT

2. Low Flow Discharge

$$\frac{1.2 \text{ X Max Release Rate}}{0.15} \quad 300 \text{ GPM} = \frac{100\ \%}{\text{Setting}}$$

CT ____ CT

6.0 PERFORMANCE STEPS (Continued)

Initial
Sat UnSat

NOTE

Chemistry Management approved computer programs may be used, **AND** is the preferred method, to perform the worker verification for the calculation of the values for the alarm setpoints (Section 6.8) **AND** the radwaste discharge pump high **AND** low flow set points (Section 6.10).

6.10.2 **PERFORM** a Worker Verification of calculations made in Section 6.10. Any discrepancies between the results of section 6.10 **AND** the worker verification shall be resolved prior to the release of the affected tanks. CT _____ CT

6.11 **REVIEW** all CT responsible steps in Sections 6.1 through 6.10 for completeness, **RECORD** name **AND** initials in Section 10.0, Participants Record, **SIGN** cover sheet of this test at "Performed By:" **AND FORWARD** this procedure to SMgt. CT _____ CT

6.12 SMgt Review **AND** Signature

6.12.1 **VERIFY** all CT steps to this point have been Initialed **AND** completed Satisfactorily. SRO _____ SMgt

6.12.2 **VERIFY**, using an appropriate calculating device, the calculations performed in Section 6.8 **AND** Section 6.10 by the CT are correct **AND** that the correct results have been recorded on Data Sheet 3 **AND** Data Sheet 4. SRO _____ SMgt

6.12.3 **VERIFY** that the sample tank named on the cover sheet of this test is intended to be released. SRO _____ SMgt

6.12.4 **GRANT** Permission to operate HV-0-20C-144 "Waste Sample PP Disch To Pond" **AND** HV-0-20C-146 "Outer Block Valve for Waste Sample Tank Disch to River". **OTHERWISE**, **N/A** this step. N/A _____ SMgt

6.0 PERFORMANCE STEPS (Continued)

Initial
Sat UnSat

6.12.5 **VERIFY** RIS-0-17-350 "Rad Waste Effluent" Rad Monitor is operable. (ODCMS 3.8.B.3a) * SRO [redacted]
SMgt

6.12.6 **VERIFY** FS-0-20-493 "RWS Low Purity Waste" High Flow Trip Set Pot **AND** associated Flow Control Valve are operable (This means that there are **NO** ETTs **OR** A/Rs against this equipment). (ODCMS 3.8.B.3c) * SRO [redacted]
SMgt

6.12.7 **RECORD** name **AND** initials in Section 10.0, Participants Record. SRO _____
SMgt

6.12.8 **FORWARD** this test to the PRO. SRO _____
SMgt

DATA SHEET 3	
TANK TO BE DISCHARGED SOURCE: FDST	**CSAR No.** 021-01
PLANT SYSTEM REQUIRED PARAMETERS FOR LIQUID RADWASTE RELEASE	REQUIRED VALUE
Required No. of Circ. Pumps Operating	6 PUMPS
Required RIS-0-17-350 HI Trip Setpoint	4.43 POT SETTING
Required RIS-0-17-350 HI HI Trip Setpoint	4.46 POT SETTING

6.0 PERFORMANCE STEPS (Continued)

Initial
Sat UnSat

6.13 PRO Review **AND** set-up of Plant in Preparation For Discharge

6.13.1 **RECORD** the Actual No. of Circ. Pumps Operating below **AND VERIFY** the Actual No. of Circ. Pumps Operating is greater than **OR** equal to the required No. of Circ. Pumps as recorded on Data Sheet 3. (ODCMS 4.8.B.1.1)

Actual No. of Circ. Pumps Operating ____

* _____ ☐
PRO

6.13.2 **SET** RIS-0-17-350 HI Trip Setpoint to less than **OR** equal to Required value from Data Sheet 3 **AND RECORD** Actual Setpoint POT value below: (ODCMS 3.8.B.3.c)

Actual HI Trip Pot Setting _____ * _____ ☐
PRO

6.13.3 **SET** RIS-0-17-350 HI HI Trip Setpoint to less than **OR** equal to Required value **AND RECORD** the Actual HI HI Setpoint Pot value below: (ODCMS 3.8.B.3.c)

Actual HI HI Trip Pot Setting _____ * _____ ☐
PRO

6.13.4 **IF** the discharge Canal-To-Intake Pond crosstie gate is OPEN, **THEN VERIFY** the following. **OTHERWISE, N/A** the spaces in this step.

1. Alarm Panel 204 Window F-4 "OUTER SCREEN STRUCTURE HI HI DIFF WTR LVL" is CLEAR. _____ _____ PRO

2. Alarm Panel 304 Window F-4 "OUTER SCREEN STRUCTURE HI HI DIFF WTR LVL" is CLEAR. _____ _____ PRO

3. "E" Cooling Tower is **NOT** in Operation. _____ _____ PRO

6.0 PERFORMANCE STEPS (Continued)

Initial
Sat UnSat

6.13.5 **REVIEW** all PRO steps, to this point, in Section 6.13 for completeness. _____ _____ PRO

6.13.6 **RECORD** name **AND** initials in Section 10.0, Participants Record, **AND FORWARD** this test to the Radwaste Operator (RWO). _____ _____ PRO

DATA SHEET 4	
TANK TO BE DISCHARGED SOURCE: FAST	**CSAR No.** 021 - 01
RADWASTE SYSTEM REQUIRED PARAMETERS PRIOR TO LIQUID RADWASTE RELEASE	REQUIRED VALUE
FS-0-20-493 "RWS Low Purity Waste" High Flow Trip Set Pot	100 %
FS-0-20-493 "RWS Low Purity Waste" Low Flow Trip Set Pot	100 %
MAXIMUM Release Rate to Discharge Canal	300 GPM

6.14 RWO ESTABLISHMENT OF RADWASTE DISCHARGE (At Radwaste Control Room Panel 00C077)

6.14.1 **VERIFY** tank to be discharged, as written in Section 1 of the coversheet, is the same tank intended to be released. * _____ RWO

6.14.2 **VERIFY** tank to be discharged has been processed through one **OR** more of these systems: Waste Collector Filter **AND** Demineralizer, Floor Drain Filter, Fuel Pool Filter Demineralizer, **AND** Chemical/Oily Waste Cleanup (EPICORE Oil/Water Emulsion), Laundry Drain Filter **OR** Projected Body Dose **AND** Projected Organ Dose for the Month have been recorded on Data Sheet 1. (ODCMS 3.8.B.4) * _____ RWO

6.0 PERFORMANCE STEPS (Continued)

Initial
Sat UnSat

6.14.3 **SET** FS-0-20-493 "RWS Low Purity Waste" High Flow Trip Set Pot to less than **OR** equal to Required Maximum % Setting for High Flow Discharge as found on Data Sheet 4 above, **AND RECORD** the Actual Setting below:

Actual FS-0-20-493 High Flow Trip Set Pot Setting _____

* _____ ☐
RWO

6.14.4 **SET** FS-0-20-493 "RWS Low Purity Waste" Low Flow Trip Set Pot to less than **OR** equal to Required Maximum % Setting for Low Flow Discharge, as found on Data Sheet 4 above, **AND RECORD** the Actual Setting below:

Actual FS-0-20-493 Low Flow Trip Set Pot Setting _____

* _____ ☐
RWO

6.14.5 **RECORD** RR-0-17-337 **OR** RIS-0-17-350 before Discharge CPS below:

_____ CPS

_____ _____
RWO

6.14.6 **COMMENCE** release of the Sampled **AND** Analyzed Tank per the applicable procedure (See Section 8.2).

_____ _____
RWO

6.0 PERFORMANCE STEPS (Continued)

Initial
Sat UnSat

NOTE

1. Portions of the following Section must be completed during the release.

2. **IF** the release is terminated early for lack of dilution flow, **THEN** it may only be restarted **WHEN** the original release conditions are re-established.

3. The following Steps may be repeated, as applicable, for each release start **AND** stop time.

4. The RIS-0-17-350 Trip Setpoints recorded on Data Sheet 3 correspond to 125% (HI) **AND** 135% (HI-HI) of the radiation monitor reading expected during the release. Typically, any appreciable change in the radiation monitor readings during the release is unusual **AND** should be reported to SMgt.

6.14.7 **RECORD** each release Start Time, Start Date, Stop Time, Stop Date, Start Tank %, Stop Tank %, the FR-0-20-441 Flow (GPM) reading **AND** the RR-0-17-337 (CPS) **OR** RIS-0-17-350 (CPS) as required in chart below: **(N/A** spaces **NOT** used.) (ODCMS 4.8.B.2.1, 4.8.B.3.1, 4.8.B.3.2)

	TIME	DATE	TANK LEVEL	FR-0-20-441	RR-0-17-337 **OR** RIS-0-17-350
START			%	GPM	CPS
STOP			%		

* _____

RWO

6.0 PERFORMANCE STEPS (Continued)

Initial
Sat UnSat

	TIME	DATE	TANK LEVEL	FR-0-20-441	RR-0-17-337 **OR** RIS-0-17-350
START			%	GPM	CPS
STOP			%		

* _____ ☐
RWO

	TIME	DATE	TANK LEVEL	FR-0-20-441	RR-0-17-337 **OR** RIS-0-17-350
START			%	GPM	CPS
STOP			%		

* _____ ☐
RWO

6.14.8 **RECORD** below the actual maximum Release Rate GPM value from FR-0-20-441 observed during the release **AND VERIFY** the actual Release Rate is less than **OR** equal to the value recorded on Data Sheet 4. (ODCMS 3.8.B.3.C)

Actual Maximum Release Rate FR-0-20-441

_____ GPM

* _____ ☐
RWO

6.14.9 **IF** this release is **NOT** immediately followed by another discharge, **THEN PERFORM** the following post release steps. **OTHERWISE, N/A** these Steps.

1. **RECORD** RR-0-17-337 recorder CPS Reading BEFORE FLUSH.

_____ CPS

_____ _____
RWO

6.0 PERFORMANCE STEPS (Continued)

Initial
Sat UnSat

2. **PERFORM** SO 20C.5.B "Liquid Radwaste Discharge Radiation Monitor Flushing." _____ _____ RWO

3. **RECORD** RR-0-17-337 recorder CPS Reading after flush.

   _____ CPS _____ _____ RWO

6.14.10 **IF** a Waste Sample Tank was Released, **THEN PERFORM** the following. **OTHERWISE N/A** these Steps:

1. **CLOSE** HV-0-20C-144 "Waste Sample PP DISCH To Pond". _____ _____ RWO

2. **CLOSE** HV-0-20C-146 "Outer Block Valve For Waste Sample Tank Disch To River". _____ _____ RWO

6.14.11 **REVIEW** all RWO Steps, to this step, in Section 6.14 for accuracy **AND** completeness. _____ _____ RWO

6.14.12 **RECORD** name **AND** initials in Section 10.0, Participants Record, **AND FORWARD** this test to SMgt for review. _____ _____ RWO

6.15 SMgt REVIEW OF OPERATIONS' PERFORMANCE AFTER DISCHARGE

6.15.1 **REVIEW** this test to this point for completeness paying attention to the Steps requiring PRO **AND** RWO data entry **AND** initials. _____ _____ SMgt

6.15.2 **SIGN** coversheet of this test at "Reviewed By:" _____ _____ SMgt

6.15.3 **PLACE** this test in the Chemistry bin located in the Main Control Room. _____ _____ SMgt

6.0 PERFORMANCE STEPS (Continued)

Initial
Sat UnSat

6.16 CHEMISTRY TECHNICIAN REVIEWER (CTR) COMPLETE THE TEST.

6.16.1 **VERIFY** sample Retained (approximately 1 Liter) for Monthly Radwaste Composite per ST-C-095-833-2, "P-32, FE-55, SR-89 and SR-90, and Tritium Analysis in Liquid Radwaste". (ODCMS Table 4.8.1)

* _____ CTR

6.16.2 **USE** Data from this release, as applicable, to update the Radwaste File on the Computer System.

_____ _____ CTR

6.16.3 **ENTER** Required Data for applicable waste tanks into the Chemistry Data Management System (DMS).

_____ _____ CTR

7.0 PROCEDURE COMPLETION

Initial

7.1 Independent Verification

None

7.2 Records Completion

7.2.1 **REVIEW** all Sections of this test **AND VERIFY** these are complete.

_____ CTR

7.2.2 **VERIFY** copy of the Gamma Isotopic Analysis Report attached to this test.

_____ CTR

7.2.3 **COMPLETE** Section 2 of this test's coversheet by signing at "Completed By:" (**AND** Section 3 **IF** applicable) **AND FORWARD** this test to Chemistry Supervision **OR** Staff for review.

_____ CTR

8.0 REFERENCES

8.1 Governing

8.1.1 ODCMS 3.8.B.3

8.1.2 ODCMS 3.8.B.4

8.1.3 ODCMS 4.8.B.1.1

8.1.4 ODCMS 4.8.B.1.2

8.1.5 ODCMS 4.8.B.1.3

8.1.6 ODCMS 4.8.B.3.1

8.1.7 ODCMS 4.8.B.3.2

8.1.8 ODCMS Table 4.8.B.1

8.1.9 ODCMS 4.8.B.4.3

8.1.10 ODCMS 4.2.B.4.4

8.1.11 ODCMS 4.8.B.4.5

8.1.12 ODCMS Bases B 3.8

8.1.13 CM-1, Licensed Event Report 2-91-036

8.1.14 CM-2, NRC Inspection Report Doc No. 76070103

8.2 Interfacing

8.2.1 PBAPS Offsite Dose Calculation Manual (ODCM)

8.2.2 CH-401, Sampling and Analysis of Liquid Radioactive Waste

8.2.3 ST-C-095-833-2, P-32, FE-55, SR-89 and 90, and Tritium Analysis in Liquid Radwaste

8.2.4 SO 20A.1.E, Floor Drain Sample Tank Release to the Conowingo Pond

8.2.5 SO 20C.7.N, Waste Sample Tank Release to Conowingo Pond

8.2.6 SO 20B.7.A Laundry Drain Tank Release to Conowingo Pond

8.2.7 RW-591, Transfer of Processed Waste Water to the "B" Laundry Drain Tank

8.2.8 RW-592, Transfer of Unprocessed Waste Water to the "B" Laundry Drain Tank

8.0 REFERENCES (Continued)

8.2.9 SO 20C.5.B, Liquid Radwaste Discharge Radiation Monitor Flushing

8.3 Developmental

8.3.1 CH-600, Determination of Gamma Isotopic Activity with the Canberra Gamma Spectrometers

8.3.2 10 CFR 20 Appendix B, Table 2, Column 2

8.3.3 10 CFR 50

8.3.4 LR-C-13, 10 CFR 50.59 Reviews

8.3.5 NPDES Permit No. PA0009733

8.3.6 UFSAR Section 9.2.4.2.4

8.3.7 UFSAR Section 9.2.4.3

8.3.8 UFSAR Section 9.2.5

8.3.9 UFSAR Section 9.2.7

8.3.10 Prints

E-540-55, Sht.1, Console 20C007A Condensate Enhancement Arrangement

M-370, Shts. 1, 2, & 3, Radwaste Process & Disposal System-Liquid

M-371, Sht 5, Radwaste Process and Disposal-Solid

8.3.11 This procedure supersedes ST 7.1.8

9.0 ODCMS LIMITING CONDITIONS FOR OPERATION (LCOs)

Section 3.8.B

10.0 PARTICIPANTS RECORD

Printed Name	Initials
CHEMISTRY TECH	CT
SENIOR REACTOR OPERATOR	SRO

PECO NUCLEAR
PEACH BOTTOM ATOMIC POWER STATION
JOB PERFORMANCE MEASURE

POSITION TITLE: Unit Reactor Operator/Senior Reactor Operator

TASK-JPM DESIGNATOR: 2007500501 K/A: 2.4.39

URO: 3.3 SRO: 3.1

TASK DESCRIPTION: Knowledge of the RO's responsibilities in emergency plan implementation

A. NOTES TO EVALUATOR:

1. An asterisk (*) before the step number denotes a CRITICAL STEP. CRITICAL STEPS are those steps which when not performed correctly will prevent the system from functioning properly or prevent successful task completion.

2. System cues included in the performance checklist are to be provided to the examinee when no system response is available.

3. JPM Performance

   a. "Control Room" JPMs are designed to be performed in the simulator. If a "Control Room" JPM is to be performed in the Control Room all perform steps (P) shall be simulated (S).

   b. When performing "In-Plant" JPMs, no equipment will be operated without Shift Management approval.

4. Satisfactory performance of this JPM is accomplished if:

   a. The task standard is met.

   b. JPM completion time requirement is met.

      1) For non-time critical JPMs, completion within double the estimated time (listed in paragraph D.2) is acceptable provided the evaluator determines that the progress to completion is acceptable.

      2) For time critical JPMs, completion within the estimated time (listed in paragraph D.2) is required.

5. The estimated time to complete this JPM, though listed in the task standard, is not to be given to the examinee.

B. TOOLS AND EQUIPMENT

1. ERP-110, Rev. 12, Emergency Notifications

C. REFERENCES

1. ERP-110, Rev. 12, Emergency Notifications

D. TASK STANDARD

1. Satisfactory task completion is indicated when the Emergency Director is informed that the ERDS link has been made.

2. Estimated time to complete: 7 minutes NOT-Time Critical

E. DIRECTIONS TO EXAMINEE

When given the initiating cue, perform the actions as the NRC Communicator for an Alert emergency classification. I will describe initial plant conditions and provide you access to the materials required to complete this task.

F. TASK CONDITIONS/PREREQUISITES

1. An Alert has just been declared on Unit 2.

2. You have been assigned to be the NRC Communicator.

G. INITIATING CUE

The Emergency Director directs you to initiate the ERDS link to the NRC via the Plant Monitoring System, per ERP-110 step 2.2.2. Inform the Emergency Director when the connection is made.

H. PERFORMANCE CHECKLIST

STEP NO	STEP	ACT	STANDARD
1	Obtain a copy of procedure ERP-110.	P	A copy of procedure ERP-110 is obtained.
2	Review ERP-110.	P	ERP-110 section 2.2.2 is referenced.
*3	Locate the PMS terminal.	P	The operator locates the PMS terminal.
*4	Select the EPDS Menu. (Cue: EPDS Menu selected)	P	At the PMS terminal, the operator selects the EPDS menu or types EPD.
*5	Select the NRC Link Activation. (Cue: NRC Link Activation selected)	P	At the PMS terminal, the operator selects the NRC Link Activation, or types NRC.
*6	Activate the Link. (Cue: "F1" selected)	P	At the PMS terminal, the operator selects "F1".
*7	Select Unit 2. (Cue: Unit 2 activated)	P	At the PMS terminal, the operator selects "F1" to activate Unit 2.
*8	Enter the password. (Cue: Password "USNRC" entered)	P	At the PMS terminal, the operator types the password "USNRC" and depresses return.
9	Notify the Emergency Director. (Cue: The ED acknowledges the report)	P	Verbally notify the Emergency Director that the EPDS link to the NRC has been completed.

***** NOTE *****

Terminate the exercise when the activities listed above are performed.

Under "ACT" P - must perform
S - must simulate

I. TERMINATING CUE

When the ERDS link to the NRC has been completed and the Emergency Director informed, the evaluator will terminate the exercise.

TASK CONDITIONS/PREREQUISITES

1. An Alert has just been declared on Unit 2.

2. You have been assigned to be the NRC Communicator.

INITIATING CUE

The Emergency Director directs you to initiate the ERDS link to the NRC via the Plant Monitoring System, per ERP-110 step 2.2.2. Inform the Emergency Director when the connection is made.

PECO Nuclear
PEACH BOTTOM UNITS 2 AND 3
EMERGENCY RESPONSE PROCEDURE

ERP-110 EMERGENCY NOTIFICATIONS

1.0 RESPONSIBILITIES

1.1 Emergency Director (ED) Communicator is responsible for:

1.1.1 The emergency classification notifications as directed by ED.

1.1.2 Making call outs of emergency response personnel per ERP-140, Emergency Response Organization Call Out".

1.2 NRC Communicator is responsible for:

1.2.1 Completing the Event Notification Worksheet from the Reportability Reference Manual.

1.2.2 Initiating and insuring that the Emergency Response Data System (ERDS) is properly configured for transmission of data to the NRC.

1.2.3 Contacting the Nuclear Regulatory Commission (NRC) by an Emergency Notification System (ENS) telephone (FTS-2000 Extension)

1.2.4 Maintaining communications as directed by the NRC.

2.0 INITIAL ACTIONS

2.1 The ED Communicator(s) shall:

2.1.1 Receive completed Emergency Notification Form from ED.

> NOTE:
>
> EMERGENCY RESPONSE ORGANIZATION (ERO) ACTIVATION IS REQUIRED AT ALERT OR HIGHER EMERGENCY CLASSIFICATION OR AT REQUEST OF THE EMERGENCY DIRECTOR.

2.1.2 IF the emergency classification is an Unusual Event, perform ERP-110, Appendix 1, "Emergency Notification Telephone List".

2.1.3 IF the emergency classification is an Alert or higher,
OR ED directs activation of the entire ERO,
THEN:

2.1.3.1 Initiate the computer program for activating the ERO.

2.1.3.2 IF the computer is down/off-line, perform ERP-140, Appendix 1, "Automated ERO Activation".

2.1.3.3 Perform ERP-110, Appendix 1, "Emergency Notification Telephone List".

2.1.4 IF pagers fail to activate, implement ERP-140, Attachment 2, "Pager Activation".

2.1.5 IF unable to activate pagers, implement ERP-140, steps 2.1.2.1 through 2.1.2.5 and ERP-140, Attachment 1, "Manual ERO Call Out Log".

2.2 The NRC Communicator shall:

2.2.1 Complete the Event Notification Worksheet from the Reportability Reference Manual.

2.2.2 Initiate ERDS link to the NRC via a Plant Monitoring System (PMS) terminal located in the Control Room or the TSC.

a. Select the EPDS menu
OR type EPD

b. Select the NRC Link Activation
OR type NRC

c. Select "F1" to activate

d. Select "F1" to activate Unit 2 Link or "F3" to activate Unit 3 Link.

e. Enter the password "USNRC" and press return.

NOTE:

CONTACT NRC AS SOON AS POSSIBLE AND NOT LATER THAN 1 HOUR AFTER DECLARATION OF AN EMERGENCY CLASSIFICATION.

2.2.3 Contact NRC via ENS telephone (FTS-2000 Extension).

a. Dial one of the NRC Operations Center Telephone Numbers posted on the NRC ENS telephone.

b. Report to the NRC Duty Officer the information from the Event Notification Worksheet.

c. Report to the NRC Duty Officer that the Emergency Response Data system has been activated.

2.2.4 Remain on NRC telephone until NRC disconnects OR the NRC approves securing the telephone line.

3.0 CONTINUING ACTIONS

3.1 The ED Communicator shall:

3.1.1 WHEN notifications have been made, submit completed ERP-110 Appendix 1 to ED for signature.

3.2 The NRC Communicator shall:

3.2.1 Provide periodic updates on plant status or change in emergency classification as directed by ED OR as requested by NRC.

3.2.2 Remain on NRC telephone until NRC disconnects OR authorizes securing line.

3.2.3 Insure ERDS data link remains operational until NRC authorizes securing the link.

4.0 FINAL CONDITIONS

4.1 The ED Communicator shall:

4.1.1 Remain available for additional notifications until properly relieved or released by the ED.

4.1.2 Collect all notifications AND call out records and forward to Emergency Preparedness Supervision.

4.2 The NRC Communicator shall:

4.2.1 With permission of the NRC, deactivate the ERDS link at a PMS terminal located in the Control Room or TSC.

a. Select NRC Link Activation OR type NRC

b. Select NRC Link Activation or type NRC

c. Select "F3" to deactivate

d. Select "F1" to deactivate Unit 2 Link or "F3" to deactivate Unit 3 Link

e. Enter the password "USNRC" and press return.

5.0 ATTACHMENTS AND APPENDICES

5.1 ERP-110, Appendix 1, - "Emergency Notification Telephone List" **CM-1, CM-2**

6.0 SUPPORTING INFORMATION

6.1 PURPOSE

6.1.1 Provide guidelines for communicators to perform notifications of emergency classifications.

6.1.2 Provide guidelines for activating and de-activating the Emergency Response Data System.

6.2 CRITERIA FOR USE

6.2.1 Implement whenever the ED declares an emergency per ERP-101, "Classification of Emergencies".

6.3 SPECIAL EQUIPMENT

6.3.1 None

6.4 REFERENCES

6.4.1 Code of Federal Regulations, Title 10, Energy, Part 50.72

6.4.2 ERP-101, "Classification of Emergencies"

6.4.3 ERP-140, "Emergency Response Organization (ERO) Call Out"

6.4.4 ERP-200, "Emergency Director (ED)"

6.4.5 Nuclear Emergency Plan

6.4.6 Reference Manual: Identification and Evaluation of Potentially Reportable Items

6.4.7 10CFR50, Appendix E, Section VI

6.4.8 NUREG-1394, "Emergency Response Data System

Implementation"

6.5 COMMITMENT ANNOTATION

6.5.1 CM-1, ANI Bulletin 5A81, (T00151)

6.5.2 CM-2, Letter from ANI, 6/2/82, (T03095)

Effective Date:_____

APPENDIX 1

EMERGENCY NOTIFICATION TELEPHONE LIST

USE THIS FORM IN CONJUNCTION WITH THE EMERGENCY NOTIFICATION FORM FROM ERP-200.

DATE: _____ **TIME OF EMERGENCY CLASSIFICATION:** _____

EMERGENCY CLASSIFICATION |__| **UNUSUAL EVENT** |__| **SITE AREA EMERGENCY**

|__| **ALERT** |__| **GENERAL EMERGENCY**

|__| **TERMINATION/RECOVERY**

Dial Conference call Code 33 on Emergency phone 211, 212 or 281.
As each agency answers, request they hold the line.
AFTER agencies have answered, **THEN** transmit the message.
Roll call agencies to ensure they answered, received
AND understood the message.
IF any agency failed to pickup or respond, **THEN** dial the individual Emergency ext. or backup telephone number to complete the notification.

Date:_____

Time Conference Call Initiated: _____ Time Conference Call Completed:_____

PERSONNEL/AGENCIES TO BE NOTIFIED WITHIN 15 MINUTES	PHONE NUMBERS	PERSON NOTIFIED	COMMENTS
1. YORK COUNTY EMERGENCY MANAGEMENT AGENCY	Emergency ext. 219 or 9-1-717-854-5571		
2. PENNSYLVANIA EMERGENCY MANAGEMENT AGENCY (PEMA)	Emergency ext. 216 or 9-1-800-424-7362 or 9-1-717-651-2001		
3. HARFORD COUNTY DIVISION OF EMERGENCY OPERATIONS	Emergency ext. 214 or 9-1-410-638-3400 or 9-1-410-638-4900		
4. CECIL COUNTY EMERGENCY MANAGEMENT & CIVIL DEFENSE AGENCY	Emergency ext. 234 or 9-1-410-398-2222, 3815 or 9-1-410-996-5350		
5. MARYLAND EMERGENCY MANAGEMENT AGENCY (MEMA)	Emergency ext.205 or 9-1-410-517-3600 8 a.m.-5 p.m. After 5 p.m., ext. 213 or 9-1-410-653-4200		
6. LANCASTER COUNTY EMERGENCY MANAGEMENT AGENCY	Emergency ext. 217 or 9-1-800-808-5236 or 9-1-717-664-1190 or		
7. CHESTER COUNTY DEPT. OF EMERGENCY SERVICES	Emergency ext. 218 or 9-1-610-344-5100		

FOLLOW UP NOTIFICATION NOT INCLUDED IN THE ABOVE CODE 33 CONFERENCE CALL

AGENCY NOTIFIED	PHONE NUMBERS	TIME AM/PM	PERSON NOTIFIED
MARYLAND DEPARTMENT OF THE ENVIRONMENT	Emergency ext. 235 or 292 8 A.M. to 5 P.M. 9-1-410-631-3183 or 3868 After 5:00 P.M. 9-1-410-631-3937		

APPENDIX 1
EMERGENCY NOTIFICATION TELEPHONE LIST (Continued)

COMPLETE AFTER 15 MINUTE NOTIFICATIONS:

1.0 First, delete existing emergency message as follows:

1.1 Access the ASPEN System by dialing ext. 3605.

1.2 When system answers, press the "#" key and follow prompt.

1.3 After "Mailbox number please", enter 1737.

1.4 After "Emergency Information, Peach Bottom - Please enter your password", enter 911911.

1.5 If there is an ASPEN Broadcast message,
THEN press "33" to go to the end of the message and follow these prompts. "To Continue, press "#". After "end of review", press "7" to delete Broadcast message.

1.6 IF there is a message to review,
THEN press "1" and proceed to step 1.7.
IF no messages,
THEN press "*" to disconnect, hang up and proceed to step 2.0.

1.7 Press "7" to delete the message.

1.8 Press "*" to disconnect and then hang up.

2.0 Place Emergency Notification Information on the ASPEN System as follows:

2.1 Access the ASPEN system by dialing ext. 3605.

2.2 When system answers, press the "#" key and follow prompt.

2.3 After "Mailbox number please", enter 5307.

2.4 After "Emergency Information, please enter your password", enter 911911.

2.5 IF there is an ASPEN Broadcast message,
THEN press "33" to go to the end of the message and follow these prompts. "To continue, press "#". After "end of review", press 7 to delete Broadcast message.

2.6 At main menu, press "2" to send a message.

2.7 Read the most current ERP-200, Appendix "Notification Form" as the message. When finished recording, press "#".

2.8 Enter mailbox 1737 as the destination.

2.9 Press "#" to send.

2.10 Press "*" for no other destinations.

2.11 Press "*" to disconnect and then hang up.

APPENDIX 1

EMERGENCY NOTIFICATION TELEPHONE LIST (Continued)

FOLLOW UP PERSONNEL/AGENCIES TO BE NOTIFIED	PHONE NUMBERS	TIME AM/PM	PERSON NOTIFIED
PLANT MANAGEMENT 1. (IF NOT ALREADY PRESENT) J. J. BOUCK, SR. MGR. - OPERATIONS AND G. L. JOHNSTON, PLANT MANAGER AND J. DOERING, JR., V.P.- PBAPS	OFFICE: 4245 PAGER: 9-1-800-672-2285 ACCESS NUMBER: 7184 HOME: 9-1-717-252-4814 OFFICE: 4244 PAGER: 9-1-800-672-2285 ACCESS NUMBER: 0292 HOME: 9-1-610-869-5947 OFFICE: 4000 PAGER: 9-1-800-672-2285 ACCESS NUMBER: 4000 HOME: 9-1-610-495-7415		
2. MANAGER PUBLIC INFORMATION PRIMARY: NEIL MCDERMOTT OR ALTERNATES: J. WILLIAM JONES OR MICHAEL WOOD OR PUBLIC INFORMATION REPRESENTATIVE ON CALL	OFFICE: 801-4122 OR 9-1-215-841-4122 PAGER: 9-1-800-672-2285 ACCESS NUMBER: 8540 HOME: 9-1-610-647-7011 OFFICE: 801-4129 PAGER: 9-1-800-672-2285 ACCESS NUMBER: 8544 HOME: 9-1-610-265-1027 OFFICE:801-4125 PAGER: 9-1-800-672-2285 ACCESS NUMBER: 8583 HOME: 9-1-215-343-4128 24 HRS: 801-5555 OR 9-1-215-841-5555		
3. POWER SYSTEM DIRECTOR (SHIFT MANAGER)	801-5141 OR 9-1-215-841-5141		
4. NRC RESIDENT (NOTIFY ONE) BLAKE WELLING MIKE BUCKLEY	OFFICE: 4213 PAGER: 9-1-800-619-9427 HOME: 9-1-610-948-0647 PAGER: 9-1-800-619-9376 HOME: 9-1-717-464-9399		

APPENDIX 1

EMERGENCY NOTIFICATION TELEPHONE LIST (Continued)

FOLLOW UP PERSONNEL/AGENCIES TO BE NOTIFIED	PHONE NUMBERS	TIME AM/PM	PERSON NOTIFIED
5. EMERGENCY PREPAREDNESS COORDINATOR ON CALL (UNUSUAL EVENT ONLY)	SEE ERO DIRECTORY		
6. PBAPS COMMUNICATIONS	OFFICE: 4759 FAX: 4891		
7. PENNSYLVANIA STATE POLICE, YORK BARRACKS	EMERGENCY EXT. 284 OR 9-1-717-428-1011		
AGENCIES TO BE NOTIFIED AFTER ALL OTHER NOTIFICATIONS HAVE BEEN COMPLETED BUT WITHIN TWO HOURS FOR AN ALERT OR HIGHER CLASSIFICATION	PHONE NUMBERS	TIME AM/PM	PERSON NOTIFIED
1. AMERICAN NUCLEAR INSURERS (ANI) CM-1, CM-2	9-1-860-561-3433		
2. INSTITUTE OF NUCLEAR POWER OPERATIONS (INPO) DUTY OFFICER (24-HR)	9-1-800-321-0614 OR SWITCHBOARD 9-1-770-644-8000		

Notification Completed By: _____ Time/Date: _____
Communicator

Reviewed By: _____
Emergency Director

Forward this Appendix and the Emergency Notification Form from ERP-200 to EP Staff.

Reviewed By: _____ _____
Name Time/Date