

A1

JOB PERFORMANCE MEASURE APPROVAL SHEET

I. JPM Title: Fuel Handling Operations

ID Number: JPM-A20

Revision: 0

II. Initiated:



Stephen R Myers
Developer

10/26/00
Date

III. Reviewed:



Technical Reviewer

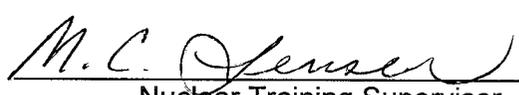
1/23/01
Date

IV. Approved:



User Department Supervisor

1/24/01
Date



Nuclear Training Supervisor

01/24/01
Date

JOB PERFORMANCE MEASURE WORKSHEET

JPM Number: JPM-A20

Rev. 0

Initiating Cues:

- Refueling operations are in progress and you are the SRO in the Control Room.
- CTMT Purge is in progress.
- The CO has just completed the "Daily" surveillance SP 2614A-2 for your review.
- An electrical fault causes the supply breaker to VA-30 to open, an investigation is being done.

Initial Conditions:

- Review the paperwork and make any necessary recommendations.

Simulator Requirements: N/A

* * * * NOTES TO EXAMINER * * * *

1. Critical steps for this JPM are indicated with an "X". For the examinee to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.
2. When examinee states what his/her simulated action/observation would be, read the appropriate "Cue".
3. If necessary, question examinee for details of simulated actions / observations (i.e. "What are you looking at?" or "What are you observing?").
4. Under **NO** circumstances must the examinee be allowed to manipulate any devices during the performance of this JPM (in-plant only).

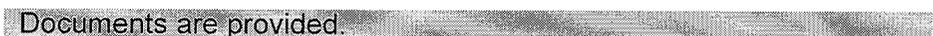
PERFORMANCE INFORMATION

JPM ID NUMBER: JPM- A20 TITLE: Fuel Handling Operations

START TIME: 

STEP 1 Performance Steps: Examinee reviews 2614A-2 for completeness and for components out of service.

GRADE Standards: *Examinee reviews documents.*

Cue: 

Comments:

~~~~~

STEP 2  Performance Steps: Examinee notes that, with VA-30 de-energized and RM-8262 out of service he lacks any CTMT gas monitoring channel operating.

GRADE   Standards: *Examinee should state that the minimum required channels Operable is not being met.*

Cue: 

Comments:

~~~~~

STEP 3 Performance Steps: Examinee refers to Tech. Specs

GRADE Standards: *Examinee refers to TSAS 3.3.3.1, 3.3.4, and 3.9.4.*

Cue: 

Comments:

PERFORMANCE INFORMATION

JPM ID NUMBER: JPM- A20 TITLE: Fuel Handling Operations

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STEP 4      X Performance Steps: Examinee notes that TSAS 3.3.4 requires that Core Alterations be secured, also that the CTMT Purge valves should be verified shut.

GRADE         X Standards:      *Examinee refers to TSAS 3.3.4 and states that he would direct Core Alterations be secured, and verify CTMT Purge valves closed. Examinee could also state that the "C" channel Source Range monitor is de-energized.*

Cue: 

Comments:

Comments:      **After this step is completed, the JPM is considered complete.**

STOP TIME: 

**VERIFICATION OF JPM COMPLETION**

Job Performance Measure No.    JPM-A20

Rev. 0

Date Performed: \_\_\_\_\_

Operator: \_\_\_\_\_

Evaluator(s): \_\_\_\_\_

For examinee to achieve a satisfactory grade, **ALL** critical steps must be completed correctly. If task is Time Critical, it **MUST** be completed within the specified time to achieve a satisfactory grade.

Time Critical Task?    Yes \_\_\_\_\_ No   X  

Validated Time (minutes): \_\_\_\_\_

Actual Time to Complete (minutes): \_\_\_\_\_

Result of JPM: \_\_\_\_\_ (Denote by an S for satisfactory or a U for unsatisfactory)

Areas for Improvement:

## EXAMINEE HANDOUT

JPM ID Number: JPM-A20

### Initiating Cues:

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- CTMT Purge is in progress.
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- An electrical fault causes the supply breaker to VA-30 to open, an investigation is being done.
- 

### Initial Conditions:

- Review the paperwork and make any necessary recommendations.

01/27/00  
Approval Date



01/31/00  
Effective Date

### Document Action Request

SPG # 000507-153223

Initiated By: Allan Ellison Date: 05/07/2000 Department SPG Ext 5121

Document No: SP 2614A-002 Rev. No: 022 Minor Rev No. 04

Title: **Control Room Daily Surveillance, MODE 6 and Defueled**

**Reason for Request** (attach commitments, CR's, AR's, etc)

Transfer of power from Unit 2 RSST current states to align to bus 24C and 24D, this in incorrect. Unit 2 RSST only needs to be aligned to 24C or 24D, which ever is the operable facility.

Continued

**Change Instructions**

Electronic change, replace all pages including cover sheet.

Continued

**TPC Interim**

**Approval**

(1) Plant Mngt Staff Member Print/Sign/Date

(2) SM/SRO/CFH on Unit Print/Sign/Date

**Procedure Request/Feedback Disposition**

Priority:  Perform Now  Perform Later - See Comments  Rejected - See Comment

Activity:  Revision  Minor Revision  Cleanup Rev  Biennial Review  Cancellation

See DC-GDI01 for guidance

TPC  OTC  Place in Void

Edit Corr \_\_\_\_\_  
Plant Mngt Staff Member - Approval / Date

**Comments**

RI/DPC Print Name and Date Continue

| Reviews                  | Print                               | Sign              | Date          | SQR Qualified                       |                                     |            | If Comments              |
|--------------------------|-------------------------------------|-------------------|---------------|-------------------------------------|-------------------------------------|------------|--------------------------|
|                          |                                     |                   |               | Yes                                 | No                                  | Dept.      |                          |
| <input type="checkbox"/> |                                     |                   |               | <input type="checkbox"/>            | <input type="checkbox"/>            |            | <input type="checkbox"/> |
| <input type="checkbox"/> |                                     |                   |               | <input type="checkbox"/>            | <input type="checkbox"/>            |            | <input type="checkbox"/> |
| <input type="checkbox"/> |                                     |                   |               | <input type="checkbox"/>            | <input type="checkbox"/>            |            | <input type="checkbox"/> |
| RAC 06                   | <input checked="" type="checkbox"/> | <u>S.J. Baker</u> | <u>5-7-00</u> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <u>OPS</u> | <input type="checkbox"/> |
| Independent              | <input checked="" type="checkbox"/> | <u>S.J. Baker</u> | <u>5-7-00</u> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <u>OPS</u> | <input type="checkbox"/> |
| Writer's guide           | <input type="checkbox"/>            |                   |               | <input type="checkbox"/>            | <input type="checkbox"/>            |            | <input type="checkbox"/> |
| Validation               | <input type="checkbox"/>            |                   |               | <input type="checkbox"/>            | <input type="checkbox"/>            |            | <input type="checkbox"/> |

Safety Evaluation/Environmental Review Attached?  Yes  No

**a. SQR Program Final Review and Approval**

Approval  Disapproval

S.J. Baker 5-7-00  
SQR Qualified Independent Reviewer / Date

S-7-00  
Department Head/Responsible Individual

Approval Date

**b. SORC/PORC/RI/DH Final Review and Approval**

Meeting No. \_\_\_\_\_

Department Head/Responsible Individual / Date \_\_\_\_\_

Approval Signature \_\_\_\_\_

Approval Date \_\_\_\_\_

Effective Date 5-7-00

**Form Approval**

Approval Date

5-7-00

Effective Date

5-7-00

# Form Cover Sheet



**Generic Information**

Form Title

Control Room Daily Surveillance, MODE 6 and Defueled

Rev. No.

022-0304

Reference Procedure

SP 2614A

Applicable Tech. Spec.

As stated within

Frequency

As stated within

This form is being used for the following:

- Tech Spec Surveillance
- System Alignment
- Other: \_\_\_\_\_
- Maintenance Restoration (Retest)
- Non-Tech Spec Surveillance (PM)

**Specific Information**

SCHEDULE DATE

5/4/00

FOR TRAINING ONLY

APPLICABLE MODE

Performed: Mode 6 or Defueled

TEST AUTHORIZED BY

*JR Myers*

DATE

5/4/00

SHIFT

ACCEPTANCE CRITERIA SATISFIED

ACCEPTANCE TIME ENTERED IN SM LOG

COMPLETED BY

*C. Seefelders*

DATE

5/4/00

00-06

YES  
 NO

YES  
Must be completed prior to 0600 [Ref. 6.6]

SHIFTLY Surveillance Portion ACCEPTED BY (SM):

*C. Seefelders*

DATE

5/4/00

COMPLETED BY

*M. Muldoon*

DATE

5/4/00

06-12

YES  
 NO

YES  
Must be completed prior to 1200 [Ref. 6.6]

COMPLETED BY

DATE

12-18

YES  
 NO

YES

SHIFTLY Surveillance Portion ACCEPTED BY (SM):

DATE/TIME

COMPLETED BY

DATE

18-24

YES  
 NO

YES

SHIFTLY Surveillance Portion ACCEPTED BY (SM):

DATE/TIME

APPROVED BY (DEPARTMENT HEAD OR DESIGNEE)

DATE

SURVEILLANCE INFORMATION

As stated within

MODE

Initials

Shift

00-06

06-12

12-18

18-24

PREREQUISITES COMPLETED (INITIALS)

*CS*

*MM*

COMMENTS

*pg 18 - RN-8262005*

**Control Room Daily Surveillance, MODE 6 : 1 Defueled**

| Parameter           | Check         | Shift | Results                             | Remarks |
|---------------------|---------------|-------|-------------------------------------|---------|
| Control Room Charts | Charts Marked | 00-06 | <input checked="" type="checkbox"/> |         |

**1. CHANNEL CHECK OF METEOROLOGICAL INSTRUMENTATION**

Reference Specification: TRM – Section II.4.5.5 (Table 4.3-5, Items 1, 2 and 3)  
 RECORD PPC “METDAT” display and  
 PERFORM CHANNEL CHECK on all specified meteorological instrumentation  
OR  
 RECORD data from Unit 1 or Unit 3.

| Parameter                                                  | Acceptance Criteria  | Shift | Results |         | Remarks |
|------------------------------------------------------------|----------------------|-------|---------|---------|---------|
|                                                            |                      |       | 374'    | 142'    |         |
| Wind Speed                                                 | OPERABLE             | 00-06 | 10 mph  | 5 mph   |         |
| Wind Direction                                             |                      |       | 179 °   | 154 °   |         |
| Air Temperature ΔT                                         |                      |       | 1.21 °F | 0.90 °F |         |
| Shack Inside Temp. Avg.<br>(EDAN building)<br>("ATMTBAVG") | ≥ 60°F and<br>≤ 80°F |       | 77 °F   |         |         |

**FIRE DETECTION INSTRUMENTATION**

Reference Specification: TRM – Section II, Subsection 1.0, A.4.2  
 CHECK fire detection instrumentation OPERABLE

| Parameter                      | Acceptance Criteria                                   | Shift | Results                             | Remarks |
|--------------------------------|-------------------------------------------------------|-------|-------------------------------------|---------|
| Fire Detection Instrumentation | Lights and alarms on C-26 and C-06 work while in test | 00-06 | <input checked="" type="checkbox"/> |         |

**3. AUXILIARY STEAM DETECTION AND ISOLATION SYSTEM**

Reference Specification: N/A

| Parameter                             | Acceptance Criteria                              | Shift | Results                                                                                                                              | Remarks            |
|---------------------------------------|--------------------------------------------------|-------|--------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| Auxiliary Steam Detection / Isolation | At least one channel <i>not</i> in alarm on C-06 | 00-06 | Number of trains OPERABLE *<br><del><input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2</del> * SECURED | Refer To #1 and #2 |

- #1 With *one* train inoperable there is no action required in Mode 6.
- #2 With *both* trains inoperable, auxiliary steam to the Aux Bldg must be secured. Auxiliary steam to auxiliary building isolation valves, 2-AS-782 and 2-AS-783, must be closed. If *either* valve is inoperable, auxiliary steam to the auxiliary building manual isolation, 2-AS-781, must be closed.

**Control Room Daily Surveillance, MODE 6 : 1 Defueled**

**4. RADIOACTIVE LIQUID EFFLUENT MONITORING**

Reference Specification: 4.3.3.9 (Table 4.3-12 Items 1a., 1b., 1c., 2a., 3a., 3b., 3c., 3d. and 3e.)  
**PERFORM CHANNEL CHECK** using pump status and valve status, as appropriate, for dilution flow and blowdown flow rates. Blowdown flow rates are determined from flow curves or makeup flow. Radiation monitors may be out of service for up to 12 hours for maintenance [UIR 3383].

| Parameter                                          | Acceptance Criteria          | Shift | Results                             |                          | Remarks<br>Accept before 0600 [♣Ref. 6.6]                                  |
|----------------------------------------------------|------------------------------|-------|-------------------------------------|--------------------------|----------------------------------------------------------------------------|
| SG Blowdown Flowrate                               | N/A                          |       | #1 SG                               | 0 gpm                    | From flow curves or makeup flow                                            |
|                                                    |                              |       | #2 SG                               | 0 gpm                    |                                                                            |
|                                                    |                              |       | DL                                  | <input type="checkbox"/> | Quench Tank pump                                                           |
|                                                    |                              |       | DL                                  | <input type="checkbox"/> | Valves checked locally                                                     |
| Dilution Water Flow                                |                              |       | 4000                                | gpm                      | 1 SW pump = 4 x 10 <sup>3</sup> gpm<br>1 CW pump = 1 x 10 <sup>5</sup> gpm |
| RBCCW Radiation Monitor, RM-6038                   | OPERABLE                     | 00-06 | 400                                 | cpm                      | Refer To #1 and #2                                                         |
| Aerated Waste Discharge Radiation Monitor, RM-9116 |                              |       | 70K                                 | cpm                      | RC-14C                                                                     |
| Clean Waste Discharge Radiation Monitor, RM-9049   |                              |       | 30K                                 | cpm                      | RC-14C                                                                     |
| CPF Discharge Radiation Monitor, RIY-245           | OPERABLE when pathway in use |       | 131                                 | cpm                      | Observed locally by PEOs                                                   |
| CPF Discharge Flow Recorder, FR-246                | OPERABLE                     |       | <input checked="" type="checkbox"/> |                          |                                                                            |
| Aerated Waste Discharge Flow Recorder, FR-9118     |                              |       | <input checked="" type="checkbox"/> |                          |                                                                            |
| Clean Waste Discharge Flow Recorder, FR-9050       |                              |       | <input checked="" type="checkbox"/> |                          |                                                                            |

FOR TRAINING ONLY

- #1 IF inoperable, REQUEST Chemistry Department obtain SW effluent grab samples via OPS Form 2619A-7, at frequency specified in applicable Chemistry procedure. RECORD sample time and results. [♣Ref. 6.9 & 6.10]
- #2 IF inoperable greater than 30 days, SUBMIT CR to explain in the next semiannual effluent report why it was *not* corrected in a timely manner in accordance with LCO 3.3.3.9.b. [♣Ref. 6.13]
- #3 IF inoperable RECORD special reports information in Section 2 of OPS Form SP 2619A-4, "Shift Turnover Report." [Ref. 6.5]

| Augmented Sampling |           |         |      |           |         |
|--------------------|-----------|---------|------|-----------|---------|
| Time               | Parameter | Results | Time | Parameter | Results |
|                    |           |         |      |           |         |
|                    |           |         |      |           |         |
|                    |           |         |      |           |         |

**Control Room Daily Surveillance, MODE 6 - 1 Defueled**

**5. OFF-SITE AC SOURCES ALIGNMENT**

Reference Specification: 4.8.1.2 and 4.8.1.1.1

RECORD the following:

- Position of 345kv line breakers and voltage
- OPERABILITY status of power transfer from Unit 2 RSST to bus 24C or 24D
- OPERABILITY status of power transfer from bus 14H to bus 24E

④

| Parameter | Acceptance Criteria  |                             | Shift | Results                             |            | Remarks<br>Accept before<br>0600 [♣Ref. 6.6] |
|-----------|----------------------|-----------------------------|-------|-------------------------------------|------------|----------------------------------------------|
|           |                      |                             |       | Breaker Closed                      | Voltage    |                                              |
| 383 Line  | 383-15G-5,<br>closed | 1 of 4<br>lines<br>required | 00-06 | <input checked="" type="checkbox"/> | 354.8 kVAC | * TR'd                                       |
| 371 Line  | 371-15G-5,<br>closed |                             |       | <input checked="" type="checkbox"/> | 352.8 kVAC |                                              |
| 310 Line  | 310-15G-5,<br>closed |                             |       | <input checked="" type="checkbox"/> | * kVAC     |                                              |
| 348 Line  | 348-15G-5,<br>closed |                             |       | <input checked="" type="checkbox"/> | 366.8 kVAC |                                              |

**Unit 2 RSST to Bus 24C and 24D [♣Ref. 6.7]**

| Parameter                                                             | Acceptance Criteria                          | Shift | Results                  |          | Remarks<br>Accept before<br>0600 [♣Ref. 6.6] |
|-----------------------------------------------------------------------|----------------------------------------------|-------|--------------------------|----------|----------------------------------------------|
|                                                                       |                                              |       | Breaker Status           | Voltage  |                                              |
| UNIT 2 RSS<br>FDR 24C/24D<br>BKR, A702 and<br>RSST 4.16 kV<br>Voltage | Breaker closed and<br>voltage ≥ 3,900 VAC    | 00-06 | <input type="checkbox"/> | *<br>VAC | * RSST<br>DE-ENERG.                          |
| RSS SPLY BKR,<br>A302                                                 | Breaker racked up and<br>indicating on C-08* |       | <input type="checkbox"/> |          |                                              |
| RSS SPLY BKR,<br>A411                                                 |                                              |       | <input type="checkbox"/> |          |                                              |

\* Correct breaker indication is verified using control board indications.

**Bus 14H to 24E [♣Ref. 6.7]**

| Parameter                   | Acceptance Criteria                          | Shift | Results                             |          | Remarks<br>Accept before<br>0600 [♣Ref. 6.6] |
|-----------------------------|----------------------------------------------|-------|-------------------------------------|----------|----------------------------------------------|
|                             |                                              |       | Breaker Status                      | Voltage  |                                              |
| UNIT 1 RSS<br>FDR BKR, A602 | Breaker closed                               | 00-06 | <input checked="" type="checkbox"/> |          |                                              |
| 24E/14H TIE<br>BKR, A505    | Breaker racked up and<br>indicating on C-08* |       | <input checked="" type="checkbox"/> |          |                                              |
| 24E Supply<br>Voltage       | Voltage ≥ 3,900 VAC                          |       |                                     | 4100 VAC |                                              |
| 24E Bus<br>Voltage          |                                              |       |                                     | 4200 VAC |                                              |

\* Correct breaker indication is verified using control board indications.

**Control Room Daily Surveillance, MODE 6: 1 Defueled**

**5a. OFF-SITE AC SOURCES ALIGNMENT**

Reference Specification: 4.8.1.2 and 4.8.1.1.1 and CR# M2-97-2163  
 RECORD the following:

| Parameter |           | Acceptance Criteria | Shift | Results                             | Remarks |
|-----------|-----------|---------------------|-------|-------------------------------------|---------|
| Line      | Breaker   |                     |       |                                     |         |
| 348       | 15G-13T-2 | Breakers closed     | 00-06 | <input checked="" type="checkbox"/> |         |
| 348       | 15G-14T-2 |                     |       | <input checked="" type="checkbox"/> |         |
| 348       | 15G-15T-2 |                     |       | <input checked="" type="checkbox"/> |         |
| 310       | 15G-7T-2  |                     |       | <input checked="" type="checkbox"/> |         |
| 310       | 15G-8T-2  |                     |       | <input checked="" type="checkbox"/> |         |
| 310       | 15G-9T-2  |                     |       | <input checked="" type="checkbox"/> |         |
| 371       | 15G-4T-2  |                     |       | <input checked="" type="checkbox"/> |         |
| 371       | 15G-5T-2  |                     |       | <input checked="" type="checkbox"/> |         |
| 371       | 15G-6T-2  |                     |       | <input checked="" type="checkbox"/> |         |
| 383       | 15G-1T-2  |                     |       | <input checked="" type="checkbox"/> |         |
| 383       | 15G-2T-2  |                     |       | <input checked="" type="checkbox"/> |         |
| 383       | 15G-3T-2  |                     |       | <input checked="" type="checkbox"/> |         |

**FOR TRAINING ONLY**

**Control Room Daily Surveillance, MODE 6 (1 Defueled)**

**6. PORV OPERABILITY**

Reference Specification: 4.4.9.3.1c and 4.4.9.3.4

WHEN in MODE 6 AND reactor vessel head in place,  
ENSURE both PORV block valves open and RCS LT/OP switches in "LOW"  
OR  
 $\geq 2.2 \text{ in}^2$  RCS vent path exists.

*Verified once every day when being used for overpressure protection*

| Parameter | Acceptance Criteria                                                       | Shift | Results                                              |                         | Remarks<br>Accept before 0600<br>[*Ref. 6.6] |
|-----------|---------------------------------------------------------------------------|-------|------------------------------------------------------|-------------------------|----------------------------------------------|
|           |                                                                           |       | PORV block valves open                               | LT/OP switches in "LOW" |                                              |
| PORVs     | <u>Condition 1:</u><br>PORV block valves open and LT/OP switches in "LOW" | 00-06 | <input type="checkbox"/> NA <input type="checkbox"/> | * *<br>*                | * VALVES<br>REMOVED                          |

*Verified once every shift when being used for overpressure protection*

| Parameter                   | Acceptance Criteria *                                               | Shift | Results                             | Remarks                                                        |
|-----------------------------|---------------------------------------------------------------------|-------|-------------------------------------|----------------------------------------------------------------|
| RCS Overpressure Protection | <u>Condition 2:</u><br>RCS vent path $\geq 2.2 \text{ in}^2$ exists | 00-06 | <input checked="" type="checkbox"/> | Pressurizer manway removed <input checked="" type="checkbox"/> |
|                             |                                                                     | 06-12 | <input checked="" type="checkbox"/> |                                                                |
|                             |                                                                     | 12-18 | <input type="checkbox"/>            |                                                                |
|                             |                                                                     | 18-24 | <input type="checkbox"/>            |                                                                |

\* The removal of 1 pressurizer safety valve provides approximately 3.5 square inches of passive vent capability ( $2\frac{1}{2}$ -inch diameter, Schedule 160 piping).

IF PORV is used to mitigate a pressure transient, Refer To TSAS 3.4.9.3.e and SUBMIT special report to NRC.

**FOR TRAINING ONLY**

**Control Rod Daily Surveillance, MODE 6 : 1 Defueled**

**7. CONTROL ROD DRIVE MECHANISMS**

Reference Specification: 4.1.3.7

ENSURE status of CEDMs.

| Parameter                    | Acceptance Criteria                                                       | Shift | Results                 | Remarks<br>Accept before 1200<br>[♣Ref. 6.6] |
|------------------------------|---------------------------------------------------------------------------|-------|-------------------------|----------------------------------------------|
| CEDM and boron concentration | CEDMs are deenergized when RCS boron concentration is less than 2,144 ppm | 06-12 | CEDM status *           | DE-ENERG.                                    |
|                              |                                                                           |       | RCS boron concentration | 2203 ppm                                     |

- \* CEDMs must be deenergized by *one* of the following:
- Both CEDM MG output breakers are open and tagged to SM
  - Coil power programmer output cables for all CEAs are removed and tagged to I&C Manager
  - Input breakers to coil power programmers are tagged for all CEAs

**8. BORON CONCENTRATION**

Reference Specification: 4.9.1.2

Using the latest concentration obtained from Chemistry Department, ENSURE daily RCS boron concentration is greater than concentration determined by Reactor Engineering to meet the Acceptance Criteria (for Cycle 14, a boron concentration of greater than or equal to 2,144 ppm is required to ensure  $K_{eff}$  is less than or equal to 0.95).

| Parameter           | Acceptance Criteria                                                                                                                                                                      | Shift | Results                       | Remarks<br>Accept before 1200<br>[♣Ref. 6.6] |
|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------------------------------|----------------------------------------------|
| Boron Concentration | With reactor vessel head unbolted or removed, the boron concentration of the RCS and refueling canal shall be sufficient to ensure a $K_{eff}$ equivalent to <i>no greater than 0.95</i> | 06-12 | RCS =<br>2203 ppm             |                                              |
|                     | <i>OR</i><br>a boron concentration of greater than 1,720 ppm, <i>whichever is more restrictive.</i>                                                                                      |       | Refueling Canal =<br>2204 ppm |                                              |

**8a. SFP BORON CONCENTRATION**

Reference Specification: 4.9.17

Within 24 hours prior to any movement of fuel assemblies or consolidated storage boxes and every 72 hours thereafter during fuel movement, ENSURE daily SFP boron concentration is greater than or equal to 800 ppm.

| Parameter               | Acceptance Criteria              | Shift | Results           | Remarks<br>Accept before 1200<br>♣Ref. 6.6] |
|-------------------------|----------------------------------|-------|-------------------|---------------------------------------------|
| SFP Boron Concentration | Greater than or equal to 800 ppm | 06-12 | SFP =<br>2160 ppm |                                             |

**Control Room Daily Surveillance, MODE 6, Unit 1 Defueled**

**9. CHEMICAL LIMITS – BIOLOGICAL [ICR #6462]**

Reference Specification: NPDES 3A

RECORD specified parameters as indicated on PPC display "THCHLM" OR as described in "REMARKS."

| Parameter           | Acceptance Criteria | Shift | Results | Remarks                                                          |
|---------------------|---------------------|-------|---------|------------------------------------------------------------------|
| Unit 2 Discharge pH | 6.0 to 9.0          | 06-12 | 7.81    | PPC point, "A6693"<br>(Refer To #2)                              |
|                     |                     | 18-24 |         |                                                                  |
| Quarry Cut pH       | 6.0 to 9.0          | 06-12 | 7.88    | PPC point, "A6694" or<br>Unit 1 instrumentation<br>(Refer To #1) |
|                     |                     | 18-24 |         |                                                                  |

#1 IF Unit 2 quarry cut pH monitoring instrumentation is inoperable, **PERFORM** *one* of the following:

- IF Unit 2 quarry cut pH monitoring instrumentation is inoperable (computer alarm), **ENSURE OPERABILITY** of Unit 1 quarry cut pH instrumentation.
- IF both are inoperable AND a temporary chart recorder is *not* available, **PERFORM** the following:
  - **REQUEST** Chemistry Department take grab samples to determine pH every 4 hours.
  - **SUBMIT** data to Environmental Services – Nuclear (Millstone).
- IF both are inoperable AND a temporary chart recorder is available, **PERFORM** the following:
  - **REQUEST** Chemistry Department read chart once every day to determine pH.
  - Once every week, **REMOVE** chart and **SEND** copy to Environmental Services – Nuclear (Millstone).

#2 IF Unit 2 discharge pH monitoring instrumentation is inoperable (computer alarm), **PERFORM** the following:

- **REQUEST** Chemistry Department take grab samples to determine pH every 4 hours
- **SUBMIT** data to Environmental Services – Nuclear (Millstone).

**FOR TRAINING ONLY**

 CAUTION 

When *any* part of WQM System is out of service, parameters must be monitored closely to ensure *no* NPDES limits are exceeded.

10. **THERMAL LIMITS – ENVIRONMENTAL [CR #6462 & 7153] [♣Ref. 6.11 & 6.12]**

Reference Specification: NPDES 3A and 3J

RECORD specified parameters as indicated on PPC display “THCHLM”

OR

as described in “REMARKS.”

| Parameter                          | Acceptance Criteria | Shift | Results  | Remarks                                                                                                                  |
|------------------------------------|---------------------|-------|----------|--------------------------------------------------------------------------------------------------------------------------|
| Unit 2 Delta T                     | ≤ 32°F *            | 06-12 | 15.10 °F | PPC point, “CVCONDT”<br>(Refer To #3, #4, and #5)                                                                        |
|                                    |                     | 18-24 | °F       |                                                                                                                          |
| Station Delta T                    | ≤ 32°F **           | 06-12 | 17.54 °F | PPC point, “CVSTATDT” or<br>Unit 1 instrumentation<br>(Refer To #1, #2, and #5)                                          |
|                                    |                     | 18-24 | °F       |                                                                                                                          |
| Unit 2<br>Discharge<br>Temperature | ≤ 105°F             | 06-12 | 62.79 °F | PPC point, “T6691” OR average<br>condenser outlet temperatures,<br>(T6574, T6585) (T6600, T6617)<br>(Refer To #4 and #5) |
|                                    |                     | 18-24 | °F       |                                                                                                                          |
| Quarry Cut<br>Temperature          |                     | 06-12 | 65.20 °F | PPC point, “T6695” or<br>Unit 1 instrumentation<br>(Refer To #3 and #5)                                                  |
|                                    |                     | 18-24 | °F       |                                                                                                                          |

\* ≤ 44°F with reduced cooling water flow (< 4 circulating water pumps), for up to 24 hours.

\*\* ≤ 44°F for a period of 24 hours during unusual conditions.

(Continued)

FOR TRAINING ONLY

**Control Room Daily Surveillance, MODE 6 or Defueled**

**10. THERMAL LIMITS – ENVIRONMENTAL [CR #6462 & 7153] [Ref. 6.11 & 6.12] (Continued)**

- #1 **IF** Station  $\Delta T$  exceeds 32°F, immediately NOTIFY DEP and PERFORM the following:
  - Refer To EPIP 4400 and 4404, for reportability requirements.
  - NOTIFY Environmental Services – Nuclear (Millstone).
- #2 **IF** PPC point “CVSTATDT becomes inoperable, PERFORM *one* of the following:
  - a. ENSURE Unit 1 station  $\Delta T$  operable and RECORD once per shift.
  - b. PERFORM the following:
    1. ENSURE the following instrumentation is operable:
      - Intake temperature OR any operating condenser waterbox inlet temperature
      - Unit 2 OR Unit 1 Quarry Cut temperature indication
    2. RECORD station  $\Delta T$  once per shift.
    3. **IF** all Quarry Cut temperature instrumentation is inoperable, Refer To #5 for alternate sampling requirements.
    4. SUBMIT data to Environmental Services – Nuclear (Millstone).
- #3 **IF** Unit 2 Quarry Cut temperature is inoperable, PERFORM the following:
  - ENSURE operability of Unit 1 Quarry Cut temperature instrumentation and LOG data once per shift.
  - **IF** both are inoperable, REQUEST Chemistry Department take manual readings of Quarry Cut temperature on an hourly basis.
  - SUBMIT data to Environmental Services – Nuclear (Millstone).
- #4 **IF** Unit 2 discharge temperature instrumentation is inoperable, PERFORM the following:
  - REQUEST Chemistry Department take manual readings of Unit 2 discharge temperature on an hourly basis.
  - SUBMIT data to Environmental Services – Nuclear (Millstone).
- #5 OPS Form 2619A–5, “Environmental Data Sheet,” should be used for logging NPDES data. Thermal Specifications, Trend Group 38, may be used instead of manually logging the required NPDES data. ENSURE PPC is OPERABLE AND required data points are active. SUBMIT data to Environmental Services – Nuclear (Millstone).

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| Parameter                    | Acceptance Criteria          | Shift | Results  | Remarks                                                                                                                                                                                      |
|------------------------------|------------------------------|-------|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Unit 2 Sea Water Temperature | $\leq 73.75^\circ\text{F}^*$ | 06–12 | 47.67 °F | IF PPC point “T6690” is <i>not</i> available, OBTAIN temperature from Unit 1 once per shift <u>OR</u> at intake structure via alternate temperature monitoring at least once every 24 hours. |
|                              |                              | 18–24 | °F       |                                                                                                                                                                                              |

\* IF Unit 2 Sea Water Temperature is greater than 70°F, RECORD temperature every 4 hours and, though *not* required for MODE 6 or defueled, temperature should *not* exceed the T/S limit of 75°F less 1.25°F for remote instrument uncertainty, and as specified in T/S LCO, 3.7.11.

| Parameter | Time: _____ | | | | | |
|---|---|---|---|---|---|---|
| T6690     | °F          | °F          | °F          | °F          | °F          | °F          |

## Control Room Daily Surveillance, MODE 6: 1 Defueled

### 11. COOLANT LOOPS AND CIRCULATION

Reference Specification: 4.9.8.1 [♣Ref. 6.8] and 4.9.8.2

RECORD parameters and ENSURE SDC loops OPERABILITY and coolant circulation.

| Parameter                     | Acceptance Criteria *                                                                                                                                                                                                                                                                                       | Parameter                    | Results                                                                |                                                                        |                                                             |                                                             |
|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|------------------------------------------------------------------------|------------------------------------------------------------------------|-------------------------------------------------------------|-------------------------------------------------------------|
|                               |                                                                                                                                                                                                                                                                                                             |                              | 00-06                                                                  | 06-12                                                                  | 12-18                                                       | 18-24                                                       |
| SDC Flow and Loop Operability | At least one SDC loop in operation and a flow rate greater than or equal to 1,000 gpm and consistent with decay heat removal requirements (Refer To #1 and #5)<br><br>Two SDC loops OPERABLE with correct breaker alignment and indicated power available to the pumps and loop valves (Refer To #2 and #3) | Operating Loop(s)            | B                                                                      | B                                                                      |                                                             |                                                             |
|                               |                                                                                                                                                                                                                                                                                                             | Operating Pump(s)            | B                                                                      | B                                                                      |                                                             |                                                             |
|                               |                                                                                                                                                                                                                                                                                                             | SDC Flowrate                 | 3600 gpm                                                               | 3750 gpm                                                               |                                                             |                                                             |
|                               |                                                                                                                                                                                                                                                                                                             | 2 loops OPERABLE?            | <input type="checkbox"/> Yes<br><input checked="" type="checkbox"/> No | <input type="checkbox"/> Yes<br><input checked="" type="checkbox"/> No | <input type="checkbox"/> Yes<br><input type="checkbox"/> No | <input type="checkbox"/> Yes<br><input type="checkbox"/> No |
|                               |                                                                                                                                                                                                                                                                                                             | Level at or above flange? ** | <input checked="" type="checkbox"/> Yes<br><input type="checkbox"/> No | <input checked="" type="checkbox"/> Yes<br><input type="checkbox"/> No | <input type="checkbox"/> Yes<br><input type="checkbox"/> No | <input type="checkbox"/> Yes<br><input type="checkbox"/> No |
|                               |                                                                                                                                                                                                                                                                                                             | Pit seal installed?          | <input checked="" type="checkbox"/> Yes<br><input type="checkbox"/> No | <input checked="" type="checkbox"/> Yes<br><input type="checkbox"/> No | <input type="checkbox"/> Yes<br><input type="checkbox"/> No | <input type="checkbox"/> Yes<br><input type="checkbox"/> No |
|                               |                                                                                                                                                                                                                                                                                                             | Refuel Pool level ***        | 36' 4"                                                                 | 36' 5"                                                                 |                                                             |                                                             |
|                               |                                                                                                                                                                                                                                                                                                             | Refuel Pool contents         | 390,928 gal                                                            | 392,385 gal                                                            |                                                             |                                                             |
|                               |                                                                                                                                                                                                                                                                                                             | RWST contents (Refer To #4)  | 71,250 gal                                                             | 72,770 gal                                                             |                                                             |                                                             |
|                               |                                                                                                                                                                                                                                                                                                             | Total Gallons (RFP + RWST)   | 462,178 gal                                                            | 465,155 gal                                                            |                                                             |                                                             |

- #1 SDC may be stopped for up to 1 hour every 8 hour period during performance of CORE ALTERATIONS in the vicinity of reactor vessel hot legs.
- #2 The second SDC loop may be inoperable when reactor vessel water level is at or above the vessel flange; reactor vessel pit seal is installed, and greater than 370,000 gallons of water is available as a heat sink, as indicated by *either* of the following:
- Refuel pool level is greater than 23 feet above reactor vessel flange
  - The combined volume of the refuel pool and RWST exceeds 370,000 gallons and a flow path is available from the RWST to the refuel pool, by either a LPSI pump (not aligned to SDC) or a HPSI pump.
- #3 The normal or emergency power source may be inoperable for each SDC loop.
- #4 When RWST level is less than 6%, indication is *not* accurate.
- #5 With power unavailable to operating SDC loop valves, flow indication may be used for loop operability.
- \* Correct breaker alignments and power availability is verified using control board indications for loop in operation.
- \*\* Level at vessel flange is equivalent to an indicated level between 62 and 79.5 inches above the centerline of hot leg.
- \*\*\* 23 feet above reactor vessel flange equals 35'6" in refuel pool

|                                |                                |                                    |                    |
|--------------------------------|--------------------------------|------------------------------------|--------------------|
| North Saddle =<br>2,868 gal/ft | South Saddle =<br>3,740 gal/ft | Flange to 36'6" =<br>12,900 gal/ft | RWST = 4,750 gal/% |
|--------------------------------|--------------------------------|------------------------------------|--------------------|

**Control Room Daily Surveillance, MODE 6 (1 Defueled)**

**12. COOLANT LOOPS AND CIRCULATION (DILUTION)**

Reference Specification: 4.1.1.3b. [♣Ref. 6.8]

Prior to the start of dilution and at least once every hour while diluting (this includes anytime transfer tube isolation, 2-RW-280, is open), ENSURE RCS flow is greater than or equal to 1,000 gpm through the core via at least 1 LPSI pump on SDC.

| Time | Flow | Remarks | Time | Flow | Remarks |
|------|------|---------|------|------|---------|
|      |      |         |      |      |         |
|      |      |         |      |      |         |
|      |      |         |      |      |         |
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|      |      |         |      |      |         |

FOR TRAINING ONLY

**13. SFP TEMPERATURE [CR #0990-029-0]**

Reference Specification: TRM - Section 9.1.5

WHEN irradiated fuel is stored in SFP,

OBSERVE SFP temperature recorder, TR-7030 (C-07) and RECORD.

| Parameter       | Acceptance Criteria | Shift | Results | Remarks |
|-----------------|---------------------|-------|---------|---------|
| SFP Temperature | ≤ 140°F             | 00-06 | 78 °F   |         |
|                 |                     | 06-12 | 79 °F   |         |
|                 |                     | 12-18 | °F      |         |
|                 |                     | 18-24 | °F      |         |

**Control Room Daily Surveillance, MODE 6: 1 Defueled**

**14. GASEOUS RELEASE MONITORING**

Reference Specification: 4.3.3.10 (Table 4.3-13, Items 1a, 1d, & 1e)

OBSERVE indications and RECORD. Radiation monitors may be out of service for up to 12 hours for maintenance [UIR 3383].

| Parameter                                            | Acceptance Criteria     | Shift | Results    | Channel Check                       | Remarks                                              |
|------------------------------------------------------|-------------------------|-------|------------|-------------------------------------|------------------------------------------------------|
| Unit 2 Stack Particulate Radiation Monitor, RM-8132A | OPERABLE                | 06-12 | 127 cpm    | <input checked="" type="checkbox"/> | Refer To #1, #3, and #4                              |
|                                                      |                         | 18-24 | cpm        |                                     |                                                      |
| Unit 2 Stack Gaseous Radiation Monitor, RM-8132B     | OPERABLE                | 06-12 | 30 cpm     | <input checked="" type="checkbox"/> | Refer To #2, #3, and #4                              |
|                                                      |                         | 18-24 | cpm        |                                     |                                                      |
| Unit 2 Stack Flow Recorder, FR-8412                  | Energized and recording | 06-12 | 89.246 cfm | <input checked="" type="checkbox"/> | From recorder (C-06)<br>Refer To #3, #5, and #6      |
|                                                      |                         | 18-24 | cfm        |                                     |                                                      |
| Unit 2 Stack RM Flow Indicator, F-8132               | OPERABLE                | 06-12 | 3.2 cfm    | <input checked="" type="checkbox"/> | From Aux Bldg Rounds.<br>Refer To #3, #5, #6, and #7 |
|                                                      |                         | 18-24 | cfm        |                                     |                                                      |

- #1 IF inoperable, NOTIFY Chemistry Department via OPS Form 2619A-7 to initiate augmented sampling. RECORD required sample time and results. [♣Ref. 6.9 & 6.10]
- #2 IF inoperable, immediately REQUEST Chemistry Department via OPS Form 2619A-7, to obtain grab samples at frequency specified in applicable Chemistry procedure. RECORD required sample time and results. [♣Ref. 6.9 & 6.10]
- #3 IF inoperable > 30 days, SUBMIT CR to explain in the next semi-annual effluent report why it was *not* corrected in a timely manner. [♣Ref. 6.13]
- #4 IF inoperable, DIRECT Chemistry Department carry out ACTION 1 or 2 of TSAS, 3.3.3.10.
- #4 IF inoperable, RECORD special reports in Section 2 OPS Form SP 2619A-4, "Shift Turnover Report. [Ref. 6.5]
- #5 IF flow instrument is inoperable, ESTIMATE flow rate once every 4 hours.
- #6 IF inoperable, carry out ACTION 3 of TSAS, 3.3.3.10.
- #7 IF conditions which could affect radiation monitor flow have *not* changed, estimated flow is considered to be the same as the last valid reading.

| Augmented Sampling or Estimated Flows |           |         |      |           |         |
|---------------------------------------|-----------|---------|------|-----------|---------|
| Time                                  | Parameter | Results | Time | Parameter | Results |
|                                       |           |         |      |           |         |
|                                       |           |         |      |           |         |
|                                       |           |         |      |           |         |

**Control Room Daily Surveillance, MODE 6 : 1 Defueled**

**15. REFUELING COMMUNICATIONS**

Reference Specification: TRM – Section 9.3.5

During fuel or CEA movement within reactor vessel AND when fuel or CEA movement is taking place within the refueling pool, ENSURE direct communications between Control Room and personnel at refueling machine.

| Parameter             | Acceptance Criteria                                                                | Shift | Results                             | Remarks |
|-----------------------|------------------------------------------------------------------------------------|-------|-------------------------------------|---------|
| Refuel Communications | Communications established between Control Room and personnel at refueling machine | 00-06 | <input checked="" type="checkbox"/> |         |
|                       |                                                                                    | 06-12 | <input checked="" type="checkbox"/> |         |
|                       |                                                                                    | 12-18 | <input type="checkbox"/>            |         |
|                       |                                                                                    | 18-24 | <input type="checkbox"/>            |         |

**16. CHARGING PUMP OPERABILITY**

Reference Specification: 4.1.2.3.2, 4.4.9.3.2 and 4.4.9.3.4

ENSURE for charging pumps *not* intended to be capable of injecting 1 of the Acceptance Criteria list below is met.

| Parameter      | Acceptance Criteria                                                                                                                                                                                          | Shift | Results                             |                                                                  |                                                                        | Remarks |
|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------------------------------------|------------------------------------------------------------------|------------------------------------------------------------------------|---------|
|                |                                                                                                                                                                                                              |       | Bkr(s) open                         | No. of pumps capable of injecting                                | ≥ 2.2in <sup>2</sup> vent path exists                                  |         |
| Charging Pumps | For charging pump(s) <i>not</i> intended to be capable of injecting, one of the following exists:<br>1) Breaker(s) are open<br>2) Motor overload heater(s) are removed<br>3) Motor controller(s) are removed | 00-06 | <input checked="" type="checkbox"/> | <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 | YES <input checked="" type="checkbox"/><br>NO <input type="checkbox"/> |         |
|                |                                                                                                                                                                                                              | 06-12 | <input checked="" type="checkbox"/> | <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 | YES <input checked="" type="checkbox"/><br>NO <input type="checkbox"/> |         |
|                |                                                                                                                                                                                                              | 12-18 | <input type="checkbox"/>            | <input type="checkbox"/> 1 <input type="checkbox"/> 2            | YES <input type="checkbox"/><br>NO <input type="checkbox"/>            |         |
|                |                                                                                                                                                                                                              | 18-24 | <input type="checkbox"/>            | <input type="checkbox"/> 1 <input type="checkbox"/> 2            | YES <input type="checkbox"/><br>NO <input type="checkbox"/>            |         |

\* IF the RCS is vented through a passive vent ≥ 2.2 in<sup>2</sup>, one additional charging pump may be capable of injecting (maximum of two).

**17. RWST TEMPERATURE VERIFICATION**

Reference Specification: 4.1.2.7b

RECORD RWST temperature as indicated on TI-3005 (C-01).

| Parameter        | Acceptance Criteria | Shift | Results | Remarks |
|------------------|---------------------|-------|---------|---------|
| RWST Temperature | ≥ 35°F *            | 06-12 | 67 °F   |         |
|                  |                     | 18-24 | °F      |         |

\* WHEN ambient air temperature is less than 35°F and RWST is the source of borated water.

**Control Room Daily Surveillance, MODE 6 : 1 Defueled**

**18. HPSI PUMP/HEADER OPERABILITY**

Reference Specification: TS 3/4.4.9.3 and TRM – Section 8.0

(References are NA when Reactor Head removed)

ENSURE one of the following conditions established:

**Condition A** – all of the following:

- RCS is depressurized and vented
- RCS vent of  $\geq 2.2 \text{ in}^2$
- Maximum of *one* HPSI pump is capable of injecting into the RCS (Note 1.)
- Other HPSI pumps prevented from injecting into the RCS using any method #1 through #4 below (Note 2.)

**Condition B** – all of the following:

- Two OPERABLE PORVs with LTOP switches in “LOW”
- *All* HPSI pumps prevented from injecting into the RCS using any method #1 through #4 below (Note 2.)

**Condition C** – Reactor Vessel Head is removed

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| Parameter                 | Shift | Injection Prevention |               | HPSI Pumps Acceptance Criteria        |                                  |                                     | Remarks                  |                          |
|---------------------------|-------|----------------------|---------------|---------------------------------------|----------------------------------|-------------------------------------|--------------------------|--------------------------|
|                           |       | Pump                 | Circle Method | Established Condition                 | Maximum No. Capable of Injecting | SAT                                 |                          | UN-SAT                   |
| HPSI Injection Capability | 00-06 | A                    | 1 2 3 4       | A <input type="checkbox"/>            | 1                                | <input checked="" type="checkbox"/> | <input type="checkbox"/> |                          |
|                           |       | B                    | 1 2 3 4       | B <input type="checkbox"/>            | 0                                |                                     |                          |                          |
|                           |       | C                    | 1 2 3 4       | C <input checked="" type="checkbox"/> | N/A                              |                                     |                          |                          |
|                           | 06-12 | A                    | 1 2 3 4       | A <input type="checkbox"/>            | 1                                | <input checked="" type="checkbox"/> | <input type="checkbox"/> |                          |
|                           |       | B                    | 1 2 3 4       | B <input type="checkbox"/>            | 0                                |                                     |                          |                          |
|                           |       | C                    | 1 2 3 4       | C <input checked="" type="checkbox"/> | N/A                              |                                     |                          |                          |
|                           | 12-18 | 12-18                | A             | 1 2 3 4                               | A <input type="checkbox"/>       | 1                                   | <input type="checkbox"/> | <input type="checkbox"/> |
|                           |       |                      | B             | 1 2 3 4                               | B <input type="checkbox"/>       | 0                                   |                          |                          |
|                           |       | 18-24                | C             | 1 2 3 4                               | C <input type="checkbox"/>       | N/A                                 |                          |                          |
|                           |       |                      | A             | 1 2 3 4                               | A <input type="checkbox"/>       | 1                                   |                          |                          |
|                           |       | 18-24                | B             | 1 2 3 4                               | B <input type="checkbox"/>       | 0                                   |                          |                          |
|                           |       |                      | C             | 1 2 3 4                               | C <input type="checkbox"/>       | N/A                                 |                          |                          |

Methods of preventing HPSI pump injection capability:

- #1 HPSI pump in Pull-To-Lock AND HPSI header stop is closed (2-SI-656 or 2-SI-654)(C-01) (Note 2.)
- #2 HPSI pump in Pull-To-Lock (C-01) AND control power fuses pulled (local)
- #3 HPSI pump circuit breaker has been racked down (local)
- #4 Facility's HPSI header stop is closed and tagged (2-SI-656 or 2-SI-654) (C-01)

Note 1. HPSI pump capable of injecting should be in Pull-To-Lock when not in operation.

Note 2. Method #1 preferred alignment for HPSI pump available for shutdown risk inventory control.

**Control Room Daily Surveillance, MODE 6 : 1 Defueled**

**19. SOURCE RANGE NEUTRON FLUX MONITORING**

Reference Specification: 4.9.2c.

RECORD data and PERFORM CHANNEL CHECK on RPS instrumentation listed below (RPS panels).

| Parameter                          | Acceptance Criteria                                                  | Shift | Results (Channel) |     |     |     |                                     | Remarks                    |
|------------------------------------|----------------------------------------------------------------------|-------|-------------------|-----|-----|-----|-------------------------------------|----------------------------|
|                                    |                                                                      |       | "A"               | "B" | "C" | "D" | Audible in Ctmt                     |                            |
| Source Range Neutron Flux Monitors | A minimum of 2 channels are OPERABLE with one audible in Containment | 00-06 | 4                 | 6   | 5   | 5   | <input checked="" type="checkbox"/> | Refer To #1, #2, #3 and #4 |
|                                    |                                                                      | 06-12 | 8                 | 7   | 7   | 7   | <input checked="" type="checkbox"/> |                            |
|                                    |                                                                      | 12-18 |                   |     |     |     | <input type="checkbox"/>            |                            |
|                                    |                                                                      | 18-24 |                   |     |     |     | <input type="checkbox"/>            |                            |

- #1 IF wide range instrument count rate for *any* channel lowers to less than 0.5 cps, to allow the other fission chamber to input the circuit, the "EXTENDED RANGE OFF" button must be pressed.
- #2 IF count rate lowers to less than 0.5 cps with *both* fission chambers energized, I&C Department must be notified.
- #3 IF, at *any* time, less than 2 channels are OPERABLE, Refer To T/S LCO, 3.9.2 and DETERMINE applicability.
- #4 CHECK audible count rate in Containment during core alterations.

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**Control Room Daily Surveillance, MODE 6: 1 Defueled**

**20. CONTROL ROOM TEMPERATURE VERIFICATION**

Reference Specification: 4.7.6.1a

RECORD Control Room temperature as indicated on TI-8020.

| Parameter                    | Acceptance Criteria | Shift | Results | Remarks |
|------------------------------|---------------------|-------|---------|---------|
| Control Room Air Temperature | ≤ 100°F *           | 00-06 | 68 °F   |         |
|                              |                     | 06-12 | 68 °F   |         |
|                              |                     | 12-18 | °F      |         |
|                              |                     | 18-24 | °F      |         |

\* IF Control Room air temperature rises above 90°F, Refer To OP 2315A, "Control Room Air Conditioning," for required actions.

**21. CHANNEL CHECK OF RADIATION MONITORING SYSTEM**

Reference Specification: 4.3.3.1:1 (Table 4.3-3)

RECORD data and PERFORM CHANNEL CHECK on Control Room radiation monitoring instrumentation (C-101).

| Parameter                       | Acceptance Criteria | Shift | Results   |           | Channel Check                       | Remarks |
|---------------------------------|---------------------|-------|-----------|-----------|-------------------------------------|---------|
|                                 |                     |       | RIT 9799A | RIT 9799B |                                     |         |
| Control Room Radiation Monitors | OPERABLE *          | 00-06 | 0.2 mR/hr | 0.1 mR/hr | <input checked="" type="checkbox"/> |         |
|                                 |                     | 06-12 | 0.1 mR/hr | 0.1 mR/hr | <input checked="" type="checkbox"/> |         |
|                                 |                     | 12-18 | mR/hr     | mR/hr     | <input type="checkbox"/>            |         |
|                                 |                     | 18-24 | mR/hr     | mR/hr     | <input type="checkbox"/>            |         |

\* IF inoperable, Refer To Technical Specifications LCO, 3.3.3.1.

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**Control Room Daily Surveillance, MODE 6 : 1 Defueled**

**22. CHANNEL CHECK OF RADIATION MONITORING SYSTEM**

Reference Specification: 4.3.3.1.1 (Table 4.3-3) and 4.3.4.1

RECORD data and PERFORM CHANNEL CHECK on all radiation monitoring instrumentation listed below.

| Parameter                                             | Mode                                | Acceptance Criteria                 | Item                     | Results                             |                                     |                          |                          | Remarks                 |
|-------------------------------------------------------|-------------------------------------|-------------------------------------|--------------------------|-------------------------------------|-------------------------------------|--------------------------|--------------------------|-------------------------|
|                                                       |                                     |                                     |                          | 00-06                               | 06-12                               | 12-18                    | 18-24                    |                         |
| SFP Area Radiation Monitors                           | With fuel in storage building       | At least two OPERABLE               | RIT 8139                 | 1.0 mR/hr                           | 1.0 mR/hr                           | mR/hr                    | mR/hr                    | Refer To #1             |
|                                                       |                                     |                                     | RIT 8142                 | 0.4 mR/hr                           | 0.4 mR/hr                           | mR/hr                    | mR/hr                    |                         |
|                                                       |                                     |                                     | RIT 8156                 | 1.1 mR/hr                           | 1.1 mR/hr                           | mR/hr                    | mR/hr                    |                         |
|                                                       |                                     |                                     | RIT 8157                 | 2 mR/hr                             | 1.9 mR/hr                           | mR/hr                    | mR/hr                    |                         |
|                                                       |                                     |                                     | Channel Check            | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |                         |
| Containment Atmosphere Particulate Radiation Monitors | 6                                   | OPERABLE                            | RM 8123A                 | 900 cpm                             | 1K cpm                              | cpm                      | cpm                      | Refer To #2, #3, and #4 |
|                                                       |                                     |                                     | RM 8262A                 | 900 cpm                             | * cpm                               | cpm                      | cpm                      |                         |
| Containment Atmosphere Gaseous Radiation Monitors     |                                     |                                     | RM 8123B                 | 600 cpm                             | 700 cpm                             | cpm                      | cpm                      |                         |
| RM 8262B                                              |                                     |                                     | 2000 cpm                 | * cpm                               | cpm                                 | cpm                      |                          |                         |
| Channel Check                                         | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |                                     |                          |                          |                         |

- #1 IF any are inoperable, Refer To Technical Specifications LCO, 3.3.3.1, Table 3.3-6, ACTION 13. IF required, NOTIFY H.P. via OPS Form 2619A-7 to commence area surveys once every 24 hours. RECORD time and results of survey.
- #2 RECORD values on meters and ENSURE respective sample fan operating.
- #3 IF both radiation monitors (RM-8123 and RM-8262), are inoperable, Refer To Technical Specifications LCO, 3.3.3.1 and PERFORM one of the following:
- NOTIFY Chemistry Department, via OPS Form 2619A-7, to outboard and analyze grab samples. RECORD time and results. [\* Ref. 6.9 & 6.10]
  - IF a portable Continuous Air Monitor (CAM) is operating properly, PLACE check mark in results column.
- #4 With less than the required OPERABLE monitors, Refer To Technical Specifications LCO 3.3.4. Refer To OPS Form 2614B-1 or 2614B-2 as applicable.

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| Augmented Sampling |           |         |      |           |         |
|--------------------|-----------|---------|------|-----------|---------|
| Time               | Parameter | Results | Time | Parameter | Results |
|                    |           |         |      |           |         |
|                    |           |         |      |           |         |
|                    |           |         |      |           |         |

\* RM-8262 OOS FOR ISEL

**Control Room Daily Surveillance, MODE 6, 1 Defueled**

**23. ESF ACTUATION CABINET POWER SUPPLIES**

Reference Specification: N/A

Visually ENSURE control power is available to ESF actuation cabinet(s).

| Parameter              | Acceptance Criteria                                                          | Shift | Results                             |                                     | Remarks                              |
|------------------------|------------------------------------------------------------------------------|-------|-------------------------------------|-------------------------------------|--------------------------------------|
|                        |                                                                              |       | Cab 5                               | Cab 6                               |                                      |
| ESF actuation cabinets | Each cabinet's white "BREAKER INPUTS CONTROL POWER AVAILABLE" light is lit * | 06-12 | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | Only 1 DG is required to be OPERABLE |
|                        |                                                                              | 18-24 | <input type="checkbox"/>            | <input type="checkbox"/>            |                                      |

\* IF light is *not* lit, REPLACE bulb. IF bulb is *not* burnt out, PERFORM the following:  
 • Refer To Technical Specifications LCO 3.8.1.2 and DETERMINE applicability  
 • As necessary, SUBMIT Priority 2 Trouble Report to I&C Department

**24. CONTROL ROOM FLAMMABLE MATERIAL CHECK**

Reference Specification: NE-86-L-445, April 24, 1986

ENSURE Control Room free of flammable liquids and materials.

| Parameter                             | Acceptance Criteria                                                                                              | Shift | Results                             | Remarks |
|---------------------------------------|------------------------------------------------------------------------------------------------------------------|-------|-------------------------------------|---------|
| Control Room Flammable Material Check | Free of flammable liquids and materials, other than that which would be found in normal designated receptacles * | 06-12 | <input checked="" type="checkbox"/> |         |
|                                       |                                                                                                                  | 18-24 | <input type="checkbox"/>            |         |

\* IF found, promptly REMOVE *any* extraneous flammable liquids or material.

**FOR TRAINING ONLY**

**Control Room Daily Surveillance, MODE 6 - 1 Defueled**

**25. POWER AVAILABILITY CHECK OF CONTAINMENT PURGE VALVE ISOLATION**

Reference Specification: 4.9.4.2 for Containment Purge Valves

OBSERVE parameters and ENSURE Facility 1, Facility 2, or both are OPERABLE.

IF neither facility is OPERABLE, Refer To Technical Specifications LCOs 3.3.4 and 3.9.4 and DETERMINE required actions.

| Parameter                                                                                                 | Acceptance Criteria                                  | Results                             |                                     |                          |                          | Remarks     |
|-----------------------------------------------------------------------------------------------------------|------------------------------------------------------|-------------------------------------|-------------------------------------|--------------------------|--------------------------|-------------|
|                                                                                                           |                                                      | 00-06                               | 06-12                               | 12-18                    | 18-24                    |             |
| <i>Facility 1</i>                                                                                         |                                                      |                                     |                                     |                          |                          |             |
| Bus 24C, bus 22E, VA-10, VA-30, 201A battery and bus and associated charger                               | All Facility 1 electrical power systems are OPERABLE | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |             |
| Containment Purge Valves                                                                                  | 2-AC-4 is energized                                  | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |             |
|                                                                                                           | 2-AC-7 is energized                                  | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |             |
| Actuation Cabinet 5 AM 501 "1/5" and "TRIP" lights                                                        | OPERABLE (blinks momentarily when pulsed by ATI)     | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Refer To #1 |
| <i>Facility 2</i>                                                                                         |                                                      |                                     |                                     |                          |                          |             |
| Bus 24D, bus 22F, VA-20, VA-40, 201B battery and bus and associated charger                               | All Facility 2 electrical power systems are OPERABLE | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |             |
| Containment Purge Valves                                                                                  | 2-AC-5 is energized                                  | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |             |
|                                                                                                           | 2-AC-6 is energized                                  | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |             |
| Actuation Cabinet 6 AM 601 "1/5" and "TRIP" lights                                                        | OPERABLE (blinks momentarily when pulsed by ATI)     | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Refer To #1 |
| #1 IF ATI is not energized, ENSURE SP 2404AK, has been satisfactorily performed at the required interval. |                                                      |                                     |                                     |                          |                          |             |

**26. ATI OPERABILITY VERIFICATION**

Reference Specification: 4.3.3.1.1 (Table 4.3-3, item 1a) and 4.3.4.3.

As necessary, Refer To SP 2604I, "ESAS Automatic Logic Check Using ATI" and PERFORM ATI OPERABILITY verification.

| Parameter | Acceptance Criteria      | Shift | Results                             | Remarks |
|-----------|--------------------------|-------|-------------------------------------|---------|
| ATI       | As specified in SP 2604I | 00-06 | <input checked="" type="checkbox"/> |         |

**Control Room Daily Surveillance, MODE 6 : 1 Defueled**

**27. CONTROL ROOM ALARMS**

Reference Specification: N/A

ENSURE individual alarms are OPERABLE on Control Room panels.

| Parameter                             | Acceptance Criteria | Shift | Results                             | Remarks |
|---------------------------------------|---------------------|-------|-------------------------------------|---------|
| Individual Control Room Alarm Modules | OPERABLE *          | 06-12 | <input checked="" type="checkbox"/> |         |
|                                       |                     | 18-24 | <input type="checkbox"/>            |         |

\* IF individual alarm on control room panels is inoperable, INVESTIGATE and INITIATE Trouble Report.

**28. SFP LEVEL**

Reference Specification: N/A

WHEN SDC suction is aligned to SFP,

RECORD SFP level and

ENSURE within specified range.

FOR TRAINING ONLY

| Parameter | Acceptance Criteria | Shift | Results                             | Remarks |
|-----------|---------------------|-------|-------------------------------------|---------|
| SFP level | 36'8" to 37'        | 06-12 | <input checked="" type="checkbox"/> |         |
|           |                     | 18-24 | <input type="checkbox"/>            |         |

**29. BORIC ACID INJECTION SYSTEM AMBIENT TEMPERATURE**

Reference Specification: 4.1.2.1c and 4.1.2.7c

ENSURE OPERABILITY of Boric Acid Injection System.

| Parameter                               | Acceptance Criteria | Shift | Results       |                  | Remarks |
|-----------------------------------------|---------------------|-------|---------------|------------------|---------|
|                                         |                     |       | T-8130A (-5') | T-8130B (-25'6") |         |
| Auxiliary Building Ambient Temperatures | > 55°F *            | 06-12 | 72 °F         | 68 °F            |         |
|                                         |                     | 18-24 | °F            | °F               |         |

\* IF any ambient temperature reaches 65°F, Refer To OP 2314C, "Radwaste Ventilation System," and PERFORM applicable actions to shutdown Radwaste Ventilation System.



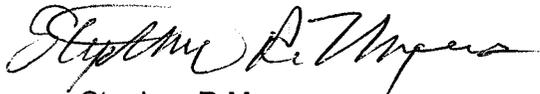
# JOB PERFORMANCE MEASURE APPROVAL SHEET

I. JPM Title: Compensatory Cooling requirements

ID Number: JPM-A21

Revision: 0

II. Initiated:

  
\_\_\_\_\_  
Stephen R Myers  
Developer

10/4/00  
Date

III. Reviewed:

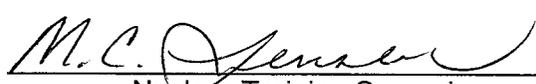
  
\_\_\_\_\_  
Technical Reviewer

1/23/01  
Date

IV. Approved:

  
\_\_\_\_\_  
User Department Supervisor

1/24/01  
Date

  
\_\_\_\_\_  
Nuclear Training Supervisor

01/24/01  
Date



## JOB PERFORMANCE MEASURE WORKSHEET

JPM Number:           JPM-A21          

Rev.           0          

Initiating Cues:

- You are the Unit Supervisor and have just assumed the watch on a dayshift.
- The plant is operating at 100% with no major components out of service.

Initial Conditions:

- The "C" SW pump strainer developed a leak and the "B" SW pump is placed in service while the leak repair is undertaken.
- Workweek Manager has a team working on the repair and expects it to take about 8 hrs.
- Review the paperwork and make recommendations.

Simulator Requirements:     N/A

---

\* \* \* \* **NOTES TO EXAMINER** \* \* \* \*

1. Critical steps for this JPM are indicated with an "X". For the examinee to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.
2. When examinee states what his/her simulated action/observation would be, read the appropriate "Cue".
3. If necessary, question examinee for details of simulated actions / observations (i.e. "What are you looking at?" or "What are you observing?").
4. Under **NO** circumstances must the examinee be allowed to manipulate any devices during the performance of this JPM (in-plant only).

**PERFORMANCE INFORMATION**

JPM ID NUMBER: JPM- A21 TITLE: Compensatory Cooling Requirements

---

START TIME: 

STEP 1     \_\_\_ Performance Steps: Examinee should refer to the Shift Turnover Report to look for Service Water system alignment and 4160v electrical alignment prior to the pump shift.

GRADE \_\_\_     \_\_\_ Standards:     *Shift Turnover Report MP-14-OPS-GDL02*

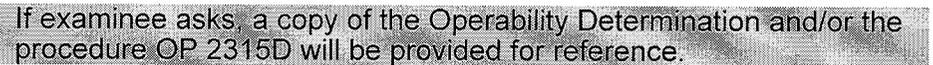
Cue: 

Comments:

~~~~~

STEP 2 X Performance Steps: Examinee refers to the sections for 4160v/SW/RBCCW in the Turnover Report to determine that Compensatory cooling measures must be taken. Could also realize that the requirement exists, and refer directly to the appropriate procedure.

GRADE ___ X Standards: *Shift Turnover Report, and OP 2315D. The expressed need to take "compensatory cooling measures" is the only critical part of this step.*

Cue: 

Comments:

~~~~~

STEP 3     \_\_\_ Performance Steps: Examinee refers to OP 2315D for the appropriate step and should direct compensatory measures be started.

GRADE \_\_\_     \_\_\_ Standards:     *OP 2315D step 4.11, discussion on initial actions of monitoring room temperatures and securing some lighting circuits is considered adequate.*

**PERFORMANCE INFORMATION**

JPM ID NUMBER: JPM- A21      TITLE: Compensatory Cooling Requirements

---

Cue: 

Comments:

Comments: **After this step is completed, the JPM is considered complete.**

**STOP TIME:** 

**VERIFICATION OF JPM COMPLETION**

Job Performance Measure No. JPM-A21

Rev. 0

Date Performed: \_\_\_\_\_

Operator: \_\_\_\_\_

Evaluator(s): \_\_\_\_\_

For examinee to achieve a satisfactory grade, **ALL** critical steps must be completed correctly. If task is Time Critical, it **MUST** be completed within the specified time to achieve a satisfactory grade.

Time Critical Task? Yes \_\_\_\_\_ No X

Validated Time (minutes): \_\_\_\_\_

Actual Time to Complete (minutes): \_\_\_\_\_

Result of JPM: \_\_\_\_\_ (Denote by an S for satisfactory or a U for unsatisfactory)

Areas for Improvement:

## EXAMINEE HANDOUT

JPM-A21

### Initiating Cues:

- You are the Unit Supervisor and have just assumed the watch on a dayshift.
- The plant is operating at 100% with no major components out of service.

### Initial Conditions:

- The "C" SW pump strainer developed a leak and the "B" SW pump is placed in service while the leak repair is undertaken.
- Workweek Manager has a team working on the repair and expects it to take about 8 hrs.
- Review the paperwork and make recommendations.

# SHIFT TURNOVER REPORT

FOR TRAINING ONLY

|                                    |                                        |                           |
|------------------------------------|----------------------------------------|---------------------------|
| <b>DATE-TIME</b><br>11/07/00 18:00 | <b>PREPARED BY</b><br>Doboe/ "D" Shift | <b>SHIFT</b><br>0700-1900 |
|------------------------------------|----------------------------------------|---------------------------|

|                      |                                                                           |                                 |                                                        |
|----------------------|---------------------------------------------------------------------------|---------------------------------|--------------------------------------------------------|
| <b>PLANT STATUS:</b> |                                                                           |                                 |                                                        |
| <b>MODE:</b>         | 1                                                                         | <b>RX POWER:</b>                | 100%                                                   |
| <b>MEGAWATTS:</b>    | Thermal: 2691 MWTH<br>Electric: 905 MWe                                   | <b>PZR PRESS:</b>               | 2251 psia                                              |
| <b>RCS LEAKAGE:</b>  | Identified: 0.017 gpm<br>Unidentified: .009 gpm<br>Date/Time: 11/07 00:05 | <b>RCS T-AVE:</b>               | 572 degrees F                                          |
| <b>BLEND RATIO:</b>  | BAST 4.2 :1                                                               | <b>S/G BLOWDOWN:</b>            | # 0 gpm 0 turns small vlv<br># 0 gpm 0 turns small vlv |
| <b>XENON TREND:</b>  | Stable                                                                    | <b>RCS BORON CONCENTRATION:</b> | 1084 ppm                                               |
| <b>ASI TREND:</b>    | -.0136 Stable                                                             | <b>UNIT 1/2 SA CROSS TIE:</b>   | Split                                                  |
| <b>ESI Value:</b>    | -.0100 (new as of 11/2)                                                   | <b>HOUSE HEATING:</b>           | Unit 3                                                 |
|                      |                                                                           | <b>WATER TREATMENT VENDOR:</b>  | CST@ 0gpm                                              |

**TS LCO and TRM ACTION Statements Coming Due (if more than one ACTION requirement per LCO, list each separately) [♣ Letter B15529, reply to NOV 50-245/50-336/50-423-95-38 dated 2/15/96]**

| Date     | Time | LCO      | Action | Action Requirement                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Equipment    | Reason                                         |
|----------|------|----------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|------------------------------------------------|
| 11/29/00 | 0314 | 3.3.3.10 | b      | With the number of channels less than the minimum requirements, take the action in table 3.3-13. Exert best efforts to restore the inoperable channel to operable status within 30 days and, if unsuccessful, explain in the next Annual Effluent report why the inoperability was not corrected in a timely manner. Releases need not be terminated after 30 days provided the specified actions are continued.                                                          | RM-8132      | Removed from service for O-ring leakage test.  |
| 12/04/00 | 1330 | 3.3.3.9b | 3      | Effluent releases via this Pathway may continue provided that best efforts are made to repair the instrument and that once per 12 hours grab samples of the service water effluent are collected and analyzed for gross radioactivity (beta or gamma) at a lower limit of detection of a least 3xE-7 micro Ci/ml. Exert best efforts to restore the inoperable channel to operable status within 30 days and, if unsuccessful, explain in the next Annual Effluent report | RM-6038      | In alarm defeat. Reading greater than 2000 cpm |
| 11/18/00 | 2052 | A.3.1    | a & b  | Monitor Cmtt temp hourly at the locations listed in T.S. 4.6.1.5 (CVCONTM). Restore to OPERABLE status within 14 days or develop a plan and schedule for restoring this equipment to an OPERABLE status.                                                                                                                                                                                                                                                                  | FLP-3 Zone 3 | In cutout of nuisance alarms                   |

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|          |      |                  |     |                                                                                                                                                                                                                                                                                                        |                           |                                                                                 |
|----------|------|------------------|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|---------------------------------------------------------------------------------|
| 12/5/00  | 2137 | 3.3.3.9b         | 2   | Exert best efforts to restore Rad monitor to OPERABLE within 30 days or explain in next annual effluent report. Either isolate S/G blowdown or sample S/G's every 12 hours for activity.                                                                                                               | RM-4262                   | Troubleshooting cause of RCS to RBCCW leak. (sample cooler isolated to RM-4262) |
| 12/6/00  | 0506 | TRM section 11   | 3.a | With the West 480 VAC Switchgear Room ventilation inoperable immediately implement the applicable compensatory actions in accordance with OP 2315D (which has been done). Restore the West 480 Switchgear Room ventilation within 30 days, or enter the applicable TSAS for the associated switchgear. | X-181                     | Relief valve pm's.                                                              |
| 11/13/00 | 0518 | TRM B.3.1.a      | a   | Restore to an Operable status within 7 days or, develop a plan and schedule for the delivery of Fire Water.                                                                                                                                                                                            | Unit 2 electric fire pump | numerous maintenance items and PM's.                                            |
| 11/13/00 | 0938 | TRM 3.0 item 56A | 2   | Restore operability of affected components within 7 days o establish a one-hour roving fire watch for Fire Areas R-2 and R-10                                                                                                                                                                          | Channel C Wide Range NI   | SP 2401BC3                                                                      |

## FOR TRAINING ONLY

| Continuous TS LCO and TRM ACTION Statements in effect (if more than one ACTION requirement per LCO, list each separately)                                                         |                      |        |           |                                                                                                                           |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|--------|-----------|---------------------------------------------------------------------------------------------------------------------------|
| Action Requirement                                                                                                                                                                | LCO                  | Action | Equipment | Reason                                                                                                                    |
| Infinite action: Establish an hourly fire watch.                                                                                                                                  | TRM Section 1 F.3.1. | a.1    | See AIL   | See the Active Impairment List (AIL)                                                                                      |
| Infinite action: maintain the inop vent path closed w/ power removed from valve actuators for all valves in the inop path. 1 PORV w/ its associated block valve must be operable. | 3.4.11 b             | a      | 2-RC-440  | The pressurizer steam space vent path is isolated (RC-440 closed) due to leakage past the solenoid valves.(06/01/00 1442) |
| No action required with only 2-SW-9A inoperable. If 2-SW-9B or 2-SW-9C become inoperable when 2-SW-9A is inoperable then action is required.                                      | 3.0 item 16A         |        | 2-SW-9A   | 2-SW-9A tagged for hydrolaze of A RBCCW HX M2-00-0011                                                                     |

| SPECIAL REPORTS TRACKING                                                                                                                   | Start Date      |
|--------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| <b>* Items in BOLD are required by Tech Specs ** Items in italics are required by TRM</b>                                                  | ***             |
| If RM 8132 not restored within 30 days, explain in next Annual Effluent report why the inoperability was not corrected in a timely manner. | <b>11/29/00</b> |
| If RM 6038 not restored within 30 days, explain in next Annual Effluent report why the inoperability was not corrected in a timely manner. | <b>12/04/00</b> |
| Restore Rad monitor RM-4262 to OPERABLE within 30 days or explain in next annual effluent report.                                          | <b>12/5/00</b>  |

| COMPENSATORY ACTIONS / SPECIAL LOGS (2-OPS-6.23)                                          | Start Date |
|-------------------------------------------------------------------------------------------|------------|
| <b>* Items in BOLD are required by Tech Specs ** Items in italics are required by TRM</b> | ***        |
| Adjust manual voltage regulator to match with auto. (In compensatory action log) (CO)     | 9/22       |

|                                                                                                                        |       |
|------------------------------------------------------------------------------------------------------------------------|-------|
| Sample Unit 2 stack for noble gas, Iodine, and particulates per TS 3.3.3.10 b, table 3.3-13 act 1 and 2<br>(Chemistry) | 10/30 |
| Sample Service Water effluent for gross activity every 12 hours per TS 3.3.3.9b act 3<br>(Chemistry)                   | 11/04 |
| Monitor CTMT temperature hourly with FLP 3, Zone 3 in cutout<br>(PPO)                                                  | 11/04 |
| Monitor West 480V swgr room temperatures every 6 hours.<br>(PEO)                                                       | 11/6  |

| FIRE WATCH AND PENETRATION LOG, OPS FORM 2619A-6 ATTACHED                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|
| <b>PLANT SYSTEMS AND ALTERNATE PLANT CONFIGURATIONS: [* RCR No. 16262]</b>                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                     |
| LIST the following information: (Provide procedure references as applicable.)                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                     |
| <ul style="list-style-type: none"> <li>• Systems, components out of service.</li> <li>• Deviations from required system alignments.</li> <li>• The need for valve lineups or other restoration activities.</li> <li>• Temporary Mod installation and removals</li> <li>* Compensatory measures</li> </ul> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                     |
| HPSI                                                                                                                                                                                                                                                                                                      | 1) If 24E is on 24D, and P41B is being credited as the OPERABLE Z-2 pump, or is operating, <b>immediately</b> reduce heat loads IAW 2315D (OD MP2-023-00).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                     |
| LPSI                                                                                                                                                                                                                                                                                                      | None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                     |
| Ctmt Spray                                                                                                                                                                                                                                                                                                | 1) P43B mechanical seal leakage 0.3 drops/min (13 ml/hr) 10/5/00 TR# 06M2151514                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                     |
| RWST                                                                                                                                                                                                                                                                                                      | RWST on purification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                     |
| SIT's                                                                                                                                                                                                                                                                                                     | None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                     |
| CAR's                                                                                                                                                                                                                                                                                                     | None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                     |
| EBFS                                                                                                                                                                                                                                                                                                      | None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                     |
| H <sub>2</sub> Analyzers                                                                                                                                                                                                                                                                                  | None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                     |
| CVCS                                                                                                                                                                                                                                                                                                      | 1) C-Demin is depleted.<br>2) <b>Alternate Plant Configuration</b> , 2-GR-74 leaks when sampling VCT (or WGDts). Coordinate sampling so as to allow CH-715 to be open for the minimum time possible, alternate plant configuration. M2-00-13780.<br>3) LRR-267 leaking past seat causing rising degassifier level. Tr'd 10M2062411.<br>4) CH-500, Letdown Divert valve not working in "auto" (9/25/00, TR# 17M2094611)                                                                                                                                                                                                                                       |                                                                     |
| Charging                                                                                                                                                                                                                                                                                                  | 1) RM-4262 has spiked high during operation of 2-CH-504 and "A" Chg pp start, but does not happen every time.<br>2) When testing charging per 2601G and H limit starting of only one charging pump to prevent opening the relief. Procedure change has been submitted.<br>3) "A" Charging pump secured due to banging noise similar to that which it was making prior to partial rebuild (CR# M2-002967), (TR#28M235713). RECO accepted by Shift Manager. Pump hot torqued and CBM investigating.<br>4) Restored "B" Charging Pump to service (Timer Relay Bad will replace after "A" pump testing and review.<br>5) Packing leak "B" Chg pp. TR# 07M2023534 |                                                                     |
| Boric Acid                                                                                                                                                                                                                                                                                                | 1) <b>Alternate Plant Configuration:</b> CH-972, PMW flush to the BAST sample sink is OPEN CR M2-00-2334                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                     |
| RCS                                                                                                                                                                                                                                                                                                       | 1) <b>Alternate Plant Configuration:</b> Maintain RCP B/O controller in manual. With controller in auto, bleedoff valve opens. CR M2-00-2335.<br>2) Primary Sample cooler isolated for leak investigation. Daily RCS sample due by 11/08/00.                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                     |
| PORV's                                                                                                                                                                                                                                                                                                    | None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                     |
| Aux Feed                                                                                                                                                                                                                                                                                                  | 1) Water is leaking from 2-FIRE-405 (Fire Water to Aux Feed Pump suction spool piece vent) following repair to 2-FIRE-34. CR#M2-00-2958.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                     |
| CST                                                                                                                                                                                                                                                                                                       | None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                     |
| Service Water                                                                                                                                                                                                                                                                                             | 1) SW-5B, B-TBCCW Hx inlet Tr'd for leaking past seat. (M2-00-12003, WW 0049).<br>2) If 24E is on 24D, and P5B is being credited as the OPERABLE Z-2 pump, or is operating, <b>immediately</b> reduce heat loads IAW 2315D (OD MP2-023-00).<br>3) P040 (cathodic protection) tagged for RBCCW Hx due to fire.                                                                                                                                                                                                                                                                                                                                                |                                                                     |

**FOR TRAINING ONLY**

|                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| RBCCW              | <ol style="list-style-type: none"> <li>1) If 24E is on 24D, and P41B is being credited as the OPERABLE Z-2 pump, or is operating, <b>immediately</b> reduce heat loads IAW 2315D (OD MP2-023-00).</li> <li>2) When transferring 24E enter TRM for B RBCCW Pp while 24E deenergized.</li> <li>3) If closing RBCCW isolations valve to a HX review OP2330A.</li> <li>4) RCS to RBCCW leak. Investigating source. <b>(CR M2-00-3051) AWO #M2-00-18624</b></li> <li>5) A, B, &amp; C RBCCW pp minimum flow isolated for RCS to RBCCW leak investigation. Section # 2C14-2330A99-0003</li> <li>6) 2-RB-56B &amp; 56C left open for increased sampling of RBCCW headers.</li> <li>7) 'A' RBCCW HX isolated for hydrolazing.</li> </ol> |
| 4.16 KV            | <ol style="list-style-type: none"> <li>1) If 24E is on 24D, and P5B, P11B or P41B are being credited as OPERABLE Z-2 pumps or are operating, <b>immediately</b> reduce heat loads IAW 2315D (OD MP2-023-00).</li> <li>2) When shifting 24E enter TRM for B RBCCW Pp while 24E deenergized.</li> <li>3) When shifting 24E, OP2343 does not address 2-RB-251A or 2-RB-251B positions. Care must be taken not to cross-tie the headers through the pump. CR # M2-00-2903.</li> </ol>                                                                                                                                                                                                                                                |
| 480 VAC            | 1) West 480v swgr cooling (X-181) tagged for relief valve pm's.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 125 VDC            | None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| EDG                | <ol style="list-style-type: none"> <li>1) IF compensatory cooling used for Diesels (due to F38A/B oos) they are Inoperable.</li> <li>2) A EDG vent solenoid, 2-DG-27A, failed its surveillance. Replacing solenoid (M2-00-00427, SSD is 1/3/01). 2-DG-88A is closed and caution tagged per SP2624A.</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Switch Yard        | 1) Spare main xfmr being moved off pad to new resting area until next June when it will be sent to Pilgrim station.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| RPS                | 1) RPS linear range NI deviation setpoints Inop (CR# M2-00-02384), 2619A-1 has us taking Azimuthal power tilt every 6 hours. Week 14 with linear drawer replacement                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| ICC                | <ol style="list-style-type: none"> <li>1) The following are bypassed per OP2387G. Paperwork in front of TM book: <ol style="list-style-type: none"> <li>a) Z1 ICCMS - CETs Y14, F19, S-20</li> <li>b) Z2 ICCMS - CET X-11.</li> <li>c) UHJTC-3B</li> <li>d) UHJTC-7A</li> <li>e) HJTC-6B</li> </ol> </li> <li>2) When bypassing alarms if ICC channel inop is received, call I&amp;C.</li> <li>3) Facility 2 software problem causing trouble alarm to be locked in. I&amp;C investigating.</li> </ol>                                                                                                                                                                                                                           |
| CEDS               | None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| ESAS/ATI           | None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Vital Swgr cooling | <ol style="list-style-type: none"> <li>1) Through-wall leak on pipe tee in 2"-HUD-130 piping (supply to X181A/B, West 480VAC swgr cooler); Due to prohibition of welding in the West 480V room, OD MP2-029-00 allows placement of a housekeeping patch and UT inspections by 11/22/00 to ensure structural integrity.</li> <li>2) X-181 tagged for relief valve pm's. Compensatory cooling established.</li> </ol>                                                                                                                                                                                                                                                                                                               |

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|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Rad Monitors | <ol style="list-style-type: none"> <li>1) <b>If RM-4262 is Inoperable, refer to OP-2316A sect. 4.4 2<sup>nd</sup> Caution before venting Cmtt.</b></li> <li>2) Prior to purging RM-9095 enter TSAS and bypass b/d isolation (HS-5099E to both out).</li> <li>3) RM-7891, Refuel Floor Area RM, in A/D due to being failed low. TR# 08M2093235. Computer point out of scan.</li> <li>4) RM-4262 has spiked high during operation of the following components, but does not happen every time. Multiple CRs for noise problems. <ul style="list-style-type: none"> <li>• CH-504</li> <li>• SW-3.2B</li> <li>• 'A' Chg. Pp start</li> <li>• SW-8.1A (SW8#1A on PPC)</li> </ul> </li> <li>5) RM-202 operating erratically and has failed as indicated by chemistry samples AWO M2-00-17571, 10/16 was cal'd.</li> <li>6) RM-9116, Aerated Waste Liquid Effluent Rad Monitor is INOP when RB sump is aligned to LIS, Log into TSAS 3.3.3.9 act b.</li> <li>7) RM-4299A has occasional erratic response seen only on PPC (causing unexplained rise or low readings that get "X" quality tag) CR#M2-00-2663.</li> <li>8) RM-8132 removed from service while working on O-ring leakage test. Ensure <u>NO</u> work on RM-8168 allowed. (RM-8132 is pre-planned alternate to RM-8168, with both RM's OOS, cannot comply with TSAS 3.3.3.1, 10/30/00. AWO#M2-99-14989 requires retest for F41b and is in retest file.</li> <li>9) RM-8145B needs new detector and is still not operating..</li> <li>10) RM-6038 has spiked a few times alarms and comes right back down CR M2-00-3007</li> <li>11) RM-6038 in Alarm defeat due to high rad.</li> <li>12) RM-8434 out of service for PM's.</li> </ol> |
| CRAC         | <ol style="list-style-type: none"> <li>1) White "Normal" light out on C509 (Z2 Cond. Unit Cntrl Panel) (AWO M2-99-09104 WW 0031- 2001).</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

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| <b>NON SAFETY-RELATED SYSTEM AVAILABILITY:</b>                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| LIST the following information: (Provide procedure references as applicable.)                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <ul style="list-style-type: none"> <li>• Systems, components out of service.</li> <li>• Deviations from required system alignments.</li> <li>• The need for valve lineups or other restoration activities.</li> <li>• Temporary Mod installation and removals</li> <li>* Compensatory measures</li> </ul> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Main Steam                                                                                                                                                                                                                                                                                                | <ol style="list-style-type: none"> <li>1) 3A Heater Intermittent pressure alarms(PPC). (Re-TR'd M2-00-13367.)</li> <li>2) <b>Alternate Configuration</b>, Throttled 2-ES-115, inlet to trap ST-115. Caution tagged by clearance # 2-1606-00. CR M2-00-2424</li> <li>3) 2-MS-190A has slight leakage past seat (34 drops/min) and is being drained once per shift (per PEO logs).</li> <li>4) 'B' LP Turb casing steam leak, NW by turning gear pump</li> <li>5) Blowdown isolated due to RM-4262 inop while sample cooler is isolated for RCS to RBCCW leak investigation.</li> </ol>                                                                                                                                                                                                                          |
| SFPC                                                                                                                                                                                                                                                                                                      | <ol style="list-style-type: none"> <li>1) Maintain SFP Temp low (min. temp.68 degrees ) for "A" SFP Train work.</li> <li>2) A SFPC pp tagged for piping mod, AWO M2-00-0037</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Condensate                                                                                                                                                                                                                                                                                                | <ol style="list-style-type: none"> <li>1) Maintain CST level &gt;/= 77% to prevent uncovering make-up to surge tk suction.</li> <li>2) TM 2-99-018 (Htr 6B level indication) is installed (6/16/99)</li> <li>3) <b>Alternate Plant Configuration</b> CPF 2-CND-250 is closed [Manual isolation for 2-CND-249,("B" Demin MOV to recycle outlet)] due to leak by (TR#25M2162435).</li> <li>4) Tagged P6B, TK-10 pp, was started for retest. Smoke from excessive grease issue from the motor. Pump is tagged for SM protection until AWO is processed for rework.</li> <li>5) "C" condensate pump mech seal leak, M2-00-01982 (HSD2) about 1/3 gpm</li> <li>6) "G" Demin MOV Inlet Isolation leaks by when closed, CPF 2-CND-70 manual isolation should be closed when "G" demin removed from service</li> </ol> |

|                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Main Feed               | <ol style="list-style-type: none"> <li>1) Both HD-103A and HD-103B have packing leaks. TR'd</li> <li>2) 2-FW-36A, A-SGFP min flow, has valve body leakage. Drip protection installed. AWO processed: M2-00-14172 (Hot Shutdown List). Injected once, significantly lowering the leakrate.</li> <li>3) B-Heater Drain Pp mech. Seal is leaking slightly (previously identified during S/U).</li> <li>4) A-Heater Drain Pump has steam coming from casing well, likely source is from Pp casing. System Engineer and Maintenance investigating.</li> <li>5) 2-FW-41B steam leak reduced by approx. half by hot torque performed on 10/6/99.</li> <li>6) Body to bonnet leak on 2-FW-27B, action plan written if failure occurs, leak injected on 10/19/00 slight mist still visible.</li> <li>7) FW-22B B feed pp discharge pressure isolation has minor steam leak</li> <li>8) 2-ES-131, Ext Stm to 3A htr has a leak</li> <li>9) 2-FW-19B "B" SGFP warm up line isolation vlv has Body to Bonnet leak</li> <li>10) 2-ES-4.2B Ext Stm to 4B FW Htr, small leak, hot torqued</li> <li>11) 4B FW htr LC-5081, Hi lvl switch has a body to bonnet leak, TR # 24M2153653</li> <li>12) ES-4.1A small steam leak TR'd, EX. Steam to 4A heater</li> <li>13) 2-FW-51A, #1 S/G FRV packing leak, TR'd.</li> </ol> |
| Annunciators            | <ol style="list-style-type: none"> <li>1) H2 purity alarm module pulled at H2/Seal Oil panel due to alarm not acknowledging.</li> <li>2) ICCMS Z2 trouble alarm locked in due to software problem.</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Circulating Water       | Backwashed A circ bay                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| H <sub>2</sub> Seal Oil | None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Inst/Stat Air           | <ol style="list-style-type: none"> <li>1) A-IAC "low oil pressure" switch TR'd by I&amp;C due to switch causing unnecessary trip of compressor. Scheduled (WW 0050).</li> <li>2) Station Air Compressor tagged for mech pms. M2-98-11415, M2-99-14576. (10/23) Call Pat Fink x2273 when running for thermography.</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| EHC                     | 1) B-EHC pp pressure compensator leaking small amount of oil, TRd, 16M2221314.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Nitrogen                | <ol style="list-style-type: none"> <li>1) <b>Alternate Plant Configuration:</b> Water intrusion into N2 system apparently from SFP demin T-24 AW Demin, supply. Drain hose aligned to floor drain. System Engineer investigating.</li> <li>2) <b>Alternate Plant Configuration:</b> Nitrogen secured to East Tendons due to leakage of grease onto floor. (10/31/00) TR# 06M2020411 and CR# M2-00-2988</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| TBCCW                   | <ol style="list-style-type: none"> <li>1) TBCCW fill valve leaks past seat. Periodically draining to maintain level (use radios on direct channel to communicate).</li> <li>2) H2 cooler TCV is on the bypass as specified in OP 2324D. Target temperature is at low end of band specified in the procedure. Controller to be worked by I&amp;C Fin team.</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| PMW                     | 2-PMW-37 needs to be closed to fill Stator Water Cooling Tank                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Security D/G            | None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Aux Steam               | <ol style="list-style-type: none"> <li>1) X-41 (F-20) tagged and drained. (10/23).</li> <li>2) CPF Aux Condensate Rad Monitor Temporary Mod. Installed panel 2-CES-PNL07 OP 2331 section 4.5.1.</li> <li>3) AB Condensate Recovery Tank High Level Alarm not working properly; level column suspected full of sediment. FIN Team to work Monday, 11/6/00.</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Fire System             | <ol style="list-style-type: none"> <li>1) A/B SGFP deluge pipe supports missing bolts/nuts. Eng walkdown indicates not a seismic or structural integrity issue. (M2-00-08689 WW 0039)</li> <li>2) Unit One Control Room Halon required for Appendix "R" compliance. TRM change in progress. <b>CR M2-00-2434.</b></li> <li>3) Extra equip/hose staged at HS-235 (14'6"Hall) to backup Unit 1 HS-118, 115 &amp; 160</li> <li>4) Water is leaking from 2-FIRE-405 (Fire Water to Aux Feed Pump suction spool piece vent) following repair to 2-FIRE-34, about 40 drops/min. CR#M2-00-2958.</li> <li>5) Electric fire pp out of service for numerous maintenance activities and PM's.</li> <li>6) Fire pump house roof is being repaired. When not working, tarp will cover the roof.</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

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| Main Generator           | <ol style="list-style-type: none"> <li>1) Main Transformer # 4 fan has been determined and capped, fan broken.</li> <li>2) Hydrogen Cooler TCV oscillating. I&amp;C is evaluating. Operating on bypass due to oscillations per OP2324D.</li> <li>3) Generator Stator Bar outlet temp T95547 Removed from Alarm Scan (PPC) and has substituted value in Foxboro Computer (TR 10M2171610).</li> <li>4) Generator Stator Bar outlet temp T95533 failed low on delta t, out of scan in PPC. Main Generator system engineer processing software change to address.</li> </ol>                                                                                                                                                              |
| Ventilation              | <ol style="list-style-type: none"> <li>1) A &amp; C Mn Exh fan disch fire damper (2-HV-298A&amp;C) broken/ removed from system. (2-HV-298C AWO M2-00-07098 WW046, CR'd - M2-00-0833, 2-HV-298A, AWO M2-00-08676 WW 0048).</li> <li>2) F-20 (SFP) tagged for X-41 work, M2-99-00190. (10/22)</li> <li>3) Determined Turbine Building 14'6" south doors not closing due to ventilation being effected by plywood door between Unit 1 and 2 in hallway found open. Door closed with 5 supply and 4 exhaust fans running. Doors on south end of building now close properly.</li> </ol>                                                                                                                                                   |
| PPC                      | <ol style="list-style-type: none"> <li>1) If the PPC becomes INOP &gt; 1 hour, then initiate NPDES grab sampling of Quarry cut and Discharge pH and temperature on an hourly bases. Procedure change submitted</li> <li>2) PPC Halon abort switch will NOT function. Safety/SFP have been notified (4/12) Scheduled for November 2000, AWO M20005686.</li> </ol>                                                                                                                                                                                                                                                                                                                                                                      |
| Station Sumps and Drains | <ol style="list-style-type: none"> <li>1) Do not drain SW thru the charcoal filter without first conferring with Chemistry dept</li> <li>2) #7 OIL water separator has oil in trap rock requiring periodic pump-out of separator.</li> <li>3) RM-9116 is INOP when RB sump is aligned to LIS, Log into TSAS 3.3.3.9 act b</li> <li>4) Turbine Building sump charcoal filter sock filter needs health physics release when changed out. CR and followup procedure change to follow.</li> <li>5) Ensure water from hydrolazing RBCCW Hx is captured in totes and sampled until CR M2-00-3017 is closed, flow path of water from RBCCW sump.</li> <li>6) Following fluff of TB sump charcoal filter, DP is 14 psid (11/2/00).</li> </ol> |

| SURVEILLANCES IN PROGRESS                                       |  | Drop Dead Date | Form Location | Lead Dept |
|-----------------------------------------------------------------|--|----------------|---------------|-----------|
| 2614C-1 Cask Crane Interlock test last completed 11/06/00 0830  |  | N/A            | N/A           | Ops       |
| COP 600.5, DG FO Delivery (in Control, need Moriarty info)      |  | 11/8/00        | US            | Ops       |
| 2613E-1, Diesel Fuel Oil Sampling Analysis (for T47A)           |  | 11/16/00       | US            | Ops       |
| ODI 1.33, Monthly Temp Mod Audit                                |  |                | US            | Ops       |
| 2654A-1 Stby equipment                                          |  | n/a            | US            | Ops       |
| 2613E-1, Diesel Fuel Oil Sampling Analysis (for T48A & T48B)    |  | 11/20/00       | US            | Ops       |
| 2670-1 Salt Water Heat Exchanger D/P (awaiting return of X-181) |  | N/A            | US            | Ops       |

| EVOLUTIONS IN PROGRESS & NOTES (SHORT TERM)                          | Lead Dept |
|----------------------------------------------------------------------|-----------|
| 2268 Cold weather preparations in progress with US                   | OPS       |
| C OP 200.11, Operation of a Cross Contaminated System (RCS to RBCCW) | OPS       |
| AOP 2568, RCS Leak Diagnostics in progress                           | OPS       |

| EVOLUTIONS IN PROGRESS & NOTES (LONG TERM)                                  | Lead Dept |
|-----------------------------------------------------------------------------|-----------|
| 1. There is stray voltage on TCB meter faces, DANGER tape posted.           | OPS       |
| 2. Chemistry tracking small intermittent condenser tube leak in the 'B' bay | Chem      |
| 3. C OP 200.11, Operation of a Cross Contaminated System (LP N2)            | OPS       |
| 4. New Night Order, 10/24, on aerated waste RM-9116.                        | OPS       |

| 24 HOURS AUTOLOG SHEETS ATTACHED                    | Yes <input type="checkbox"/> | No <input checked="" type="checkbox"/> |
|-----------------------------------------------------|------------------------------|----------------------------------------|
| CHANGES IN EQUIPMENT STATUS/LINEUP IN PAST 24 HOURS | Aligned date/time            | Tagged?                                |
| Isolated S/G blowdown.                              | 11/5 21:50                   | N                                      |
| Secured recirc of AWM.T.                            | 11/6 0246                    | N                                      |
| RB sump aligned to LIS.                             | 11/6 0300                    | N                                      |

|                                                               |           |   |
|---------------------------------------------------------------|-----------|---|
| Shocked circ bays.                                            | 11/7 0301 | N |
| Shifted 24E supply from 24C to 24D                            | 11/7 0335 | N |
| Placed "C" TB Hx in service, Swapped "B" TB Hx to "B" header. | 11/7 0342 | N |
| Started X169B secured X169A.                                  | 11/7 0350 | N |
|                                                               |           |   |

| RADWASTE SYSTEM STATUS Identify water/gaseous inventory problems, discharges in progress or planned. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SYSTEM                                                                                               | STATUS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| CLRW                                                                                                 | 1) <b>Alternate Plant Configuration</b> B-CWMT mixer packing leak, SSP-10B & 11B 1-1/2 turns open. <b>CR M2-00-2337</b><br>2) Controlotron installed on 1"-HSC-20 line for CWMT recirc per SP 2617A40.<br>3) P15A PDT pump did not auto stop during pump down M2-00-13514.<br>4) 2-LRR-27.1A is leaking by seat. Do not process to "B" CWMT if "A" CWMT is on recirc or being discharged.<br>5) <b>Alternate Plant Configuration</b> 2-LRR-27A and 2-LRR-124A recirc are Caution tagged to support processing the CWRTs to the "B" CWMT, in order to prevent inadvertent water transfer to the "A" CWMT due to the leak by of 2-LRR-27.1A. <b>CR- M2-00-2366.</b><br>6) Recircing "B" CWMT. <b>Need GST to install jumper for recirc through demin per chemistry request.</b> |
| ALRW                                                                                                 | 1) <b>Alternate Plant Configuration</b> LRR-287 is closed due to leakage past LRR-370 (M2-00-14543) causing EDST level rise. It must be opened to flush the AW Rad Monitor. <b>CR M2-00-2367</b><br>2) <b>Alternate Plant configuration</b> AW demin has leak in to N2, LRA44B, and LRA-78B caution tagged open to drain PMW.<br>3) RM-9116 is INOP when RB sump is aligned to LIS, Log into TSAS 3.3.3.9 act b<br>4) AWMT and 'B' AWDT on recirc.                                                                                                                                                                                                                                                                                                                            |
| GRW                                                                                                  | 1) GR-74 leaks when sampling either VCT or WGDTs.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| CPF                                                                                                  | 1) None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Spent Resin                                                                                          | 1) SRT has failed a retention element, CR'd.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

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| U-1/U-2/U-3 CROSS UNIT EQUIPMENT STATUS List the status of all Unit 1 and Unit 3 equipment alignments that effect Unit 2, i.e., fire protection, Bus 14H, Circulating Water (dilution flow) etc. |                                                             |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|
| SYSTEM                                                                                                                                                                                           | STATUS                                                      |
| Aux Steam                                                                                                                                                                                        | Supply from Unit 3 to Unit 2 Turbine Building by Main steam |

| RUNNING EQUIPMENT       |                                       |                                         |                                                                             |
|-------------------------|---------------------------------------|-----------------------------------------|-----------------------------------------------------------------------------|
| CRAC                    | <input type="checkbox"/> A            | <input checked="" type="checkbox"/> B   |                                                                             |
| HPSI Pumps              | <input type="checkbox"/> A            | <input type="checkbox"/> B              | <input type="checkbox"/> C                                                  |
| LPSI Pumps (SDC)        | <input type="checkbox"/> A            | <input type="checkbox"/> B              |                                                                             |
| SDC Hxs                 | <input type="checkbox"/> A            | <input type="checkbox"/> B              |                                                                             |
| Containment Spray Pumps | <input type="checkbox"/> A            | <input type="checkbox"/> B              |                                                                             |
| Charging Pumps          | <input type="checkbox"/> A            | <input type="checkbox"/> B              | <input checked="" type="checkbox"/> C                                       |
| Aux Feedwater Pumps     | <input type="checkbox"/> A            | <input type="checkbox"/> B              | <input type="checkbox"/> TDAFP                                              |
| Condensate Pumps        | <input checked="" type="checkbox"/> A | <input checked="" type="checkbox"/> B   | <input checked="" type="checkbox"/> C                                       |
| Heater Drain Pumps      | <input checked="" type="checkbox"/> A | <input checked="" type="checkbox"/> B   |                                                                             |
| S/G Feed Pumps          | <input checked="" type="checkbox"/> A | <input checked="" type="checkbox"/> B   |                                                                             |
| Circulating Water Pumps | <input checked="" type="checkbox"/> A | <input checked="" type="checkbox"/> B   | <input checked="" type="checkbox"/> C <input checked="" type="checkbox"/> D |
| Service Water Pumps     | <input type="checkbox"/> A            | <input checked="" type="checkbox"/> B   | <input checked="" type="checkbox"/> C                                       |
| RBCCW Pumps             | <input checked="" type="checkbox"/> A | <input type="checkbox"/> B              | <input checked="" type="checkbox"/> C                                       |
| RBCCW HX's              | <input type="checkbox"/> A            | <input checked="" type="checkbox"/> B   | <input checked="" type="checkbox"/> C                                       |
| TBCCW Pumps             | <input type="checkbox"/> A            | <input checked="" type="checkbox"/> B   | <input checked="" type="checkbox"/> C                                       |
| TBCCW HX's              | <input checked="" type="checkbox"/> C | <input checked="" type="checkbox"/> B   | <input checked="" type="checkbox"/> A                                       |
| SFPC Pumps              | <input type="checkbox"/> A            | <input checked="" type="checkbox"/> B   |                                                                             |
| SFPC HX's               | <input checked="" type="checkbox"/> A | <input checked="" type="checkbox"/> B   |                                                                             |
| Inst Air Compressors    | <input type="checkbox"/> A            | <input type="checkbox"/> B              | <input checked="" type="checkbox"/> C                                       |
| Bus 24E                 | <input type="checkbox"/> 24C          | <input checked="" type="checkbox"/> 24D |                                                                             |

**CHEMICAL USE** When changing the status for chemical use, inform HP of the change in status and make an announcement over the PA system. Additionally, document the change in the Shift Manager's Log. Include in the Shift Manager's Log the reason for the change.

**NOTES**

- a. If CRAC is to be placed in the recirculation mode, ensure purging has been provided for at least twelve hours after using chemicals.
- b. The Auxiliary Building is considered to be connected to the spent fuel pool area if the floor plugs are not installed. If the floor plugs are not installed and AEAS is to be initiated, the use of chemicals in the Auxiliary Building is not allowed.
- c. "Evaluated Chemical Use Correspondence" Attachment item numbers may be referred to.

| Chemical Use Allowed:               | YES                                 |                                     |                          | NO                       |                                     |                          | EXCEPTIONS (see below)   |    | Purging operations:                                 |                                     | YES                                 |                          | NO                                  |  |
|-------------------------------------|-------------------------------------|-------------------------------------|--------------------------|--------------------------|-------------------------------------|--------------------------|--------------------------|----|-----------------------------------------------------|-------------------------------------|-------------------------------------|--------------------------|-------------------------------------|--|
|                                     | YES                                 | NO                                  | EXCEPTIONS               | YES                      | NO                                  | EXCEPTIONS               | YES                      | NO | YES                                                 | NO                                  | YES                                 | NO                       |                                     |  |
| Containment                         | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |    | Purging operations are running for chemical control | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |  |
| Enclosure Building                  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |    | Purging operations are running for chemical control | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/>            |  |
| SFP Area (including railway access) | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |    | Purging operations are running for chemical control | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |  |
| Auxiliary Building                  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> |    |                                                     |                                     |                                     |                          |                                     |  |
| Control Room                        | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |    |                                                     |                                     |                                     |                          |                                     |  |
| Exceptions: None                    |                                     |                                     |                          |                          |                                     |                          |                          |    |                                                     |                                     |                                     |                          |                                     |  |

**FOR TRAINING ONLY**

Attachment 6  
Operability Determination

OD No: MP2-023-00

OD Number: MP2-023-00

Revision No: 0

CR Number: M2-00-1782

COPY

This Operability Determination is  Final  Preliminary

The affected SSC is  Operable  Inoperable

Compensatory Measures Required  Yes  No

SSC Fully Qualified  Yes  No

If Preliminary, Due Date for Final \_\_\_\_\_

FOR TRAINING ONLY

**EXTENSION APPROVAL**

Final  Preliminary Extension Due Date: \_\_\_\_\_

Extension Approved By: \_\_\_\_\_  
OPS Manager/Unit Director

Prepared By: C Scully *C. Scully 6/14/00* Reviewed By: A Lassonde *and A. Lassonde 6-14-00*

Approved By: M Marino *M. Marino 6/14/00*

PORC Number: 2/3-00-072

PORC Date: 6/15/00

PORC Chairperson: *[Signature]*

Shift Manager: *[Signature]*  
Signature

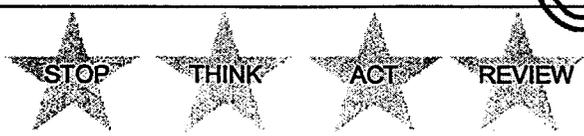
**Degraded or Non-Conforming Condition:** *6/15/00*  
*Bus 24E supply from*

OP 2343 Step 4.4, "Transferring Bus 24C to Bus 24D" creates a situation where two trains of vital switchgear may become inoperable due to a single failure of the Lower 4,160 Switchgear room cooling system.

cc: (w/Attach.)  
Reportability/LER Coordinator as appropriate

FOR TRAINING ONLY  
COPY

Level of Use  
Information



RP 5  
Rev. 2

**Attachment 6**  
**Operability Determination**

OD No: MP2-023-00

**A. Degraded or Non-Conforming Condition:**

*BUS 24E Supply from CS 615100*

OP 2343 Step 4.4, "Transferring Bus 24C to Bus 24D" creates a situation where two trains of vital switchgear may become inoperable due to a single failure of the Lower 4,160 Switchgear room cooling system.

**B. Safety Function:**

The OPERABILITY of the AC distribution systems ensures that sufficient power will be available to supply the safety related equipment required for 1) the safe shutdown of the facility and 2) mitigation and control of accident conditions within the facility (T/S Bases Section 3/ 4.8). The 4160 volt system consists of emergency Buses 24C, 24D and 24E (swing). The normal vital switchgear cooling systems maintain the associated rooms below the area design temperatures and ensure that the vital switchgear remain OPERABLE during normal operation, loss of offsite power and post accident conditions (FSAR Section 9.9.15).

**C. Impact on Nuclear Safety and Operation:**

A scenario exists where two trains of switchgear may become inoperable. When the 24E bus is used to backup bus 24D, a single failure of the Lower switchgear cooling system, coincident with an accident, may cause both vital switchgear trains to be inoperable. The condition is due to the location of both the bus 24E and bus 24C in the Lower switchgear room. Loss of cooling to the lower room will cause the room temperature to exceed the design of 122 deg. F in approximately 4.2 hours assuming maximum LOCA heat loads and no compensatory measures. OP 2315D provides compensatory actions for a loss of cooling event which will maintain the room temperature below design. However, due to location of the room within the TB, compensatory measures may not be fully implemented at the time of loss of cooling for certain events (i.e. HELB). Full implementation of the compensatory measures will ensure that the room temperature is maintained below design for all plant conditions.

The 24E swing bus may serve as a transferable power source for spare units of emergency equipment (SW pump P5B, RBCCW pump P11B, and HPSI pump P41B). The 24E bus is connected to either the 24C or 24D bus, however, key interlocks prevent connecting bus 24E to both bus 24C and 24D simultaneously. When a piece of equipment is out of service for maintenance, such as the SW pump P5A, its control switch on the main control board will be in a "LOCK-OUT" position, and the 24E bus will be connected to the 24C bus to allow the spare pump to be energized. OP 2343 Step 4.4, "Transferring Bus 24E Supply from Bus 24C to Bus 24D," provides direction to connect the 24E bus to the 24D bus for alignment of the spare pumps.

Bus 24C and bus 24 E are located in the Lower 4160 volt switchgear room and Bus 24D is located in the Upper switchgear room. The room temperatures are maintained by the associated switchgear room cooling systems. There is no indication/detection to alert operators of an inadvertent loss of cooling. Only local temperature indication is available in the rooms. The failure of the cooling systems would be detected by operator rounds.

**D. Recommended Compensatory Measures:**

Level of Use  
Information



RP 5  
Rev. 2

**Attachment 6**  
**Operability Determination**

**OD No: MP2-023-00**

The following compensatory measures shall be implemented whenever OP 2343 Step 4.4, "Transferring Bus 24E Supply from Bus 24C to Bus 24D," is executed and either P5B, P11B, or P41B is being credited as the OPERABLE Facility 2 pump:

- Reduce heat loads in the Lower 4160 Switchgear room as described in OP 2315D immediately
- In the event of a HELB in the Turbine Building (TB), open the TB rollup door #203-14-003, 14'6" el. to provide a vent path within 2 hours.
- Monitor and record room temperatures, should the Lower 4160 Switchgear room temperature reach greater than or equal to 110 deg. F reduce temperature immediately by reducing Non-QA loads (i.e. lights, non-essential portable fans, etc) or start power reduction and prepare for cold shutdown.

**E. Regulatory Requirements/Commitments:**

None

**F. Basis for Maintaining affected SSC Operable:**

The implementation of the compensatory measures will ensure that the room temperature is maintained below the design when the 24E swing bus is used to backup bus 24D and a loss of cooling event occurs coincident with an accident. MP2 Technical Evaluation (TE), M2-EV-99-0093, Rev. 1 evaluated the loss of cooling for the Lower switchgear room. The supporting analyses determined the most limiting scenario with respect to room temperatures (i.e. HELB) and TE M2-EV-99-0093 provided required compensatory actions to ensure that the lower 4160 switchgear will remain OPERABLE for all plant conditions. The measures required by this OD reflect the compensatory measures required by TE M2-EV-99-0093 for a loss of cooling event.

In addition, if the 24E swing bus is required to backup bus 24D during an event requiring operations to enter an EOP, it can be assumed that there is a failure of the normally aligned equipment. No additional failures are required to be assumed, including failure of the lower switchgear room cooling system. Therefore, the lower switchgear room cooling system will maintain the room temperature below design without the need to implement compensatory actions.

Implementation of the compensatory actions will maintain the Lower Switchgear OPERABLE in the event of a failure of the Lower Switchgear cooling system.

**G. References (FSAR, TS, TS Bases at a minimum if applicable):**

1. MP2 TS, Amendment 246, Change 260, Sections: 3/ 4.8.2, 3.03, B3/ 4.8.
2. OP 2315D, "Vital switchgear Room Cooling Systems," Rev. 10.
3. MP2 FSAR, Change 58.
4. MP2 Technical Evaluation, M2-EV-99-0093, Rev. 1, "Evaluate Compensatory Measures to Use During Loss of Cooling/Ventilation Systems Supporting Vital Switchgear Rooms" .
5. OP 2343, "4160V Electrical System," Rev. 18.

Level of Use  
Information



RP 5  
Rev. 2

**Basis for Initial Reasonable Expectation of Continued Operability****Degraded or Non-Conforming Condition:**

OP 2343 Step 4.4, "Transferring Bus 24C to Bus 24D" creates a situation where two trains of vital switchgear may become inoperable due to a single failure of the Lower 4,160 Switchgear room cooling system.

MP2-023-00

**OD Number:**

M2-00-1782

**ACR Number:**

06/12/00 17:14

**Date/Time:****Basis for Initial Reasonable Expectation of Operability:**

CR M2-00-1782 identified that when the 24E swing bus is used to backup bus 24D, a potential single failure of the Lower 4160 Switchgear room cooling system, coincident with an accident, may cause both vital Switchgear trains to be inoperable. The condition is due to the location of both the Bus 24E and the Bus 24C within the Lower 4160 Switchgear room. A single failure of the Lower 4160 Switchgear room cooling system may cause the room temperature to exceed the design of 122 Deg. F during an event. However, the room temperature can be maintained below the design limits for the associated Switchgear by implementation of the compensatory measures given in OP 2315D for a loss of cooling. The compensatory measures include reduction of heat loads by deenergizing the normal overhead lighting and cubicle heaters. The following compensatory measures shall be implemented whenever the OP 2343 step 4.4 "Transferring Bus 24E Supply from Bus 24C to Bus 24D," is executed.

- Reduce heat loads in the Lower 4160 Switchgear room as described in OP2315D immediately.
- In the event of a HELB in the Turbine Building (TB), Open the TB doors to provide a vent path within 2 hours.
- If the Lower 4160 Switchgear room temperature reaches 110 Deg. F enter TS 3.03

The analysis of the adequacy of the OP 2315D compensatory actions is currently being completed in support of TRM 99-2-18. The analysis determined the most limiting scenario with respect to room temperatures (i.e. HELB). The analysis currently concludes that with the compensatory actions implemented the room temperature will not exceed the design of 122 Deg. F for a loss of cooling in conjunction with an accident (assuming the single failure to be the Switchgear cooling system).

Therefore, implementation of the compensatory actions will maintain the OPERABILITY of the Switchgear in the event of a failure of the Lower Switchgear cooling system.

Level of Use  
Information



RP 5  
Rev. 2

**Basis for Initial Reasonable Expectation of Continued Operability**

---

Williamson, Harry

Shift Manager

---

Level of Use  
Information



RP 5  
Rev. 2

**Attachment 6  
Operability Determination**

**OD No: MP2-023-00**

**OD Number:** MP2-023-00

**Revision No:** 0

**CR Number:** M2-00-1782

|                                                                                                                         |
|-------------------------------------------------------------------------------------------------------------------------|
| <b>This Operability Determination is</b> <input checked="" type="checkbox"/> Final <input type="checkbox"/> Preliminary |
| <b>The affected SSC is</b> <input checked="" type="checkbox"/> Operable <input type="checkbox"/> Inoperable             |
| <b>Compensatory Measures Required</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No               |
| <b>SSC Fully Qualified</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No                          |
| <b>If Preliminary, Due Date for Final</b> _____                                                                         |

|                                                                                                                 |
|-----------------------------------------------------------------------------------------------------------------|
| <b><u>EXTENSION APPROVAL</u></b>                                                                                |
| <input checked="" type="checkbox"/> Final <input type="checkbox"/> Preliminary <b>Extension Due Date:</b> _____ |
| <b>Extension Approved By:</b> _____<br>OPS Manager/Unit Director                                                |

**Prepared By:** C Scully

**Reviewed By:** A Lassonde

**Approved By:** M Marino

**PORC Number:** 2/3-00-072

**PORC Date:** 06/15/2000

**PORC Chairperson:** McCracken, Dougl

**Shift Manager:** Kunze, Jim

Signature

**Degraded or Non-Conforming Condition:**

OP 2343 Step 4.4, "Transferring Bus 24C to Bus 24D" creates a situation where two trains of vital switchgear may become inoperable due to a single failure of the Lower 4,160 Switchgear room cooling system.

cc: (w/Attach.)  
Reportability/LER Coordinator as appropriate

**Level of Use  
Information**



RP 5  
Rev. 2

**Attachment 6**  
**Operability Determination**

OD No: MP2-023-00

**A. Degraded or Non-Conforming Condition:**

OP 2343 Step 4.4, "Transferring Bus 24C to Bus 24D" creates a situation where two trains of vital switchgear may become inoperable due to a single failure of the Lower 4,160 Switchgear room cooling system.

**B. Safety Function:**

The OPERABILITY of the AC distribution systems ensures that sufficient power will be available to supply the safety related equipment required for 1) the safe shutdown of the facility and 2) mitigation and control of accident conditions within the facility (T/S Bases Section 3/ 4.8). The 4160 volt system consists of emergency Buses 24C, 24D and 24E (swing). The normal vital switchgear cooling systems maintain the associated rooms below the area design temperatures and ensure that the vital switchgear remain OPERABLE during normal operation, loss of offsite power and post accident conditions (FSAR Section 9.9.15).

**C. Impact on Nuclear Safety and Operation:**

A scenario exists where two trains of switchgear may become inoperable. When the 24E bus is used to backup bus 24D, a single failure of the Lower switchgear cooling system, coincident with an accident, may cause both vital switchgear trains to be inoperable. The condition is due to the location of both the bus 24E and bus 24C in the Lower switchgear room. Loss of cooling to the lower room will cause the room temperature to exceed the design of 122 deg. F in approximately 4.2 hours assuming maximum LOCA heat loads and no compensatory measures. OP 2315D provides compensatory actions for a loss of cooling event which will maintain the room temperature below design. However, due to location of the room within the TB, compensatory measures may not be fully implemented at the time of loss of cooling for certain events (i.e. HELB). Full implementation of the compensatory measures will ensure that the room temperature is maintained below design for all plant conditions.

The 24E swing bus may serve as a transferable power source for spare units of emergency equipment (SW pump P5B, RBCCW pump P11B, and HPSI pump P41B). The 24E bus is connected to either the 24C or 24D bus, however, key interlocks prevent connecting bus 24E to both bus 24C and 24D simultaneously. When a piece of equipment is out of service for maintenance, such as the SW pump P5A, its control switch on the main control board will be in a "LOCK-OUT" position, and the 24E bus will be connected to the 24C bus to allow the spare pump to be energized. OP 2343 Step 4.4, "Transferring Bus 24E Supply from Bus 24C to Bus 24D," provides direction to connect the 24E bus to the 24D bus for alignment of the spare pumps.

Bus 24C and bus 24 E are located in the Lower 4160 volt switchgear room and Bus 24D is located in the Upper switchgear room. The room temperatures are maintained by the associated switchgear room cooling systems. There is no indication/detection to alert operators of an inadvertent loss of cooling. Only local temperature indication is available in the rooms. The failure of the cooling systems would be detected by operator rounds.

**D. Recommended Compensatory Measures:**

Level of Use  
Information



RP 5  
Rev. 2

**Attachment 6  
Operability Determination**

**OD No: MP2-023-00**

The following compensatory measures shall be implemented whenever OP 2343 Step 4.4, "Transferring Bus 24E Supply from Bus 24C to Bus 24D," is executed and either P5B, P11B, or P41B is being credited as the OPERABLE Facility 2 pump:

- Reduce heat loads in the Lower 4160 Switchgear room as described in OP 2315D immediately
- In the event of a HELB in the Turbine Building (TB), open the TB rollup door #203-14-003, 14'6" el. to provide a vent path within 2 hours.
- Monitor and record room temperatures, should the Lower 4160 Switchgear room temperature reach greater than or equal to 110 deg. F reduce temperature immediately by reducing Non-QA loads (i.e. lights, non-essential portable fans, etc) or start power reduction and prepare for cold shutdown.

**E. Regulatory Requirements/Commitments:**

None

**F. Basis for Maintaining affected SSC Operable:**

The implementation of the compensatory measures will ensure that the room temperature is maintained below the design when the 24E swing bus is used to backup bus 24D and a loss of cooling event occurs coincident with an accident. MP2 Technical Evaluation (TE), M2-EV-99-0093, Rev. 1 evaluated the loss of cooling for the Lower switchgear room. The supporting analyses determined the most limiting scenario with respect to room temperatures (i.e. HELB) and TE M2-EV-99-0093 provided required compensatory actions to ensure that the lower 4160 switchgear will remain OPERABLE for all plant conditions. The measures required by this OD reflect the compensatory measures required by TE M2-EV-99-0093 for a loss of cooling event.

In addition, if the 24E swing bus is required to backup bus 24D during an event requiring operations to enter an EOP, it can be assumed that there is a failure of the normally aligned equipment. No additional failures are required to be assumed, including failure of the lower switchgear room cooling system. Therefore, the lower switchgear room cooling system will maintain the room temperature below design without the need to implement compensatory actions.

Implementation of the compensatory actions will maintain the Lower Switchgear OPERABLE in the event of a failure of the Lower Switchgear cooling system.

**G. References (FSAR, TS, TS Bases at a minimum if applicable):**

1. MP2 TS, Amendment 246, Change 260, Sections: 3/ 4.8.2, 3.03, B3/ 4.8.
2. OP 2315D, "Vital switchgear Room Cooling Systems," Rev. 10.
3. MP2 FSAR, Change 58.
4. MP2 Technical Evaluation, M2-EV-99-0093, Rev. 1, "Evaluate Compensatory Measures to Use During Loss of Cooling/Ventilation Systems Supporting Vital Switchgear Rooms" .
5. OP 2343, "4160V Electrical System," Rev. 18.

**Level of Use  
Information**



RP 5  
Rev. 2

**Attachment 7  
Compensatory Action Summary**

**OD No: MP2-023-00**

**Degraded or Non-Conforming Condition:**

OP 2343 Step 4.4, "Transferring Bus 24E to Bus 24D" creates a situation where two trains of vital switchgear may become inoperable due to a single failure of the Lower 4,160 Switchgear room cooling system.

**Safety Tag:**

Caution tags hung # 2-1227-00

**Temporary Log:**

**Procedure Change:**

OP 2315D change # Rev 11-01 added.

**Other:**

**Level of Use  
Information**



RP 5  
Rev. 2



### Document Action Request

SPG # 001025-110148

Initiated By: Andre Lassonde Date: 10/20/2000 Department ENG Ext 0383  
 Document No: OP 2315D Rev. No: 011 Minor Rev No. 02  
 Title: **Vital Electrical Switchgear Room Cooling Systems**

**Reason for Request** (attach commitments, CR's, AR's, etc)  
 Incorporate minor changes for the compensatory actions associated with short term outage of vital swgr rooms. (changed steps to take actions earlier than previously required) Removed emergency lighting form list of loads to be deenergized as heat loads. Continued

**Change Instructions** Continued

**TPC Interim Approval**  
 (1) Plant Mngt Staff Member Print/Sign/Date \_\_\_\_\_ (2) SM/SRO/CFH on Unit Print/Sign/Date \_\_\_\_\_

**Procedure Request/Feedback Disposition**  
 Priority:  Perform Now  Perform Later - See Comments  Rejected - See Comment  
 Activity:  Revision  Minor Revision  Cleanup Rev  Biennial Review  Cancellation  Supersedure  
See DC-GDI01 for guidance  
 TPC  OTC  Place in Void  Edit Corr \_\_\_\_\_  
 Plant Mngt Staff Member - Approval / Date \_\_\_\_\_

**Comments**  
 \_\_\_\_\_  
 R/DPC \_\_\_\_\_ Print Name and Date \_\_\_\_\_ Continue

| Reviews                             | Print                 | Sign               | Date            | SQR Qualified                       |                          |                  | If Comments                         |
|-------------------------------------|-----------------------|--------------------|-----------------|-------------------------------------|--------------------------|------------------|-------------------------------------|
|                                     |                       |                    |                 | Yes                                 | No                       | Dept.            |                                     |
| <input type="checkbox"/>            |                       |                    |                 | <input type="checkbox"/>            | <input type="checkbox"/> |                  | <input type="checkbox"/>            |
| <input type="checkbox"/>            |                       |                    |                 | <input type="checkbox"/>            | <input type="checkbox"/> |                  | <input type="checkbox"/>            |
| <input checked="" type="checkbox"/> | <u>RJ Dames</u>       | <u>[Signature]</u> | <u>10/25/00</u> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <u>U20PS/SP6</u> | <input type="checkbox"/>            |
| <input checked="" type="checkbox"/> | <u>ANDRE LASSONDE</u> | <u>[Signature]</u> | <u>10/25/00</u> | <input type="checkbox"/>            | <input type="checkbox"/> | <u>ENG</u>       | <input type="checkbox"/>            |
| <input checked="" type="checkbox"/> | <u>RJ Dames</u>       | <u>[Signature]</u> | <u>10/25/00</u> | <input type="checkbox"/>            | <input type="checkbox"/> | <u>U20PS/SP6</u> | <input type="checkbox"/>            |
| <input checked="" type="checkbox"/> | <u>[Signature]</u>    | <u>[Signature]</u> | <u>10-25-00</u> | <input type="checkbox"/>            | <input type="checkbox"/> | <u>EPS</u>       | <input checked="" type="checkbox"/> |

Safety Evaluation attached  Yes  No Environmental Review attached Yes  No

1.  **SQR Program Final Review and Approval**  
 Approval  Disapproval   
[Signature] 10-25-00  
 SQR Qualified Independent Reviewer / Date  
[Signature]  
 Department Head/Responsible Individual  
10-25-00  
 Approval Date

2.  **SORC/PORC/RI/DH Final Review and Approval**  
 Department Head/Responsible Individual / Date \_\_\_\_\_  
 Meeting No. \_\_\_\_\_  
 Approval Signature \_\_\_\_\_  
 Approval Date \_\_\_\_\_

Effective Date 10-26-00

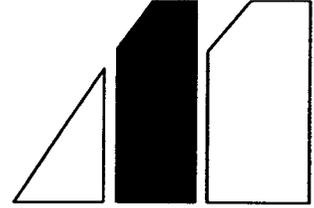
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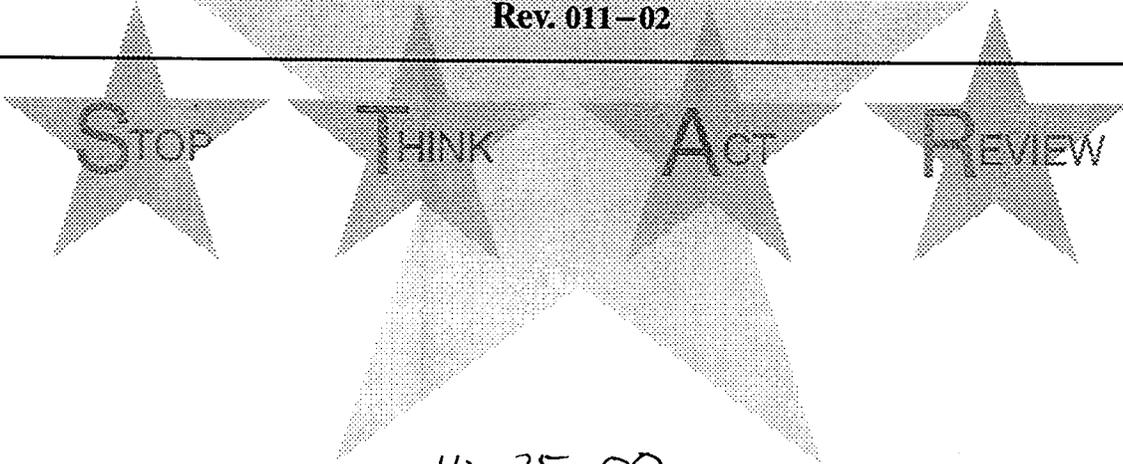
MILLSTONE NUCLEAR POWER STATION  
SYSTEM OPERATING PROCEDURE



**Vital Electrical Switchgear Room Cooling  
Systems**

**OP 2315D**

**Rev. 011-02**



Approval Date: 10-25-00

Effective Date: 10-26-00

Level of Use  
**General**

**Millstone Unit 2  
System Operating Procedure**

**Vital Electrical Switchgear Room Cooling Systems**

TABLE OF CONTENTS

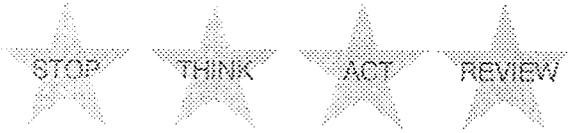
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|------|----------------------------------------------------------------------------------------------------------------------------|----|
| 1.   | PURPOSE .....                                                                                                              | 3  |
| 2.   | PREREQUISITES .....                                                                                                        | 5  |
| 3.   | PRECAUTIONS .....                                                                                                          | 7  |
| 4.   | INSTRUCTIONS .....                                                                                                         | 8  |
| 4.1  | Operation of East 480 Volt Switchgear Room Cooling System .....                                                            | 8  |
| 4.2  | Operation of West 480 Volt Switchgear Room Cooling System ...                                                              | 10 |
| 4.3  | Operation of Lower 4,160 Volt Switchgear Room Cooling System                                                               | 12 |
| 4.4  | Operation of Upper 4,160 Volt Switchgear Room Cooling System                                                               | 14 |
| 4.5  | Normal Operation of Vital DC Switchgear Rooms<br>Cooling Systems .....                                                     | 16 |
| 4.6  | Operation of Vital DC Switchgear Rooms Cooling Systems<br>Following SIAS .....                                             | 17 |
| 4.7  | Compensatory Actions for the Loss of, or Maintenance to,<br>East DC Switchgear Room Cooling System [♣Ref. 6.9] .....       | 18 |
| 4.8  | Compensatory Actions for the Loss of, or Maintenance to,<br>West DC Switchgear Room Cooling System [♣Ref. 6.9] .....       | 25 |
| 4.9  | Compensatory Actions for the Loss of, or Maintenance to,<br>East 480 Volt Switchgear Room Cooling System [♣Ref. 6.9] ..... | 32 |
| 4.10 | Compensatory Actions for the Loss of, or Maintenance to,<br>West 480 Volt Switchgear Room Cooling System [♣Ref. 6.9] ..... | 39 |
| 4.11 | Compensatory Actions for the Loss of, or Maintenance to,<br>Lower 4,160 Volt Switchgear Room Cooling System [♣Ref. 6.9] .. | 46 |
| 4.12 | Compensatory Actions for the Loss of or Maintenance to<br>Upper 4,160 Volt Switchgear Room Cooling System [♣Ref. 6.9] ..   | 50 |
| 4.13 | Compensatory Actions for the Loss of or Maintenance<br>to MCC-B51 Enclosure Cooling System [♣Ref. 6.9] .....               | 54 |
| 4.14 | Compensatory Actions for the Loss of or Maintenance<br>to MCC-B61 Enclosure Cooling System [♣Ref. 6.9] .....               | 57 |
| 4.15 | PPC Alarms .....                                                                                                           | 59 |
| 5.   | REVIEW AND SIGNOFF .....                                                                                                   | 65 |
| 6.   | REFERENCES .....                                                                                                           | 65 |

|                                        |
|----------------------------------------|
| <p>Level of Use<br/><b>General</b></p> |
|----------------------------------------|



7. SUMMARY OF CHANGES ..... 66  
ATTACHMENTS AND FORMS  
Attachment 1, "Vital Switchgear Room Temperature Monitoring Sheet" . 67  
OPS Form 2315D-1, "Unit 2 Electrical Switchgear Emergency Cooling"

Level of Use  
**General**



## 1. PURPOSE

### 1.1 Objective

This procedure provides instruction for the normal operation of, actions for the loss of, and actions for PPC alarms for the following vital cooling systems:

- DC Switchgear Rooms
- DC Battery Rooms
- 480 Volt Switchgear Rooms
- 4,160 Volt Switchgear Rooms
- MCC-B51, and B61 Enclosures

### 1.2 Discussion

Vital Switchgear Room Cooling Systems function to maintain a suitable environment for safety-related electrical equipment during loss of outside power and post-accident conditions.

Control switches for all vital switchgear room fans (with the exception of 125 volt DC switchgear rooms), spring return to "AUTO" from "STOP" position but stay in the "START" position unless manually returned to "AUTO."

DC Battery Room fans are controlled by push button controls located in the East DC Switchgear Room.

MCC B51 and B61 Enclosures are cooled by thermostatically controlled air conditioners.

Fire detection interlocks associated with all Vital Electrical Switchgear Cooling Room fans has been removed [PDCR #2-033-95].

Cofferdams of vital switchgear coolers supplied with service water (X-181A/B, X-182, X-183), are equipped with moisture detectors which, when actuated, initiates a common alarm on C-06/7 and automatically isolates service water to affected cooler [PDCR #2-064-94].

Level of Use  
**General**



OP 2315D  
Rev. 011-02  
3 of 67

The design temperatures in the vital switchgear rooms are as follows:  
[Ref. 6.12]

- East and West DC switchgear rooms, Min. 32°F, Max. 104°F
- East 480 volt switchgear room, Min. 32°F, Max. 104°F
- West 480 volt switchgear room, Min. 40°F, Max. 104°F
- Upper and lower 4,160 volt switchgear rooms, Min. 40°F, Max. 122°F
- B51 and B61 MCCs, Min. 32°F, Max. 122°F
- East and West DC battery rooms, Min. 60°F, Max. 104°F
- Turbine battery area, Min. 60°F, Max. 110°F

However, for personnel comfort, the minimum temperature is generally maintained above 55°F [Ref. 6.2]

Level of Use  
**General**



OP 2315D  
Rev. 011-02  
4 of 67

## 2. PREREQUISITES

### 2.1 General

2.1.1 480 volt power is available to the following:

- B5160, for “WEST 480V SWGR RM COOLING FAN, F-51”
- B5161, for “‘A’ DC SWGR RM A/C FAN, F-54A”
- B5163, for “LOWER 4160V SWGR RM COOLING FAN, F-134”
- B6154, for “EAST 480V SWGR RM COOLING FAN, F-52”
- B6159, for “‘B’ DC SWGR RM A/C FAN, F-54B”
- B6162, for “UPPER 4160V SWGR RM COOLING FAN, F-133”
- B6243, for “EAST 480V SWGR RM EXHAUST FAN, F-142”
- B5217, for East DC battery room fan, F112A
- B6223, for West DC battery room fan, F112B
- B5171, for AC-3, air conditioning unit
- B6171, for AC-4, air conditioning unit

2.1.2 Chilled Water System is available from applicable chiller units (X-169A and X-169B).

2.1.3 Service Water System is available for applicable coolers (X-181A, X-181B, X-182, X-183).

### 2.2 Documents

2.2.1 OP 2330C, “Chilled Water System”

2.2.2 Technical Specifications LCOs for applicable equipment

Level of Use  
**General**



OP 2315D  
Rev. 011-02  
5 of 67

## 2.3 Tools and Consumables

### 2.3.1 Sections 4.7 and 4.8

- 4 portable fans with accessories (Appendix R locker)
- Portable temperature instrument
- If required, additional electric blowers are available with 50 foot 120 volt extension cords and flexible ducting

### 2.3.2 Sections 4.9 and 4.10, depending on OPERATIONAL MODE

- 4 portable fans with accessories (Appendix R locker)
- Portable temperature instrument
- If required, additional electric blowers are available with 50 foot 120 volt extension cords and flexible ducting

### 2.3.3 Sections 4.11 and 4.12

- Portable temperature instrument
- Optional electric blowers with 50 foot 120 volt extension cords and 60 feet of flexible ducting

### 2.3.4 Section 4.13 and 4.14

- Portable temperature instrument
- Optional electric blowers with 50 foot 120 volt extension cords and 60 feet of flexible ducting

### 3. PRECAUTIONS

- 3.1 If a loss of off-site power occurs during post-incident and emergency shutdown conditions, without cooling, temperatures in vital switchgear rooms could exceed 122°F. [Ref. 6.11]
- East and West 480 volt and *both* 125 VDC Switchgear Cooling Systems or associated compensatory ventilation plans must be available for service to maintain temperatures below 104°F to ensure associated switchgear remains OPERABLE. [Ref. 6.11] (Design room temperature is 104°F however, equipment required for safe shutdown was evaluated for 122°F.)
  - 4,160 volt Switchgear Rooms Cooling Systems (lower and upper) or associated compensatory ventilation plans must be available for service to maintain temperatures below 122°F to ensure associated switchgear remains OPERABLE [Ref. 6.11].
  - MCCs B51 and B61 Enclosures Cooling Systems or associated compensatory ventilation plans must be available for service to maintain temperatures below 122°F to ensure associated switchgear remains OPERABLE [Ref. 6.11]. (Design room temperature is 122°F however, equipment required for safe shutdown was evaluated for 131°F.)
- 3.2 To maintain system flow rates at values required for accidents, as specified in EN 21203, "Service Water Flow to RBCCW Heat Exchangers," specific valve positions ("LOCA"), are locally marked to ensure proper restoration and must be observed prior to operation of the following valves:
- Cooler outlet, 2-SW-181A
  - Cooler outlet, 2-SW-181B
  - Cooler outlet, 2-SW-181C
- 3.3 Compensatory ventilation actions must *not* be used for more than 30 consecutive days as specified in TRM 3/4.8.2 [Ref. 6.9]

Level of Use  
**General**



OP 2315D  
Rev. 011-02  
7 of 67

4.11 **Compensatory Actions for the Loss of, or Maintenance to, Lower 4,160 Volt Switchgear Room Cooling System [♣Ref. 6.9]**

- 4.11.1 IF this section is to be used for Maintenance functions, OBTAIN Station Management approval prior to implementing.
- 4.11.2 IF cooling unit is to be stopped for maintenance, PERFORM the following:
- a. PLACE and HOLD "LOWER 4160V SWGR RM COOLING FAN, F-134" switch in "STOP" (C-80).
  - b. REQUEST second operator PLACE F-134 supply breaker, B5163, to "OFF."
  - c. WHEN supply breaker is open (*no* light lit for F-134), RELEASE switch (C-80).
- 4.11.3 CHECK ambient room temperature at TS8849, using portable temperature instrument. | ②
- 4.11.4 Refer To Attachment 1, "Vital Switchgear Room Temperature Monitoring Sheet" and RECORD highest ambient room temperature (installed, TI6429 or portable instrument) as follows:
- IF temperature is changing, at least once every hour
  - IF temperature is stable, (3 or more consecutive readings within 1°F) every shift.

Level of Use  
General

STOP THINK ACT REVIEW

OP 2315D  
Rev. 011-02  
46 of 67

**NOTE**

When normal lighting is deenergized, emergency lights energize.

- 4.11.5 **IF** temperature can *not* be maintained less than or equal to 95°F **OR** outage is lasting greater than 8 hours, Refer To Table 1, "Lower Switchgear Room Lighting/Heater Loads (Facility 1)" and **OPEN** individual breakers to deenergize switchgear normal overhead lighting and switchgear cubicle heating: ②

| <b>Circuits</b>                  | <b>Panel Location</b>                                      |
|----------------------------------|------------------------------------------------------------|
| L10, breakers 1, 3, and 5        | 31'6" Turbine Building, south of steam packing exhauster ② |
| L15, breakers 13, 14, 17, and 18 | 31'6" Switchgear Room (heater loads)                       |

- 4.11.6 **IF** room temperatures continue to increase **AND** reach 100°F, **PERFORM** the following:

**NOTE**

Portable electric blowers are a desired compensatory action, but are *not* required.

- a. **IF** desired, **OBTAIN** portable electric blowers from 31'6" Turbine Building I&C Department cage and **ASSEMBLE** in several locations of room to circulate air and minimize localized heating of components.
- b. **IF** portable fans are used in step 4.11.6a., **SECURE** as necessary to mitigate seismic concerns.
- c. **OPEN** crane door between Unit 1 and Unit 2

Level of Use  
**General**



## NOTE

When outdoor temperature is less than 50°F, it is not necessary to open rollup door, #203-14-003 until approximately 1 hour into the postulated HELB event. Turbine building temperatures are much lower than design temperature (110°F) during cold weather and overcooling the space may cause operational problems.

- d. IF necessary, OPEN rollup door, #203-14-003 on the 14'6" turbine building.
- 4.11.7 MONITOR adequacy of supplemental cooling actions.
- 4.11.8 IF room temperatures continue to increase are approaching 110°F, LOWER room temperatures by reducing non-QA loads (ex. lights, portable fans, non-essential equipment).
- 4.11.9 IF room temperatures continue to increase AND reach 110°F, LOG entry into applicable Technical Specifications ACTION Statement, for Facility 1 vital 4,160 volt switchgear room out of service, in Shift Manager Log Book.
- 4.11.10 IF both 4,160 volt switchgear rooms cooling systems become inoperable simultaneously and require compensatory cooling measures, PERFORM the following:
- INCREASE frequency of room temperature monitoring.
  - IF either room temperature reaches greater than or equal to 122°F, immediately START power reduction and PREPARE for cold shutdown.
- 4.11.11 WHEN normal switchgear room cooling is restored, PERFORM the following:
- RESTORE normal room lighting.
  - ENERGIZE switchgear cubicle heaters.
  - TERMINATE monitoring and recording room temperature.
  - IF used, DEENERGIZE electric blowers.
  - IF used, STORE all equipment in 31'6" Turbine Building I&C Department cage.

Level of Use  
**General**



OP 2315D  
Rev. 011-02  
48 of 67

4.11.12 IF ACTION STATEMENT was entered, Refer To Technical Specifications LCOs for applicable Facility 1 equipment in room and EVALUATE conditions for exit from ACTION STATEMENTS for given system alignments.

– End of Section 4.11 –

Level of Use  
**General**



OP 2315D  
Rev. 011-02  
49 of 67

# JOB PERFORMANCE MEASURE APPROVAL SHEET

I. JPM Title: Verification of proper retest requirements.

ID Number: JPM-A22

Revision: 0

II. Initiated:



Stephen R Myers  
Developer

10/11/00  
Date

III. Reviewed:



Technical Reviewer

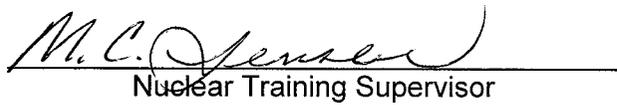
1/23/01  
Date

IV. Approved:



User Department Supervisor

1/24/01  
Date



Nuclear Training Supervisor

01/24/01  
Date



## JOB PERFORMANCE MEASURE WORKSHEET

JPM Number:           JPM-A22          

Rev.           0          

Initiating Cues:

- You are the Work Control Supervisor evaluate (SIMULATED) AWO M2-XX-XXXX for completeness, and make any necessary recommendations.

Initial Conditions:

- N/A

Simulator Requirements:     N/A

---

\* \* \* \* NOTES TO EXAMINER \* \* \* \*

1. Critical steps for this JPM are indicated with an "X". For the examinee to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.
2. When examinee states what his/her simulated action/observation would be, read the appropriate "Cue".
3. If necessary, question examinee for details of simulated actions / observations (i.e. "What are you looking at?" or "What are you observing?").
4. Under **NO** circumstances must the examinee be allowed to manipulate any devices during the performance of this JPM (in-plant only).

**PERFORMANCE INFORMATION**

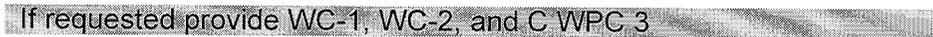
JPM ID NUMBER: JPM- A22 TITLE: Verification of Proper Retest Requirements

---

START TIME: 

STEP 1       Performance Steps: Examinee is given AWO for review and spends some amount of time looking over the work that was done with the retests that were assigned.

GRADE        Standards:    *WC-2 for Retests*

Cue: 

Comments:

~~~~~

STEP 2 Performance Steps: Examinee discovers that a change was added to the AWO and that no additional retest was specified as required. Should review retest form and suggest that additional checks should be done since a pump bearing was replaced. (IST/CBM).

GRADE Standards: *WC-1, C WPC 3*

Cue: 

Comments:

~~~~~

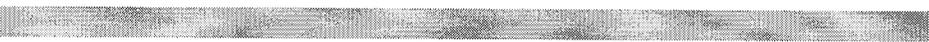
STEP 3       Performance Steps: The examinee should decide to call any of the following: Operations Management, the WWM, System Engineer, CBM, and/or Maintenance FLS on the issue and that the additional retest is required.

GRADE        Standards:    *Terminate when examinee has decided to inform any of the management team on the retest requirements.*

**PERFORMANCE INFORMATION**

JPM ID NUMBER: JPM- A22      TITLE: Verification of Proper Retest Requirements

---

Cue: 

Comments:

Comments: **After this step is completed, the JPM is considered complete.**

**STOP TIME:** 

**VERIFICATION OF JPM COMPLETION**

Job Performance Measure No. JPM-A22

Rev. 0

Date Performed: \_\_\_\_\_

Operator: \_\_\_\_\_

Evaluator(s): \_\_\_\_\_

For examinee to achieve a satisfactory grade, **ALL** critical steps must be completed correctly. If task is Time Critical, it **MUST** be completed within the specified time to achieve a satisfactory grade.

Time Critical Task? Yes \_\_\_\_\_ No X

Validated Time (minutes): \_\_\_\_\_

Actual Time to Complete (minutes): \_\_\_\_\_

Result of JPM: \_\_\_\_\_ (Denote by an S for satisfactory or a U for unsatisfactory)

Areas for Improvement:

## EXAMINEE HANDOUT

JPM ID NUMBER: A22

Initiating Cues:

- You are the Work Control Supervisor evaluate (SIMULATED) AWO M2-XX-XXXX for completeness, and make any necessary recommendations.

Initial Conditions:

- N/A

## 1.11 AWO Post Maintenance Testing and Acceptance

- 1.11.1 REVIEW AWO and VERIFY that the specified retests are adequate for work performed.
- 1.11.2 INCLUDE completed post-maintenance testing data in AWO package.
- 1.11.3 REVIEW test data against acceptance criteria.

FLS/Test  
Coordinator

### NOTE

Rework is defined as work which would *not* have been performed if the work process had functioned correctly the first time it was performed.

- 1.11.4 EVALUATE equipment failures that occur during post-maintenance testing to determine probable cause and if the failure should be classified as rework.
- 1.11.5 IF equipment failure occurs OR test results do *not* meet criteria during post-maintenance testing, DETERMINE probable cause and EVALUATE against the following criteria to identify if the failure should be classified as rework:
- Failure to properly correct initial problem
  - Poor workmanship (e.g., improper tightening of fasteners or the use of the wrong tools)
  - Damage to equipment during disassembly or reassembly
  - Incorrect reassembly
  - Incorrect replacement parts used
  - Failure to make needed alignment or adjustments such that subsequent operation results in failure.
  - Other failures caused by human error or omission
  - Inadequate or incorrect procedures which result in equipment failure or corrective maintenance.

Level of Use  
Information



WC 1  
Rev. 4CHG1  
20 of 110

## NOTE

Failures that occur or are discovered during post-maintenance testing but are *not* related to the current AWO, must *not* be classified as rework on the current AWO.

- 1.11.6 IF while performing maintenance, failures are discovered AND determined to be due to an inadequate prior AWO, **CLASSIFY** as rework on the current AWO.
- 1.11.7 IF probable cause of failure can be determined, **PERFORM** the following:
- a. IF correction of probable cause of failure is within scope of AWO (tags not required) or post-maintenance test procedure, **CORRECT** cause of failure and **DOCUMENT** cause, corrective actions, and rework classification.
    - 1) **WHEN** step 1.11.7a. is complete, **REPEAT** Section 1.11.
  - b. IF correction of probable cause of failure is beyond scope of AWO or post-maintenance testing procedure, **DOCUMENT** cause and rework classification.
    - 1) **REQUEST** new or supplemental AWO.
- 1.11.8 IF cause of failure *cannot* be determined, **PERFORM** the following:
- a. Refer To RP 4, "Corrective Action Program," and **INITIATE** CR.
  - b. **RETURN** all post-maintenance testing documentation to WP.
- 1.11.9 IF required based upon findings of CR, **PREPARE** a new or supplemental AWO.
- 1.11.10 **DOCUMENT** "SAT" or "UNSAT" and **SIGN** AWO.
- a. **UPDATE** AWO status in PMMS.
- 1.11.11 **ENSURE** all required documentation is complete and signed.

Responsible Retest Person →

Level of Use Information



WC 1  
Rev. 4CHG1  
21 of 110

1.11.12 IF work performed is “none,” NOTIFY originator of work request that work was *not* performed under AWO.

1.11.13 CLOSE AWO.

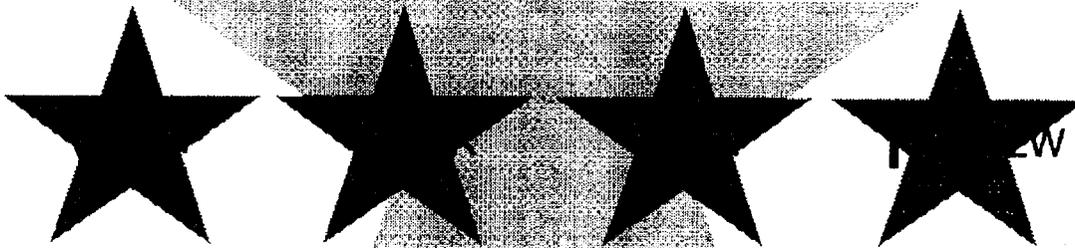
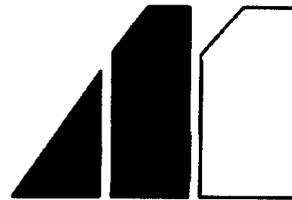
– End of Section 1.11 –

Level of Use  
Information



WC 1  
Rev. 4CHG1  
22 of 110

**MILLSTONE NUCLEAR POWER STATION  
COMMON WORK PLANNING AND OUTAGE  
MANAGEMENT PROCEDURE**



**Post-Maintenance Testing**

**C WPC 3**

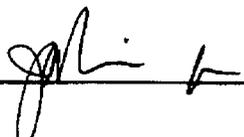
**Rev. 2**

This procedure establishes the requirements for selecting and developing a Post-Maintenance Test Plan.

**APPLICABILITY:** This procedure does *not* apply to Unit 3. For Millstone Unit 3 Refer To procedure U3 WPC3.

**AWO Form Usage:** Previous revisions of Attachments 3 & 4 of this procedure may be utilized in any Work Order which was prepared prior to the effective date of Revision 2.

Approval:

  
\_\_\_\_\_

SORC Mtg. No:

98-62

Date:

11-2-98

Effective Date:

11-18-98

**Level of Use  
Information**

Responsible Unit: Unit 2,  
Work Planning and Outage  
Management (WP&OM)

**Millstone All Units  
Common Work Planning and Control Procedure**

**Post–Maintenance Testing**

TABLE OF CONTENTS

|     |                                                                       |    |
|-----|-----------------------------------------------------------------------|----|
| 1.  | INSTRUCTIONS .....                                                    | 2  |
| 1.1 | Post–Maintenance Testing (PMT) Overview .....                         | 2  |
| 1.2 | Post–Maintenance Test Selection and Plan .....                        | 3  |
| 1.3 | Post–Maintenance Test Requirements Review .....                       | 10 |
| 1.4 | Post–Maintenance Test Documentation .....                             | 11 |
| 1.5 | Post–Maintenance Test Plan Modifications .....                        | 13 |
| 2.  | REFERENCES .....                                                      | 14 |
| 3.  | COMMITMENTS .....                                                     | 14 |
| 4.  | SUMMARY OF CHANGES .....                                              | 14 |
|     | <b>ATTACHMENTS AND FORMS</b>                                          |    |
|     | Attachment 1, “Flowchart of Post–Maintenance Test Selection Process”  | 17 |
|     | Attachment 2, “Post–Maintenance Testing Matrix” .....                 | 18 |
|     | Attachment 3, “Post–Maintenance Testing and Special Instructions” ... | 28 |
|     | Attachment 4, “Post–Maintenance Testing Checklist” .....              | 31 |

**Level of Use  
Information**

STOP THINK ACT REVIEW

**C WPC 3**  
Rev. 2  
1 of 32

# 1. INSTRUCTIONS

## 1.1 Post-Maintenance Testing (PMT) Overview

### 1.1.1 USE PMT to verify the following:

- Systems, Structures, and Components (SSCs) satisfactorily perform intended function(s) in accordance with plant design basis, vendor recommendations, standards, codes, and analyses. [♣ Comm. 3.7] 3.5 Tmk 2/17/99
- Technical Specification operability.
- Correction of any preexisting deficiency.
- New deficiencies were not introduced as a result of the repair or modification.
- A plant modification was accurately installed and performs intended function based on design criteria and operational requirements.

### 1.1.2 DOCUMENT PMT results and keep with the AWO.

#### NOTE

PMT usually will be conducted under conditions that represent normal operating parameters such as flow, differential pressure, pressure, temperature, and fluid type. In some cases the tests should be conducted under conditions that represent abnormal or emergency operating conditions (i.e., testing motor starter thermal overload relays.)

### 1.1.3 SELECT PMT for appropriate operating conditions.

### 1.1.4 USE the 4 Attachments as guides to selecting procedures or programs for specifying a PMT that ensures plant SSCs are fully tested after work has been performed.

– End of Section 1.1 –

Level of Use  
Information

STOP

THINK

ACT

REVIEW

C WPC 3

Rev. 2

2 of 32

## 1.2 Post-Maintenance Test Selection and Plan

Planner

1.2.1 Refer To Attachment 1 and REVIEW for guidance in PMT selection process.

- The work scope governs the extent and type of PMT.
- Relevant special programs, design considerations, and plant operating requirements will influence the extent and type of PMT.

### CAUTION

The basis for ISI/IST, Appendix "J", ASME XI, or Other Program Requirements may be more narrowly focused than the broader objectives of a PMT Program. Consequently, basing PMT on *ONLY one* of these requirements may *not* verify that the complete functionality of a system or component has been restored. [♣ Comm. 3.5]

1.2.2 DEVELOP the PMT Plan with a broad enough scope to cover all aspects of the work listed in the AWO job description.

1.2.3 In the PMT Plan, INCLUDE clear performance measurements to support an effective review and documentation of test results.

### NOTE

Not all maintenance may require a PMT; such as, the simple tasks of cleaning, inspecting, and painting.

For this procedure the term "intrusion/intrusive" refers to acts that could affect the intended performance of a component or device.

1.2.4 IF maintenance is *not* intrusive, DOCUMENT in "PMT" Section of AWO that "PMT is not required."

Level of Use  
Information

STOP THINK ACT REVIEW

C WPC 3

Rev. 2

3 of 32

## NOTE

Attachments 2 and 3 may be used as a guide for building a PMT plan. Approved alternate guides, procedures, and forms may be used (i.e., EPRI NP-7213, "Post Maintenance Test Reference Guide.")

### 1.2.5 DETERMINE the required PMT as follows:

- a. **IF** PMMS indicates that the following programs do *not* apply to the SSC to be worked on, using Attachment 3 is optional:
  - MOV Test component
  - ISI or IST component
  - Appendix "J" component
  - Dual Function valves
  - Equipment covered by CBM
  - Design Change
  - ASME Section XI
- b. For any MOV PMT, CONTACT MOV Coordinator.
- c. **IF** Attachment 3 is *not* used, GO TO step 1.2.15.
- d. **IF** Attachment 3 is used, CONTINUE at step 1.2.6.

### 1.2.6 Using Attachments 2 and 3, DETERMINE and RECORD the recommended PMT as follows:

- a. From Attachment 2, SELECT type of PMT for components.
- b. On Attachment 3, PLACE a check in the appropriate test for work listed in the AWO job description.

Level of Use  
Information



C WPC 3  
Rev. 2  
4 of 32

1.2.7 **IF** PMMS identifies item as MOV Test component:

a. **DETERMINE** the following: (CONSULT Unit MOV Test Coordinator.

- If “as found” data is required, prior to disassembly (Document this requirement in AWO “Job Description”)
- Which MOV test procedure covers the AWO

b. **IF** program testing is required, **ENTER** the following on Attachment 3:

- Check the “MOV Test” box in “Other Program Requirements”
- Relevant MOV program test procedure number in “Other Program Requirements,” and include test matrix in AWO
- Any precautions or special instructions on “Special Instructions” page

**NOTE**

Testing in accordance with IST requirements is not required if maintenance activity only involves oil sampling or oil changes in IST pumps, where the replacement oil is identical or has been evaluated and found to be an acceptable alternate based on an approved Item Equivalency Evaluation.

1.2.8 **IF** PMMS identifies item as ISI or IST component:

a. **DETERMINE** the following: (CONSULT Unit ISI/IST Coordinator, if necessary.)

- If “as found” data is required, prior to disassembly (Document this requirement in AWO “Job Description”)
- Which ISI or IST Program test covers the AWO

Level of Use  
Information



C WPC 3  
Rev. 2  
5 of 32

b. **IF** program testing is required, ENTER the following on Attachment 3:

- Check the "ISI or IST" box in "Other Program Requirements"
- Relevant procedure number in "Other Program Requirements"
- Any precautions or special instructions on "Special Instructions" page



### CAUTION



Some Appendix "J" valves may have more than one function. Consequently, basing PMT on only one of the Dual Functions may *not* verify that the complete functionality of a system or component has been restored.

1.2.9 **IF** PMMS identifies item as Appendix "J" component:

a. **DETERMINE** the following: (CONSULT Unit Appendix "J" Coordinator, if necessary.)

- If "as found" data is required, prior to disassembly (Document this requirement in AWO "Job Description")
- Which Appendix "J" procedure covers the AWO

b. **IF** program testing is required, ENTER the following on Attachment 3:

- Check the "Appendix "J" box in "Other Program Requirements"
- Relevant procedure number in "Other Program Requirements." (Appendix "J" test is conducted at containment design pressure)
- Any precautions or special instructions on "Special Instructions" page

Level of Use  
Information

STOP

THINK

ACT

REVIEW

C WPC 3

Rev. 2

6 of 32

## NOTE

For Dual Function check and manual type valves, satisfactory completion of Appendix "J", Type "C" testing is considered to be sufficient proof of sealing since these types of valves have no remotely controlled actuators.

- 1.2.10 CHECK the PMMS caution statements and if valve has Dual Functions, IDENTIFY additional testing requirements; including, but not limited to, the following types: [♣ Comm. 3.1 and 3.2]
- a. For dual pressure isolation valves that isolate against containment design pressure **AND** against normal system pressure, COMPLETE the following:
    - VERIFY isolation against Containment Design Pressure ( $P_a$ ), by performing the Appendix "J" Local Leak Rate Test (LLRT) – Type "C". VERIFY leak tightness against containment design pressure.
    - VERIFY Dual Function Motor Operated Isolation Valves are tested in accordance with the Motor Operated Valves Program Manual.
    - VERIFY Dual Function Air Operated Isolation Valves are tested using AOV diagnostic equipment to verify proper valve assembly setup.
  - b. For valves that have two modes of operation; one mode that modulates to control flow **AND** one mode that isolates against system or containment pressure; ENSURE that PMT verifies operation in **both** modes.
  - c. For valves that "close" for one function **AND** "open" for another function, ENSURE that PMT verifies operation for **both** functions.
  - d. For valves that modulate to control flow for one control mode, **AND** either "open" or "close" for another control mode, ENSURE that PMT verifies operation for **both** control modes.

Level of Use  
Information



C WPC 3  
Rev. 2  
7 of 32

- 1.2.11 **IF** AWO job description includes CBM equipment, **CONSULT** CBM Representative **AND IDENTIFY** additional testing (vibration monitoring, etc.), if necessary.
- a. On Attachment 3, **CHECK** the “CBM” box in “Other Program Requirements.”
  - b. **ENTER** any CBM PMT requirements in “Other Program Requirements” on Attachment 3.
- 1.2.12 **IF** PMMS (or for Unit 1 *ONLY*, ASME Section XI Boundary Diagram) identifies item as ASME Section XI, Refer To the Section XI Plan for additional PMT requirements.
- a. On Attachment 3, **CHECK** the “Sect. XI Code” box in “Other Program Requirements,” if necessary.
  - b. **ENTER** any ASME Section XI, PMT requirements in “Other Program Requirements” on Attachment 3.
- 1.2.13 **IF** AWO implements a Design Change, Refer To the Design Change Documents for additional PMT requirements.
- a. On Attachment 3, **CHECK** the “DC or MF AWO” box in “Other Program Requirements.”
  - b. **ENTER** any Design Change Documents, PMT requirements in “Other Program Requirements” on Attachment 3.
  - c. **ATTACH** the applicable Design Control Manual test forms (e.g., 3-2J) to the AWO.
- 1.2.14 **IF** the test descriptions in Attachment 3 do *not* adequately address AWO PMT requirements:
- a. **ENTER** additional tests in “Other Program Requirements” on Attachment 3 or in “PMT” Section of the AWO.
  - b. On Attachment 3, “Special Instructions” Section, **SPECIFY** any requirements *not* already provided in Attachment 3.

c. **VERIFY** Attachment 3 or the "PMT" Section of the AWO contains the following:

- Sufficient instructions to ensure proper conduct of PMT
- Quantitative acceptance criteria based on plant design basis, vendor recommendations, standards, codes, or analyses

**NOTE**

Tech Spec Surveillances only prove equipment operable and may not functionally test all parts of a component.

1.2.15 **IF** component has Technical Specification "Operability" requirements:

- DETERMINE** if component is part of Unit Surveillance Program and which Surveillance procedure applies. (CONSULT with Operations Supervision, if necessary.)
- IF** component has been removed from service, **DETERMINE** if Operational (Functional) Test is required and which Operations or other department procedure applies. (CONSULT with Operations Supervision, if necessary.)
- IF** a Surveillance or an Operational (Functional) Test is required for PMT, **ENTER** procedure number in "Other Program Requirements" on Attachment 3 or in the "PMT" Section of the AWO.
- IF** Technical Specification Operability procedures apply, **ENSURE** any additional required functional tests are specified.

- End of Section 1.2 -

Level of Use  
Information

STOP      THINK      ACT      REVIEW

C WPC 3

Rev. 2

9 of 32

## NOTE

FLS, Worker, and Operations Supervision may use Attachment 4 as a guide to ensure that all PMT objectives are met.

### 1.3 Post–Maintenance Test Requirements Review

Planner

1.3.1 COMPLETE Attachment 4.

- a. ENTER applicable procedures or Attachment 3 Item Numbers.

1.3.2 Review PMT Plan for redundant testing and INTEGRATE redundant tests wherever possible.

Planner/FLS

1.3.3 As a final review to ensure PMT adequacy, Refer To step 1.1.1 and REVIEW Attachment 4 as follows:

- a. CHECK that PMT objectives are met.
- b. CHECK that all applicable subjects of verification are covered.

## NOTE

Post–Maintenance test requirements are reviewed by a licensed SRO.

Operations

1.3.4 REVIEW PMT plan and VERIFY the following: [♣ Comm. 3.4]

- **IF** Surveillances are required, the Surveillances specified are sufficient to declare, structures, and components operable.
- **IF** Surveillances are *not* required, the tests specified are sufficient to VERIFY performance and allow return to service.
- Specified testing restores Technical Specification operability without imposing any adverse effects on the system or equipment.
- Post–maintenance tests do *not* degrade the level of safety. [♣ Comm. 3.3]

– End of Section 1.3 –

Level of Use  
Information

STOP

THINK

ACT

REVIEW

C WPC 3

Rev. 2

10 of 32

## 1.4 Post–Maintenance Test Documentation

Planner →

### 1.4.1 DOCUMENT PMT requirements as follows:

- INCLUDE Attachment 3 in the AWO package AND ENTER Attachment 3 Item Numbers in “PMT” Section of the AWO
- ENTER test requirements in the “PMT” Section of the AWO
- For one page AWOs, ENTER PMT requirements in the “Job Description” Section of the AWO

Performance  
Department/  
Operations →

### 1.4.2 DOCUMENT PMT results as follows:

- a. IF Attachment 3 is included in the AWO, RECORD PMT results on Attachment 3.
  - Initial and Date for each test performed
  - Upon completion of all PMT, SRO to sign “Performed By” in “PMT” Section of AWO
- b. IF Attachment 3 is *not* included in the AWO, RECORD the PMT results in the “Actual Work” or “PMT” Sections of the AWO.
  - Sign and Date next to Test Requirements in “PMT” Section of AWO
  - Upon completion of all PMT, SRO to sign “Performed By” line in “PMT” Section of AWO

Level of Use  
Information

STOP THINK ACT REVIEW

C WPC 3  
Rev. 2  
11 of 32

c. **IF** AWO will be tested using another AWO, **PERFORM** the following:

- **DOCUMENT** which AWO will perform PMT in “PMT” Section of AWO
- **ENSURE** referenced AWO contains proper PMT
- **ENSURE** the referenced AWO lists the AWO to be tested
- **SRO** sign “Performed By” in “PMT” Section of AWO verifying that the referenced AWO satisfies PMT requirements

– End of Section 1.4 –

**Level of Use  
Information**

STOP

THINK

ACT

REVIEW

C WPC 3

Rev. 2

12 of 32

## 1.5 Post-Maintenance Test Plan Modifications

### NOTE

Operation Supervision has overall authority to modify PMT, as necessary without additional approvals.

All Disciplines →

- 1.5.1 All PMT changes are to be made at the discretion of Operations Supervision in conjunction with the Performance Department FLS and the WP&OM Planner, as necessary.
- Justification of changes to specified PMT will be documented in the AWO Change Record and Attachment 3 or PMT Section of the AWO.
  - Prior to changing PMT for DC or MF AWOs, Engineering must be notified and design change paperwork must be revised accordingly.
  - Notify WP&OM Planner to update PMMS to include proper PMT procedure/items for future AWOs.

– End of Section 1.5 –

Level of Use  
Information



C WPC 3  
Rev. 2  
13 of 33

## 2. REFERENCES

- 2.1 EPRI NP-7213, "Post-Maintenance Testing, A Reference Guide"
- 2.2 INPO 87-028, "Post-Maintenance Testing Good Practice MA-305"
- 2.3 INPO 92-001, "Guidelines for the Conduct of Maintenance at Nuclear Power Stations" [♣ Comm. 3.5]
- 2.4 INPO SER 3-95
- 2.5 WC 1, "Work Control Process"
- 2.6 WC 9, "Station Surveillance Program"
- 2.7 WC-3, "ASME Section XI Repair and Replacement Program"

## 3. COMMITMENTS

- 3.1 Unit 2-LER-93-023-01, NOV 50-336 and (COTRAP) Ltrs B14747 and B16372
- 3.2 Response to NRC Combined Inspection 50-245/96-04, 50-336/96-04, and (COTRAP) Ltr. B15783
- 3.3 Response to Generic Letter 83-28 and (COTRAP) Ltr A05371
- 3.4 Response to NOV, NRC Combined Inspection, 50-245/96-01, 50-336/96-01, 50-243/96-01 and (COTRAP) Ltr B15713
- 3.5 Response to NRC Combined Inspection, 50-213/79-20, 50-245/79-26, 50-336/79-28 and Commitment No. DY440001.08 (RCR-14343)
- 3.6 Response to Generic Letter 89-10 and (COTRAP) Ltr B14561

## 4. SUMMARY OF CHANGES

- 4.1 Incorporated previously approved Changes 1, 2 and 3.
- 4.2 Generic change through out procedure, change "VOTES" to read "MOV TEST."
- 4.3 Generic change through out procedure, change "RETEST" to read "PMT."
- 4.4 Generic change through out procedure, change "LLRT" to App. J.

Level of Use  
Information



C WPC 3  
Rev. 2  
14 of 32

- 4.5 Cover sheet, add "APPLICABILITY" and "AWO FORM USAGE" definition.
- 4.6 Table of Contents, split instruction section 1.3 into two new sections.
- 4.7 Step 1.1.1, 1st bullet, adds commitment.
- 4.8 Deleted "cross referencing" from step 1.1.2.
- 4.9 Added "appropriate conditions" and deleted "simulated abnormal or emergency conditions" in step 1.1.3.
- 4.10 Added NOTE to step 1.1.3 to clarify PMT selection.
- 4.11 Deleted NOTE from step 1.1.4.
- 4.12 Deleted NOTE to Section 1.2.
- 4.13 Step 1.2.2, deleted reference 2.3 and added commitment to CAUTION for step 1.2.2.
- 4.14 Note for step 1.2.5 adds "Post Maintenance Test Reference Guide."
- 4.15 Deleted the word "rotating" from step 1.2.5, 5th bullet.
- 4.16 Added "program testing" to steps 1.2.7b, 1.2.8b, and 1.2.9b.
- 4.17 Added NOTE to step 1.1.8 to clarify identifying an ISI and IST component.
- 4.18 Added "Document this requirement in AWO job description" to step 1.2.9a, 1st bullet.
- 4.19 Changed step 1.2.11 to reflect "CBM Equipment" instead of "Rotating Equipment."
- 4.20 Changed steps 1.2.11b, 1.2.12b, 1.2.13b, and 1.2.14a, to reflect "Other Program Requirements" instead of "Other Tests."
- 4.21 Added note to step 1.2.15.
- 4.22 Added step 1.2.15d.
- 4.23 Note for Section 1.3 was relocated from step 1.3.3.b.
- 4.24 Step 1.3.1 is a new step.



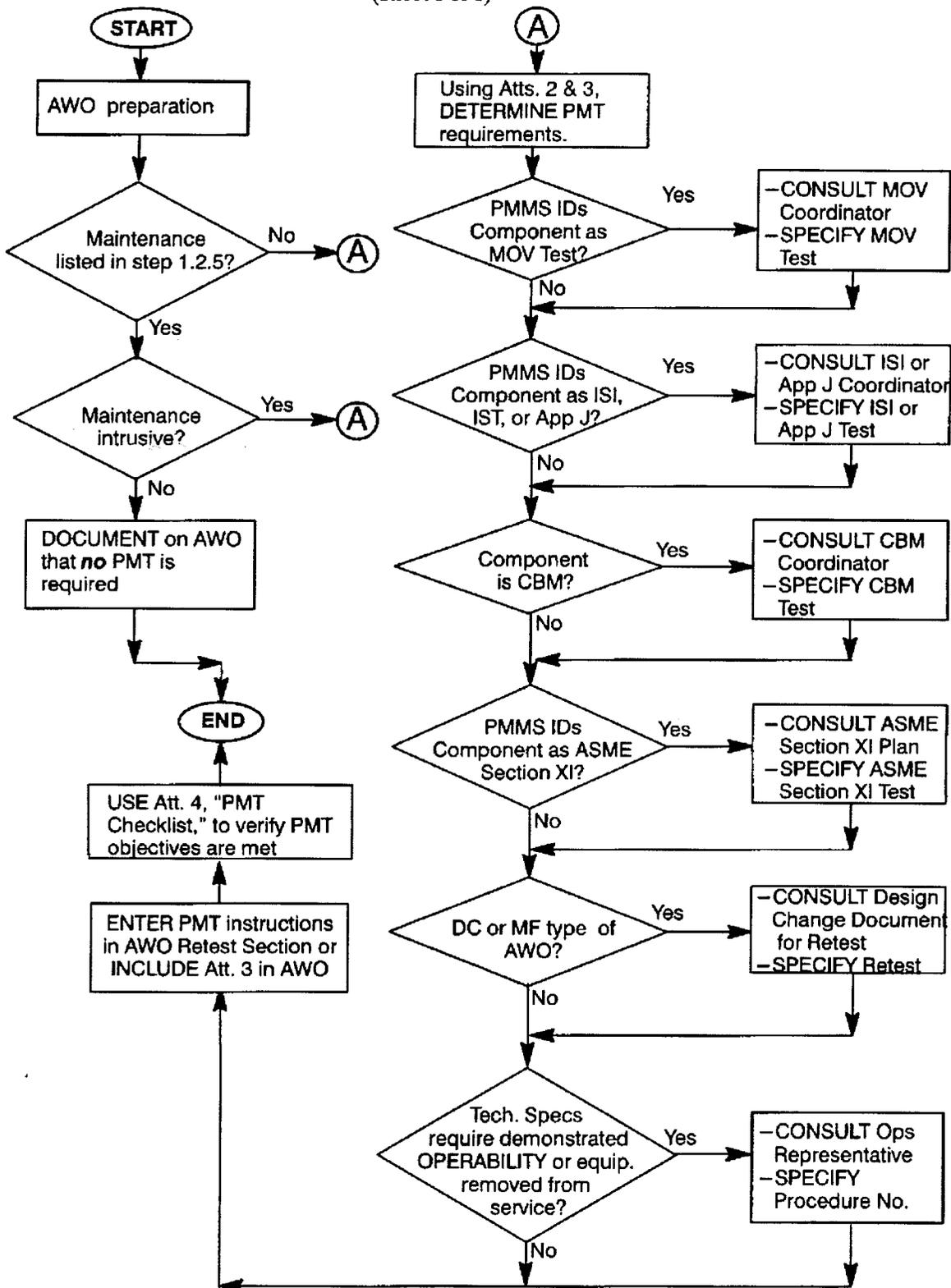
- 4.25 Step 1.3.3 is revised clarifying PMT adequacy.
- 4.26 Added note and step 1.3.4 for PMT Plan Review, and two commitments.
- 4.27 Rewrote Section 1.4 clarifying PMT documentation.
- 4.28 Rewrote Section 1.5 clarifying PMT Plan Modifications.
- 4.29 Added commitment designator to step 2.3.
- 4.30 Added new commitment to steps 3.3 through 3.7.
- 4.31 Added commitment to Attachment 2, note 9.
- 4.32 Changed type of testing on Attachment 2 (Sht. 6 of 10) for MOV.
- 4.33 Changed Attachment 3, Items, 1, 5, 7, 9, 11, 12, 13, 16, and 17.
- 4.34 Added commitment to Attachment 3, note 9.
- 4.35 Changed Attachment 4, items 10, 12, 16, and 17.



# Attachment 1

## Flowchart of Post-Maintenance Test Selection Process

(Sheet 1 of 1)



Level of Use Information

STOP THINK ACT REVIEW

C WPC 3  
Rev. 2  
17 of 32

**Attachment 2**  
**Post-Maintenance Testing Matrix**  
(Sheet 1 of 10)

| Component PMMS Identification<br><br>Maintenance        | Type of Test     |         |            |          |          |                  |          |
|---------------------------------------------------------|------------------|---------|------------|----------|----------|------------------|----------|
|                                                         | 1                |         | 2          |          |          | 3                |          |
|                                                         | Functional Tests |         | Leak Tests |          |          | Electrical Tests |          |
|                                                         | Op (1)           | Pos Ind | Gen        | Pack (2) | Seat (3) | Amp (4/5/6)      | InsR (7) |
| ACB (Air Circuit Breaker)                               |                  |         |            |          |          |                  |          |
| Adjust breaker timing                                   | X                |         |            |          |          |                  |          |
| Repair, replace components; control circuit maintenance | X                |         |            |          |          |                  | X        |
| ACC (Accumulator)                                       | X                |         | X          |          |          |                  |          |
| ACT (Actuator)(Other than AOV/MOV)                      | X                | X       |            |          |          |                  |          |
| ACU (Air Conditioning Unit)                             |                  |         |            |          |          |                  |          |
| Work on compressor                                      | X                |         | X          |          |          |                  |          |
| Work on air moving equipment                            | X                |         |            |          |          |                  |          |
| Work on motor                                           | X                |         |            |          |          | X                | X        |
| AHU (Air Handling Unit)                                 | X                |         |            |          |          |                  |          |
| ALK (Airlock)                                           | X                |         |            |          |          |                  |          |
| AOD (Air Operated Damper)                               | X                | X       |            |          |          |                  |          |
| AOL (Air Operated Louver)                               | X                | X       |            |          |          |                  |          |
| AOP (Air Operator)                                      | X                | X       |            |          |          |                  |          |

**NOTES:**

- 1: Monitor component vibration if component is in the Unit's Vibration Monitoring Program.
- 2: Packing retest includes cycling valve and readjusting the packing gland. (SRO may waive.)
- 3: Check seat leakage if practical. In some plant configs, it may *not* be feasible. Other methods (e.g. Blue dye test during assembly) may be used.
- 4: Check Motor Running amps on new installations and mechanical overhauls. May also be needed if work affects motor load conditions (e.g. valve repacking, adjusting belt sheaves, or stuffing boxes, or pump shaft packing.)
- 5: Motor starting amps only needs to be verified when the electrical windings of motor have been modified. (Rewind or Repair)
- 6: Verify HTR current to within 10% of original design (for multiple heater circuits).
- 7: Perform applicable resistance check when insulation is disturbed or repaired, or perform ductor check when connections are disturbed or repaired.
- 8: Work on AOV or MOV could affect stroke time. (Consult MOV Coordinator for MOV work.)
- 9: Retest MOVs per Station MOV Program. Also, changing motor contactor may affect dropout time and require MOV testing program. [✚ Comm. 3.6]
- 10: Verify that odorizer cartridge housing is tight.

Level of Use  
Information



**Attachment 2**  
**Post-Maintenance Testing Matrix**  
(Sheet 2 of 10)

| Component PMMS Identification<br><br>Maintenance        | Type of Test                         |         |            |          |          |                  |          |
|---------------------------------------------------------|--------------------------------------|---------|------------|----------|----------|------------------|----------|
|                                                         | 1                                    |         | 2          |          |          | 3                |          |
|                                                         | Functional Tests                     |         | Leak Tests |          |          | Electrical Tests |          |
|                                                         | Op (1)                               | Pos Ind | Gen        | Pack (2) | Seat (3) | Amp (4/5/6)      | InsR (7) |
| <b>AOV (Assembly, Valve &amp; Air Operator) (8)</b>     |                                      |         |            |          |          |                  |          |
| Valve disassembly                                       | X                                    | X       | X          | X        | X        |                  |          |
| Valve packing—adjust or replace                         | X                                    |         |            | X        |          |                  |          |
| Bonnet gasket repair                                    | X                                    | X       | X          | X        | X        |                  |          |
| Work on air operator                                    | X                                    | X       |            |          | X        |                  |          |
| <b>BKR (Breaker) (If MOV, see Note 9)</b>               |                                      |         |            |          |          |                  |          |
| Adjust breaker timing                                   | X                                    |         |            |          |          |                  |          |
| Repair, replace components; control circuit maintenance | X                                    |         |            |          |          |                  | X        |
| <b>BLO (Blower)</b>                                     |                                      |         |            |          |          |                  |          |
| Work on air moving equipment                            | X                                    |         |            |          |          | X                |          |
| Work on motor                                           | X                                    |         |            |          |          | X                | X        |
| <b>BLR (Boiler)</b>                                     | X                                    |         | X          |          |          |                  |          |
| <b>BSH (Bushing, Insulator [Electrical])</b>            |                                      |         |            |          |          |                  |          |
| <b>BTY (Battery)</b>                                    |                                      |         |            |          |          |                  |          |
| Add Water or electrolyte                                |                                      |         |            |          |          |                  |          |
| Replace or disconnect cells                             | X                                    |         |            |          |          |                  | X        |
| <b>BUS (Bus, Electrical)</b>                            |                                      |         |            |          |          |                  | X        |
| <b>CAM (Assembly, Compressor and Motor)</b>             |                                      |         |            |          |          |                  |          |
| Work on compressor                                      | X                                    |         | X          |          |          | X                |          |
| Work on motor                                           | X                                    |         |            |          |          | X                | X        |
| <b>CBD (Circuit Board)</b>                              | As determined by application and use |         |            |          |          |                  |          |
| <b>CBL (Cable, Electrical)</b>                          |                                      |         |            |          |          |                  | X        |
| <b>CHG (Charger, Battery)</b>                           | X                                    |         |            |          |          |                  |          |
| <b>CHL (Chiller)</b>                                    | X                                    |         | X          |          |          | X                |          |
| Work on motor                                           | X                                    |         |            |          |          | X                | X        |

Level of Use  
Information

STOP      THINK      ACT      REVIEW

C WPC 3  
Rev. 2  
19 of 32

**Attachment 2**  
**Post-Maintenance Testing Matrix**  
(Sheet 3 of 10)

| Component PMMS Identification<br><br>Maintenance | Type of Test     |         |            |          |          |                  |          |
|--------------------------------------------------|------------------|---------|------------|----------|----------|------------------|----------|
|                                                  | 1                |         | 2          |          |          | 3                |          |
|                                                  | Functional Tests |         | Leak Tests |          |          | Electrical Tests |          |
|                                                  | Op (1)           | Pos Ind | Gen        | Pack (2) | Seat (3) | Amp (4/5/6)      | InsR (7) |
| CLR (Cooler)                                     | X                |         | X          |          |          |                  |          |
| CMP (Compressor)                                 | X                |         | X          |          |          | X                |          |
| Work on Motor                                    | X                |         |            |          |          | X                | X        |
| CND (Condenser)                                  |                  |         |            |          |          |                  |          |
| Work on waterside                                | X                |         | X          |          |          |                  |          |
| Work on steamside                                |                  |         | X          |          |          |                  |          |
| CNT (Controller)                                 | X                |         |            |          |          | X                | X        |
| CNV (Conveyor)                                   | X                |         |            |          |          | X                |          |
| CPL (Coupling)                                   | X                |         |            |          |          |                  |          |
| CRN (Crane or Hoist)                             | X                |         |            |          |          |                  |          |
| CT (Current Transformer)                         |                  |         |            |          |          |                  |          |
| Repair, replace, disassemble, reassemble         | X                |         |            |          |          |                  |          |
| Replace oil                                      | X                |         | X          |          |          |                  |          |
| DEA (Deaerator)                                  | X                |         | X          |          |          |                  |          |
| DEH (Dehumidifier)                               |                  |         |            |          |          |                  |          |
| Work on air handling; filters                    | X                |         |            |          |          |                  |          |
| Work on motor                                    | X                |         |            |          |          | X                | X        |
| DEM (Demineralizer)                              | X                |         | X          |          |          |                  |          |
| DGF (Degasifier)                                 | X                |         | X          |          |          |                  |          |
| Work on Motor                                    | X                |         |            |          |          | X                | X        |
| DIS (Disconnect, Electrical)                     | X                |         |            |          |          |                  | X        |
| DLG (Data Logger)                                | X                |         |            |          |          |                  |          |
| DMP (Damper)                                     | X                |         |            |          |          |                  |          |
| DOR (Door)                                       | X                |         |            |          |          |                  |          |
| DRY (Dryer)                                      | X                |         | X          |          |          | X                | X        |
| DSC (Rupture Disc)                               |                  |         | X          |          |          |                  |          |

**Level of Use Information**

STOP      THINK      ACT      REVIEW

C WPC 3  
Rev. 2  
20 of 32

**Attachment 2**  
**Post-Maintenance Testing Matrix**  
 (Sheet 4 of 10)

| Component PMMS Identification<br><br>Maintenance | 1                |         | 2          |          |          | 3                |          |
|--------------------------------------------------|------------------|---------|------------|----------|----------|------------------|----------|
|                                                  | Functional Tests |         | Leak Tests |          |          | Electrical Tests |          |
|                                                  | Op (1)           | Pos Ind | Gen        | Pack (2) | Seat (3) | Amp (4/5/6)      | InsR (7) |
| DTR (Detector)                                   | X                |         | X          |          |          |                  |          |
| EAG (Assembly, Engine and Generator)             |                  |         |            |          |          |                  |          |
| Work on engine, generator                        | X                |         | X          |          |          | X                | X        |
| Work on cooler                                   |                  |         | X          |          |          |                  |          |
| EDU (Eductor)                                    | X                |         | X          |          |          |                  |          |
| EJT (Steam Jet Air Ejector)                      | X                |         | X          |          |          |                  |          |
| ELE (Elevator)                                   | X                |         |            |          |          |                  |          |
| Work on Motor                                    | X                |         |            |          |          | X                | X        |
| ENG (Engine)                                     | X                |         | X          |          |          |                  |          |
| EVP (Evaporator)                                 | X                |         | X          |          |          |                  |          |
| EXC (Exciter)                                    | X                |         |            |          |          |                  | X        |
| FAM (Fan and Motor Subassembly)                  |                  |         |            |          |          |                  |          |
| Work on fan                                      | X                |         |            |          |          | X                |          |
| Work on motor                                    | X                |         |            |          |          | X                | X        |
| FAN (Fan and Motor Unit)                         | X                |         |            |          |          | X                | X        |
| FHY (Fire Hydrant)                               | X                |         | X          |          | X        |                  |          |
| FIA (Flow Indicator Alarm)                       | X                |         | X          |          |          |                  |          |
| FLT (Filter)                                     | X                |         | X          |          |          |                  |          |
| FPR (Backflow Preventer)                         | X                |         | X          |          | X        |                  |          |
| FUS (Fuse)                                       | X                |         |            |          |          |                  |          |
| GAU (Gauge)                                      | X                |         | X          |          |          |                  |          |
| GEN (Generator)                                  | X                |         |            |          |          |                  | X        |
| GER (Gearbox, Reduction Gear)                    | X                |         |            |          |          |                  |          |
| GGL (Gauge, Sight Glass)                         | X                |         | X          |          |          |                  |          |
| GOV (Governor)                                   | X                |         |            |          |          |                  |          |
| HAM (Assembly, Hoist and Motor)                  |                  |         |            |          |          |                  |          |
| Work on hoist                                    | X                |         |            |          |          |                  |          |
| Work on motor                                    | X                |         |            |          |          | X                | X        |

Level of Use  
Information

STOP THINK ACT REVIEW

C WPC 3  
Rev. 2  
21 of 32

**Attachment 2**  
**Post-Maintenance Testing Matrix**  
(Sheet 5 of 10)

| Component PMMS Identification<br><br>Maintenance                                                         | Type of Test     |         |            |          |          |                  |          |
|----------------------------------------------------------------------------------------------------------|------------------|---------|------------|----------|----------|------------------|----------|
|                                                                                                          | 1                |         | 2          |          |          | 3                |          |
|                                                                                                          | Functional Tests |         | Leak Tests |          |          | Electrical Tests |          |
|                                                                                                          | Op (1)           | Pos Ind | Gen        | Pack (2) | Seat (3) | Amp (4/5/6)      | InsR (7) |
| HGR (Hanger)                                                                                             |                  |         |            |          |          |                  |          |
| HOP (Hydraulic Operator)                                                                                 | X                |         | X          |          |          |                  |          |
| HOV (Assembly, Valve and Hydraulic Operator)                                                             |                  |         |            |          |          |                  |          |
| Valve disassembly                                                                                        | X                | X       | X          | X        | X        |                  | X        |
| Valve packing – adjust or replace                                                                        | X                |         | X          | X        |          |                  |          |
| Bonnet gasket repair                                                                                     | X                |         | X          |          |          |                  |          |
| Work on hydraulic operator                                                                               | X                | X       | X          |          | X        |                  | X        |
| HST (Hoist)                                                                                              |                  |         |            |          |          |                  |          |
| Work on cable, trolley, bridge, hoist, brakes                                                            | X                |         |            |          |          |                  |          |
| Work on motor                                                                                            | X                |         |            |          |          | X                | X        |
| HTC (Heat Tracing, Steam or Electric)                                                                    |                  |         |            |          |          |                  |          |
| Repair, replace, recalibrate                                                                             | X                |         |            |          |          | X                |          |
| Remove, reinstall insulation                                                                             |                  |         |            |          |          | X                |          |
| HTR (Heater)                                                                                             | X                |         | X          |          |          | X                | X        |
| HVU (Heating and Ventilation Unit)                                                                       | X                |         | X          |          |          |                  |          |
| HXR (Heat Exchanger)                                                                                     |                  |         |            |          |          |                  |          |
| Disassemble, reassemble, remove and install access cover, rework tube bundle, repair baffles, plug tubes | X                |         | X          |          |          |                  |          |
| Remove, repair, replace insulation; inspect and repair coatings; replace cathodic protection             | X                |         | X          |          |          |                  |          |
| IND (Indicator)                                                                                          | X                |         |            |          |          |                  |          |
| IVT (Inverter)                                                                                           | X                |         |            |          |          |                  |          |
| LA (Lightning Arrestor)                                                                                  |                  |         |            |          |          |                  |          |
| LCT (Load Center)                                                                                        | X                |         |            |          |          |                  | X        |
| LGT (Light)                                                                                              | X                |         |            |          |          |                  |          |
| LVR (Louver)                                                                                             | X                |         |            |          |          |                  |          |

**Level of Use Information**

STOP      THINK      ACT      REVIEW

CWPC 3  
Rev. 2  
22 of 32

**Attachment 2**  
**Post – Maintenance Testing Matrix**  
(Sheet 6 of 10)

| Component PMMS Identification<br><br>Maintenance | Type of Test     |         |            |          |          |                  |          |
|--------------------------------------------------|------------------|---------|------------|----------|----------|------------------|----------|
|                                                  | 1                |         | 2          |          |          | 3                |          |
|                                                  | Functional Tests |         | Leak Tests |          |          | Electrical Tests |          |
|                                                  | Op (1)           | Pos Ind | Gen        | Pack (2) | Seat (3) | Amp (4/5/6)      | InsR (7) |
| MAG (Assembly, Electric Motor and Generator)     |                  |         |            |          |          |                  |          |
| Work on motor                                    | X                |         |            |          |          | X                | X        |
| Work on generator                                | X                |         |            |          |          |                  | X        |
| MCC (Motor Control Center)                       | X                |         |            |          |          |                  | X        |
| MDR (Motor Operated Disconnect)                  |                  |         |            |          |          | X                | X        |
| MET (Meter)                                      | X                |         |            |          |          |                  |          |
| MOD (Motor Operated Damper)                      |                  |         |            |          |          |                  |          |
| Work on damper                                   | X                | X       |            |          |          |                  |          |
| Work on motor                                    | X                | X       |            |          |          | X                | X        |
| MOP (Motor Operator)                             | X                | X       |            |          |          | X                | X        |
| MOR (Manual Operator)                            | X                | X       |            |          |          |                  |          |
| MOV (Motor Operated Valve) (8 & 9)               |                  |         |            |          |          |                  |          |
| Valve disassembly                                | X                | X       | X          | X        | X        | X                | X        |
| Valve packing adjustment                         | X                |         |            | X        |          | X                |          |
| Valve bonnet gasket repair                       | X                |         | X          |          |          |                  |          |
| Work on motor operator                           | X                | X       |            |          | X        | X                | X        |
| MSP (Moisture Separator)                         | X                |         | X          |          |          |                  |          |
| MTR (Motor) (9)                                  | X                |         |            |          |          | X                | X        |
| OCB (Oil Circuit Breaker)                        | X                |         | X          |          |          |                  | X        |
| ODR (Odorizer Cartridge) (10)                    |                  |         |            |          |          |                  |          |
| ORI (Orifice)                                    | X                |         |            |          |          |                  |          |
| OSC (Oscillograph)                               | X                |         |            |          |          |                  |          |
| Repair affecting bearing cooling                 | X                |         | X          |          |          |                  |          |

**Level of Use Information**

STOP      THINK      ACT      REVIEW

C WPC 3  
Rev. 2  
23 of 32

**Attachment 2**  
**Post-Maintenance Testing Matrix**  
(Sheet 7 of 10)

| Component PMMS Identification<br><br>Maintenance | Type of Test     |         |            |          |          |                  |          |
|--------------------------------------------------|------------------|---------|------------|----------|----------|------------------|----------|
|                                                  | 1                |         | 2          |          |          | 3                |          |
|                                                  | Functional Tests |         | Leak Tests |          |          | Electrical Tests |          |
|                                                  | Op (1)           | Pos Ind | Gen        | Pack (2) | Seat (3) | Amp (4/5/6)      | InsR (7) |
| <b>PAM (Pump and Motor)</b>                      |                  |         |            |          |          |                  |          |
| Pump disassembly                                 | X                |         | X          |          |          | X                |          |
| Pump seal repair                                 | X                |         | X          | X        |          | X                |          |
| Pump bearing repair                              | X                |         | X          | X        |          | X                |          |
| Repair affects pump bearing cooling              | X                |         | X          |          |          |                  |          |
| Alignment                                        | X                |         |            | X        |          | X                |          |
| Motor repair                                     | X                |         |            |          |          | X                | X        |
| <b>PAT (Assembly, Pump and Turbine)</b>          |                  |         |            |          |          |                  |          |
| Pump disassembly                                 | X                |         | X          | X        |          |                  |          |
| Pump seal repair                                 | X                |         | X          | X        |          |                  |          |
| Pump bearing repair                              | X                |         | X          | X        |          |                  |          |
| Repair affects pump bearing cooling              | X                |         | X          |          |          |                  |          |
| Alignment                                        | X                |         |            | X        |          |                  |          |
| Work on turbine                                  | X                |         | X          |          |          |                  |          |
| <b>PEN (Containment Penetration)</b>             |                  |         |            |          |          |                  |          |
| <b>PIA (Pressure Indicator Alarm)</b>            | X                |         | X          |          |          |                  |          |
| <b>PMG (Permanent Magnet Generator)</b>          | X                |         |            |          |          |                  | X        |
| <b>PMP (Pump)</b>                                |                  |         |            |          |          |                  |          |
| Disassembly                                      | X                |         | X          | X        |          | X                |          |
| Seal repair                                      | X                |         | X          | X        |          | X                |          |
| Alignment                                        | X                |         |            | X        |          | X                |          |
| Bearing repair                                   | X                |         | X          | X        |          | X                |          |
| Repair affects bearing cooling                   | X                |         | X          |          |          |                  |          |
| <b>POS (Positioner)</b>                          | X                |         | X          |          | X        |                  |          |
| <b>POT (Potentiometer)</b>                       | X                |         |            |          |          |                  |          |

Level of Use  
Information

STOP      THINK      ACT      REVIEW

C WPC 3  
Rev. 2  
24 of 32

**Attachment 2**  
**Post-Maintenance Testing Matrix**  
 (Sheet 8 of 10)

| Component PMMS Identification<br><br>Maintenance                              | Type of Test     |         |            |          |          |                  |          |
|-------------------------------------------------------------------------------|------------------|---------|------------|----------|----------|------------------|----------|
|                                                                               | 1                |         | 2          |          |          | 3                |          |
|                                                                               | Functional Tests |         | Leak Tests |          |          | Electrical Tests |          |
|                                                                               | Op (1)           | Pos Ind | Gen        | Pack (2) | Seat (3) | Amp (4/5/6)      | InsR (7) |
| PT (Potential Transformer)                                                    |                  |         |            |          |          |                  |          |
| Repair, replace, clean or inspect bus connections, core, windings, insulation | X                |         |            |          |          |                  | X        |
| Replace oil                                                                   | X                |         | X          |          |          |                  |          |
| PWR (Power Supply)                                                            |                  |         |            |          |          |                  |          |
| Repair, replace                                                               | X                |         |            |          |          |                  |          |
| Power supply adjustment                                                       | X                |         |            |          |          |                  |          |
| RCB (Recombiner)                                                              | X                |         |            |          |          | X                | X        |
| RDM (Rod Drive Mechanism)                                                     | X                |         |            |          |          |                  | X        |
| REF (Refrigeration Unit)                                                      |                  |         |            |          |          |                  |          |
| Work on condenser                                                             | X                |         | X          |          |          |                  |          |
| Work on motor                                                                 | X                |         |            |          |          | X                | X        |
| REG (Regulator)                                                               | X                |         |            |          |          |                  |          |
| RHX (Reheater)                                                                | X                |         | X          |          |          |                  |          |
| RTD (Resistance Temperature Detector)                                         |                  |         |            |          |          |                  |          |
| Repair or replace RTD                                                         | X                |         |            |          |          |                  | X        |
| Repair or replace thermowell                                                  | X                |         | X          |          |          |                  |          |
| SAM (Assembly, Screen and Motor)                                              |                  |         |            |          |          |                  |          |
| Work on screen                                                                | X                |         |            |          |          | X                |          |
| Work on motor                                                                 | X                |         |            |          |          | X                | X        |
| SEP (Separator)                                                               | X                |         | X          |          |          |                  |          |
| SEQ (Sequencer)                                                               | X                |         |            |          |          |                  |          |
| SJE (Steam Jet Air Ejector)                                                   | X                |         | X          |          |          |                  |          |
| SKD (Steam Generator Wet Layup Recirc. Skid)                                  | X                |         | X          |          |          | X                |          |
| SLC (Silencer)                                                                | X                |         |            |          |          |                  |          |
| SNB (Snubber)                                                                 | X                |         | X          |          |          |                  |          |

**Level of Use Information**

STOP      THINK      ACT      REVIEW

C WPC 3  
 Rev. 2  
 25 of 32

**Attachment 2**  
**Post-Maintenance Testing Matrix**  
 (Sheet 9 of 10)

| Component PMMS Identification<br><br>Maintenance             | Type of Test     |         |            |          |          |                  |          |
|--------------------------------------------------------------|------------------|---------|------------|----------|----------|------------------|----------|
|                                                              | 1                |         | 2          |          |          | 3                |          |
|                                                              | Functional Tests |         | Leak Tests |          |          | Electrical Tests |          |
|                                                              | Op (1)           | Pos Ind | Gen        | Pack (2) | Seat (3) | Amp (4/5/6)      | InsR (7) |
| SOD (Solenoid Operated Damper)                               | X                | X       | X          |          |          |                  |          |
| SOL (Solenoid Valve)                                         | X                | X       | X          |          | X        |                  |          |
| SOV (Solenoid Operated Valve)                                | X                | X       | X          |          | X        |                  |          |
| SPH (Spring Hanger)                                          |                  |         |            |          |          |                  |          |
| SPV (Spherical Valve)                                        | X                | X       | X          |          | X        |                  |          |
| Work on motor                                                | X                |         |            |          |          | X                | X        |
| SRV (Servomotor)                                             | X                | X       |            |          |          | X                | X        |
| STG (Steam Generator)                                        |                  |         | X          |          |          |                  |          |
| STM (Strainer and Motor Subassemblies)                       |                  |         |            |          |          |                  |          |
| Work on strainer                                             | X                |         | X          |          |          | X                |          |
| Work on motor                                                | X                |         |            |          |          | X                | X        |
| STR (Strainer and Motor Unit)                                | X                |         | X          |          |          | X                | X        |
| Work on breakers, relaying, instrumentation, control circuit | X                |         |            |          |          |                  |          |
| SVL (Safety or Relief Valve)                                 |                  |         | X          |          | X        |                  |          |
| SWB (Switchboard)                                            | X                |         |            |          |          |                  | X        |
| SWG (Switchgear)                                             |                  |         |            |          |          |                  |          |
| TAC (Tachometer)                                             | X                |         |            |          |          |                  |          |
| TAG (Assembly, Turbine, and Generator)                       |                  |         |            |          |          |                  |          |
| Work on turbine                                              | X                |         | X          | X        |          |                  |          |
| Disassembly                                                  | X                | X       | X          | X        |          |                  |          |
| Packing adjustment or replacement                            | X                |         |            | X        |          |                  |          |
| Bonnet gasket repair                                         | X                |         | X          |          |          |                  |          |
| TC (Thermocouple)                                            | X                |         |            |          |          |                  |          |
| TDR (Time Delay Relay)                                       | X                |         |            |          |          |                  |          |
| THR (Thermometer)                                            | X                |         |            |          |          |                  |          |
| THT (Thermostat)                                             | X                |         |            |          |          |                  |          |
| TNK (Tank)                                                   |                  |         | X          |          |          |                  |          |

**Level of Use Information**

STOP      THINK      ACT      REVIEW

C WPC 3  
 Rev. 2  
 26 of 32

**Attachment 2**  
**Post-Maintenance Testing Matrix**

(Sheet 10 of 10)

| Component PMMS Identification<br><br>Maintenance | Type of Test     |         |            |          |          |                  |          |
|--------------------------------------------------|------------------|---------|------------|----------|----------|------------------|----------|
|                                                  | 1                |         | 2          |          |          | 3                |          |
|                                                  | Functional Tests |         | Leak Tests |          |          | Electrical Tests |          |
|                                                  | Op (10)          | Pos Ind | Gen        | Pack (2) | Seat (3) | Amp (4/5/6)      | InsR (7) |
| TPR (Temperature Probe)                          | X                |         |            |          |          |                  |          |
| TRB (Turbine, Steam or Hydro)                    | X                |         | X          |          |          |                  |          |
| TRC (Trash Rack)                                 | X                |         |            |          |          |                  |          |
| TRK (Trash Rake)                                 | X                |         |            |          |          | X                | X        |
| TRP (Trap)                                       | X                |         | X          |          | X        |                  |          |
| TSC (Traveling Screen)                           | X                |         |            |          |          | X                | X        |
| TSH (Trash Boom)                                 | X                |         |            |          |          |                  |          |
| TUN (Tunnel)                                     |                  |         |            |          |          |                  |          |
| Valve bonnet gasket repair                       | X                |         | X          |          |          |                  |          |
| Work on manual operator                          | X                | X       |            |          | X        |                  |          |
| VBP (Vibration Probe)                            |                  |         |            |          |          |                  |          |
| VAC (Vacuum Breaker)                             |                  |         |            |          |          |                  |          |
| VAS (Assembly, Valve)                            |                  |         |            |          |          |                  |          |
| Valve disassembly                                | X                | X       | X          | X        | X        |                  |          |
| Valve packing – adjust or replace                | X                |         |            | X        |          |                  |          |
| VLV (Valve)                                      |                  |         |            |          |          |                  |          |
| Work on lights or indicators                     | X                | X       |            |          |          |                  |          |
| Replace or adjust packing                        | X                |         |            | X        |          |                  |          |
| VNE (Vanes)                                      | X                | X       |            |          |          |                  |          |
| VNT (Venturi)                                    | X                |         | X          |          |          |                  |          |
| WBX (Waterbox – Condenser Waterside)             | X                |         | X          |          |          |                  |          |
| XDC (Transducer)                                 | X                |         |            |          |          |                  |          |
| XMF (Transformer)                                | X                |         | X          |          |          |                  | X        |
| XMT (Transmitter)                                | X                |         | X          |          |          |                  |          |
| Repair or replace transmitter                    | X                |         | X          |          |          |                  |          |
| Repair or replace power supply                   | X                |         |            |          |          |                  |          |
| Repair or replace pneumatics                     | X                |         | X          |          |          |                  |          |
| XPJ (Expansion Joint)                            | X                |         | X          |          |          |                  |          |

**Level of Use  
Information**

STOP      THINK      ACT      REVIEW

C WPC 3  
Rev. 2  
27 of 32

**Attachment 3**  
**Post-Maintenance Testing and Special Instructions**  
 (Sheet 1 of 3)

AWO No. \_\_\_\_\_

| Check App. Items | Test Description | Acceptance Criteria | Results/Initial/Date |
|------------------|------------------|---------------------|----------------------|
|------------------|------------------|---------------------|----------------------|

**Functional Test**

|    |                            |                  |                                                                |
|----|----------------------------|------------------|----------------------------------------------------------------|
| 1) | Cycle or Operate Component | Proper Operation | <input type="checkbox"/> SAT<br><input type="checkbox"/> UNSAT |
| 2) | Others                     |                  | <input type="checkbox"/> SAT<br><input type="checkbox"/> UNSAT |

**Leakage Test**

|    |                                                                                                            |                                                                                                                                        |                                                                |
|----|------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|
| 3) | With system at normal operating pressure and temperature, visually inspect for leaks at mechanical joints. | <input type="checkbox"/> None<br><input type="checkbox"/> < _____                                                                      | <input type="checkbox"/> SAT<br><input type="checkbox"/> UNSAT |
| 4) | With system at normal operating pressure and temperature, visually inspect for leaks at packing or seals.  | <input type="checkbox"/> None<br><input type="checkbox"/> Value subjective, based on operator exp.<br><input type="checkbox"/> < _____ | <input type="checkbox"/> SAT<br><input type="checkbox"/> UNSAT |

**Electrical Test**

|     |                                   |                                |                                                                |
|-----|-----------------------------------|--------------------------------|----------------------------------------------------------------|
| 5)  | Motor Starting Current _____ amps | (Note 5)                       | <input type="checkbox"/> SAT<br><input type="checkbox"/> UNSAT |
| 6)  | Motor Running Current _____ amps  | ≤ FL amps or _____ (Note 4)    | <input type="checkbox"/> SAT<br><input type="checkbox"/> UNSAT |
| 7)  | Heater Current _____ amps         | _____ amps (Note 6)            | <input type="checkbox"/> SAT<br><input type="checkbox"/> UNSAT |
| 8)  | Megger phase to frame (Meg ohms)  | ≥ _____ Meg ohms               | <input type="checkbox"/> SAT<br><input type="checkbox"/> UNSAT |
| 9)  | Resistance Check (Meg ohms/OHMS)  | (Note 7)                       | <input type="checkbox"/> SAT<br><input type="checkbox"/> UNSAT |
| 10) | Continuity Test                   | Point to Point<br>< _____ ohms | <input type="checkbox"/> SAT<br><input type="checkbox"/> UNSAT |

**I&C Test**

|     |                                        |                                         |                                                                |
|-----|----------------------------------------|-----------------------------------------|----------------------------------------------------------------|
| 11) | Test Per Tech. Spec. Definition        | Consistent for plant conditions         | <input type="checkbox"/> SAT<br><input type="checkbox"/> UNSAT |
| 12) | Local/Remote Valve Position Indication | Stroked consistent with actual position | <input type="checkbox"/> SAT<br><input type="checkbox"/> UNSAT |

**Level of Use Information**

STOP      THINK      ACT      REVIEW

C WPC 3  
 Rev. 2  
 28 of 32

**Attachment 3**  
**Post-Maintenance Testing and Special Instructions**  
 (Sheet 2 of 3)

AWO No. \_\_\_\_\_

| Check App Items | Test Description                                                                      | Acceptance Criteria | Results/Initial/Date                                           |
|-----------------|---------------------------------------------------------------------------------------|---------------------|----------------------------------------------------------------|
| 13)             | MOV's to be retested in accordance with Station MOV Program (Consult MOV Coordinator) | (Note 9)            | <input type="checkbox"/> SAT<br><input type="checkbox"/> UNSAT |
| 14)             | Check seat leakage                                                                    | (Note 3)            | <input type="checkbox"/> SAT<br><input type="checkbox"/> UNSAT |
| 15)             | Dual Functional Valve                                                                 |                     | <input type="checkbox"/> SAT<br><input type="checkbox"/> UNSAT |
| 16)             | Commercial Grade Dedication Tests                                                     |                     | <input type="checkbox"/> SAT<br><input type="checkbox"/> UNSAT |

**Other Program Requirements**

|     |                                                                                                                                                                                                                                                                                                                                                                                                          |                           |                                                                |
|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|----------------------------------------------------------------|
| 17) | <input type="checkbox"/> Tech Specs, <input type="checkbox"/> MOV Test, <input type="checkbox"/> ISI or IST,<br><input type="checkbox"/> APPEN J, <input type="checkbox"/> CBM, <input type="checkbox"/> Sect. XI Code,<br><input type="checkbox"/> DC or MF AWO, <input type="checkbox"/> Non TS Surv, <input type="checkbox"/> Other,<br><i>Proced. NOs:</i> _____<br>_____<br>_____<br>_____<br>_____ | As specified in procedure | <input type="checkbox"/> SAT<br><input type="checkbox"/> UNSAT |
|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|----------------------------------------------------------------|

**Notes:**

- 1:Applies to Att. 2 *only*.
- 2:Applies to Att. 2 *only*.
- 3:Check seat leakage, if practical. In some plant configs, it may *not* be feasible. Other methods (e.g., Blue dye test during assembly) may be used.
- 4:Check motor running amps on new installations and mechanical overhauls. May also be needed if work affects motor load conditions (e.g., valve repacking, adjusting belt sheaves, adjusting stuffing boxes, or adjusting pump shaft packing).
- 5:Motor starting amps only needs to be verified when the electrical windings of the motor have been modified (Rewind or Repair).
- 6:Verify HTR current to within 10% of original design (for multiple heater circuits).
- 7:Perform applicable resistance check when insulation is disturbed or repaired, or perform ductor check when connections are disturbed or repaired.
- 8:Applies to Att. 2 *only*.
- 9:Retest MOVs per Station MOV Program. Also, changing motor contactor may affect dropout time and require MOV program testing. [♣ Comm. 3.6]

**Additional Notes:**

Level of Use  
Information



C WPC 3  
Rev. 2  
29 of 32



**Attachment 4**  
**Post – Maintenance Testing Checklist**  
(Sheet 1 of 2)

**AWO:**

| Subject of Verification                                                                      | (Check One) |    |     | Proc. No./<br>Att.3 Item | Notes |
|----------------------------------------------------------------------------------------------|-------------|----|-----|--------------------------|-------|
|                                                                                              | Yes         | No | N/A |                          |       |
| 1. Does work effect pressure boundary?                                                       |             |    |     |                          |       |
| Is general leak test required?                                                               |             |    |     |                          |       |
| 2. Is work on dual function valve?                                                           |             |    |     |                          |       |
| Are both functions covered in PMT?                                                           |             |    |     |                          |       |
| 3. Is work on valve seat or internals?                                                       |             |    |     |                          |       |
| Is seat leak test required?                                                                  |             |    |     |                          |       |
| 4. Is work on check valve?                                                                   |             |    |     |                          |       |
| Is back flow test required?                                                                  |             |    |     |                          |       |
| 5. Is work on packing or seals?                                                              |             |    |     |                          |       |
| Is adjustment required during PMT?                                                           |             |    |     |                          |       |
| Is leakable/leak off expected and checked during PMT?                                        |             |    |     |                          |       |
| 6. Is work on valve operator?                                                                |             |    |     |                          |       |
| Is adjustment required during PMT?                                                           |             |    |     |                          |       |
| Does PMT check remote indication?                                                            |             |    |     |                          |       |
| Does PMT check local indication?                                                             |             |    |     |                          |       |
| Does PMT verify cal. of AOV positioner?                                                      |             |    |     |                          |       |
| 7. Could work affect motor load? (replace pump/fan, adjust belt/sheaves, change pulley size) |             |    |     |                          |       |
| Does PMT check motor run current?                                                            |             |    |     |                          |       |
| 8. Is motor termination being replaced or repaired?                                          |             |    |     |                          |       |
| Does PMT include resistance test?                                                            |             |    |     |                          |       |
| 9. Is work opening an electrical circuit? (lifted leads, or removing links, pins, fuses)     |             |    |     |                          |       |
| Does PMT include continuity check?                                                           |             |    |     |                          |       |
| Does PMT include functional test?                                                            |             |    |     |                          |       |
| 10. Is work on MOV?                                                                          |             |    |     |                          |       |
| Consult MOV Coordinator?                                                                     |             |    |     |                          |       |
| Does MOV Test cover PMT?                                                                     |             |    |     |                          |       |

**Level of Use  
Information**



C WPC 3  
Rev. 2  
31 of 32

**Attachment 4**  
**Post-Maintenance Testing Checklist**

(Sheet 2 of 2)

| Subject of Verification                                                                     | (Check One) |    |     | Proc. No./<br>Att.3 Item | Notes |
|---------------------------------------------------------------------------------------------|-------------|----|-----|--------------------------|-------|
|                                                                                             | Yes         | No | N/A |                          |       |
| 11. Does work include ISI or IST?                                                           |             |    |     |                          |       |
| Does ISI or IST procedure cover PMT?                                                        |             |    |     |                          |       |
| 12. Is work on APPEN J Component?                                                           |             |    |     |                          |       |
| Is pre-APPEN J required?                                                                    |             |    |     |                          |       |
| Is post-APPEN J required?                                                                   |             |    |     |                          |       |
| Does APPEN J procedure cover PMT?                                                           |             |    |     |                          |       |
| 13. Is work on ASME Section XI Component?                                                   |             |    |     |                          |       |
| Does Section XI Repair Plan cover PMT?                                                      |             |    |     |                          |       |
| 14. Does work require IPTE?                                                                 |             |    |     |                          |       |
| Does IPTE cover PMT?                                                                        |             |    |     |                          |       |
| 15. Does work include CBM testing?                                                          |             |    |     |                          |       |
| Is CBM required for PMT?                                                                    |             |    |     |                          |       |
| 16. Does work include a Design Change?                                                      |             |    |     |                          |       |
| Does SPROC cover PMT?                                                                       |             |    |     |                          |       |
| Do Design Change documents cover PMT?                                                       |             |    |     |                          |       |
| 17. Is component/system covered by Tech. Specs?                                             |             |    |     |                          |       |
| Is component/system operability effected?                                                   |             |    |     |                          |       |
| Is surveillance required for PMT?                                                           |             |    |     |                          |       |
| Will PMT demonstrate operability to satisfy Tech. Spec. requirement?                        |             |    |     |                          |       |
| 18. Is PMT covered by performance procedure? (I&C, Maint., GTS, etc.)                       |             |    |     |                          |       |
| 19. Is component removed from service?                                                      |             |    |     |                          |       |
| Does PMT include functional test?                                                           |             |    |     |                          |       |
| <b>Answer the following as a check to verify PMT objectives are achieved:</b>               |             |    |     |                          |       |
| Does PMT adequately demonstrate that reported deficiency will be corrected?                 |             |    |     |                          | Yes   |
| Does PMT demonstrate no new deficiency is introduced during AWO performance?                |             |    |     |                          | No    |
| Does PMT measure performance and provide adequate documentation and review of test results? |             |    |     |                          |       |
| Is PMT acceptance criteria specific, clearly defined and verifiable?                        |             |    |     |                          |       |

**Level of Use  
Information**

STOP      THINK      ACT      REVIEW

C WPC 3  
Rev. 2  
32 of 32



# JOB PERFORMANCE MEASURE APPROVAL SHEET

I. JPM Title: **SRO Approve a Radioactive Liquid Waste Release Permit**

ID Number: JPM-A24

Revision: 0

II. Initiated:

  
\_\_\_\_\_  
Stephen R Myers  
Developer

11/28/00  
Date

III. Reviewed:

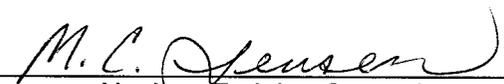
  
\_\_\_\_\_  
Technical Reviewer

1/23/01  
Date

IV. Approved:

  
\_\_\_\_\_  
User Department Supervisor

1/24/01  
Date

  
\_\_\_\_\_  
Nuclear Training Supervisor

01/24/01  
Date

**JOB PERFORMANCE MEASURE WORKSHEET**

Facility: MP-2                      Examinee: \_\_\_\_\_

JPM Number: JPM-A24                      Rev. 0

Task Title: **SRO Approve a Radioactive Liquid Waste Release Permit**

System: \_\_\_\_\_

Time Critical Task: Yes \_\_\_\_\_ No X

Validated Time (minutes): 10

Task No.(s): NUTIMS # 119-02-026

Applicable To:      SRO X      RO \_\_\_\_\_      PEO \_\_\_\_\_

K/A No.: 2.3.6                      K/A Rating: 2.1/3.1

Method of Testing:

Simulated Performance: X                      Actual Performance: \_\_\_\_\_

Location:

Classroom: X                      Simulator: X                      In-Plant: X

Task Standards:

At the completion of this JPM, the examinee will have discovered a condition on the radioactive liquid waste discharge permit that will prevent the discharge from commencing.

Required Materials

(procedures,equipment):

- SP 2617A "Aerated and Clean Radioactive Liquid Waste Discharges
- Chem Form 2864-1 "Millstone Unit 2 Liquid Discharge Permit Number

General References:

SP 2617A, Section 4.3.7 and 4.3.8 (Rev. 26, Ch. 4 )

**\*\*\* READ TO THE EXAMINEE \*\*\***

*I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied. You may use any approved reference materials normally available in the Control Room, including logs. Make all written reports, oral reports, alarm acknowledgments, and log entries as if the evolution was actually being performed.*

## JOB PERFORMANCE MEASURE WORKSHEET

JPM Number:                   JPM-A24                  

Rev.           0          

Initiating Cues:

- You are the SM and you have directed that the "A" CWMT be discharged. Take action to continue preparations for the discharge.

Initial Conditions:

- Your shift is performing SP 2617A section 4.3 "Recirculating and Discharging CWMTs"
- The Rad waste PEO has completed SP 2617A steps 4.3.1 through 4.3.6 in preparation for discharging the "A" CWMT.
- "A' CWMT, CWM TK MIXER, MT-15A is not available.
- Plant status is, Four CW pumps and Two SW pumps operating, and RM-9049 out of service for detector replacement.

Simulator Requirements:      N/A

---

\* \* \* \* **NOTES TO EXAMINER** \* \* \* \*

1. Critical steps for this JPM are indicated with an "X". For the examinee to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.
2. When examinee states what his/her simulated action/observation would be, read the appropriate "Cue".
3. If necessary, question examinee for details of simulated actions / observations (i.e. "What are you looking at?" or "What are you observing?").
4. Under **NO** circumstances must the examinee be allowed to manipulate any devices during the performance of this JPM (in-plant only).

**PERFORMANCE INFORMATION**

JPM ID NUMBER: JPM- A24      TITLE: **SRO Approve a Radioactive Liquid Waste Release Permit**

---

**START TIME:** [REDACTED]

STEP 1                      Performance Steps: When Chem. Form 2864-1 (Discharge Permit) is obtained from Chemistry Department, SM Review and Authorize Chem. Form 2864-1 "Millstone Unit #2 Liquid Discharge Permit No. XXXX," for discharge.

GRADE                          Standards:      *SM should review Form 2864-1 as shown in the attached Key.*

Cue: **Provide Chem. Form 2864-1 to the examinee.**

Comments:

~~~~~

STEP 2 Performance Steps: When Chem. Form 2864-1(Discharge Permit) is authorized, SM or US Refer to OPS Form 2617A-1 and Perform the following:

- Review plant conditions and Authorize discharge.
- Ensure no other radioactive discharges are in progress (other than SG blowdown) and initial.
- If discharge is to be performed with radiation monitor not Operable, Ensure 2 independent samples have been analyzed for CWMT , as specified on Chem Form 2852-1, "Unit 2 Liquid Radwaste Effluent Rad Monitor Inoperative" and Initial.

GRADE Standards: *Examinee reviews plant conditions and determines that the discharge can not be authorized because Chemistry has not initialed for taking two independent samples and examinee may also state that form 2852-1 has not been included.*

Cue: [REDACTED]

Comments: Not authorized because the dual independent samples are not indicated as being done on the form 2864-1 (Discharge Permit).

~~~~~

Comments:      **After this step is completed, the JPM is considered complete.**

**STOP TIME:** [REDACTED]

**VERIFICATION OF JPM COMPLETION**

Job Performance Measure No.    JPM-A24

Rev.                    0

Date Performed: \_\_\_\_\_

Operator: \_\_\_\_\_

Evaluator(s): \_\_\_\_\_

For examinee to achieve a satisfactory grade, **ALL** critical steps must be completed correctly. If task is Time Critical, it **MUST** be completed within the specified time to achieve a satisfactory grade.

Time Critical Task?    Yes \_\_\_\_\_ No   X  

Validated Time (minutes):    \_\_\_\_\_ 10 \_\_\_\_\_

Actual Time to Complete (minutes): \_\_\_\_\_

Result of JPM: \_\_\_\_\_ (Denote by an S for satisfactory or a U for unsatisfactory)

Areas for Improvement:

## EXAMINEE HANDOUT

JPM ID Number: A24

Initiating Cues:

- You are the SM and you have directed that the “A” CWMT be discharged. Take action to continue preparations for the discharge.

Initial Conditions:

- Your shift is performing SP 2617A section 4.3 “Recirculating and Discharging CWMTs”
- The Rad waste PEO has completed SP 2617A steps 4.3.1 through 4.3.6 in preparation for discharging the “A” CWMT.
- “A’ CWMT, CWM TK MIXER, MT-15A is not available.
- Plant status is, Four CW pumps and Two SW pumps operating, and RM-9049 out of service for detector replacement.

# FOR TRAINING ONLY

SIGNATURE ON FILE

5-28-98

6-11-98

Approved

Approval Date

Effective Date

MILLSTONE UNIT #2

LIQUID DISCHARGE PERMIT NO. 2049

(SP30977)

Tank.....: A CWMT  
 Sampled by.....: Wm Date/time sampled...: 8-JUN-2000 21:00  
 TSS (ppm)..: 0.5 (AWMT limit = 45 ppm; CWMT limit = 22.5 ppm) Date/time on recirc.: 8-JUN-2000 11:35  
 Boric acid conc= 6835 (ppm) Eff. Monitor Bkg= 3.1E+4 (cpm)  
 pH= 5.31 (>2 and <12.5)

$N_2H_4 \leq 0.35 \text{ ppm}$   
 $ETA \leq 6.5 \text{ ppb}$

| Isotope | Activity (uCi/ml) | MPC (uCi/ml) | Activity/MPC |
|---------|-------------------|--------------|--------------|
| CR-51   | 7.178E-05         | 2.000E-03    | 3.589E-02    |
| CO-58   | 3.601E-05         | 9.000E-05    | 4.001E-01    |
| CO-60   | 4.501E-06         | 3.000E-05    | 1.500E-01    |
| NB-95   | 3.431E-07         | 1.000E-04    | 3.431E-03    |
| AG-110M | 6.492E-07         | 3.000E-05    | 2.164E-02    |
| XE-133  | 2.794E-06         |              |              |
| CS-137  | 9.919E-07         | 2.000E-05    | 4.960E-02    |
| CE-141  | 9.163E-07         | 9.000E-05    | 1.018E-02    |
| H-3     | 1.080E-02         | 3.000E-03    | 3.600E+00    |
| Totals  | 1.152E-04 (@)     |              | 4.271E+00    |

(\*) No gasses or H-3 included in totals, however, H-3 is in Activity/MPC col.

2 circulating water pumps must be in operation during a discharge

During Unit 2 shutdown a min. dilution flow of 20,000 gpm is allowable with the discharge rate limited to 30.5 gpm.

Diluted gas concentration (uCi/ml) = 3.175E-09

Wm INIT

Minimum recirc time is ... 2.0 hr w/mixer; 7.7 hr w/pump  
 Administrative quarterly release limit (Ci)... 5.000E-02  
 Total activity released this quarter (Ci)... 1.380E-02  
 Estimated volume this discharge (gal)... 25000.  
 Estimated activity this discharge (Ci)... 1.090E-02  
 Est total activity released this quarter (Ci): 2.470E-02

- (1) Reduction factor.....: 2.341E-01 S.M. init
- (2) Required dilution flow rate.....: 308000. (gpm) \_\_\_\_\_
- 3 circ water, 2 service water pump(s)
- (3) Normal rate limit (flow rate=#1\*#2\*0.1)... 350. (gpm) \_\_\_\_\_
- (5) Liquid effluent monitor alarm setting \_\_\_\_\_
- (ALARM)..: N/A (cpm) \_\_\_\_\_
- Maximum approved rate.....: \_\_\_\_\_ (gpm) \_\_\_\_\_
- (Authorization required to exceed normal rate limit.)
- See check performed.....: \_\_\_\_\_

DISCHARGE

|           |                    |                    |                    |
|-----------|--------------------|--------------------|--------------------|
| DATE/TIME | DILUTION FLOW RATE | INTEGRATOR READING | DISCHARGE OPERATOR |
|-----------|--------------------|--------------------|--------------------|

(gpm)

(4\*DIFF=gal) RATE (gpm)

Start \_\_\_\_\_

d \_\_\_\_\_

Liquid eff monitor reading 15 min after start of discharge \_\_\_\_\_ (cpm)

Total liquid waste discharged \_\_\_\_\_ (gal) \* 3785 \_\_\_\_\_ (ml)

Liquid eff monitor Bkg reading after flush \_\_\_\_\_ (cpm)

Shift Manager \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

Chem Form 2864-1

Rev. 1

Page 1 of 1

**FOR TRAINING ONLY**

01/27/00  
Approval Date

01/31/00  
Effective Date

Document Action Request

SPG#  
000428-050503

Initiated By: John Magyarik Date: 4/5/00 Department: Plant Engr Ext.: 3929

Document No.: SP2617A Rev. No.: 026 Minor Rev.: 05

Title: Aerated and Clean Radioactive Liquid Waste Discharges

Reason for Request (attach commitments, CRs, ARs, OEs etc)

This procedure change is being requested to support corrective action plan for CR M2-00-0618. This change will improve the operating performance of valve 2-LRR-32.2. Current method of opening vavle makes proper operation of 2-LRR-32.2 solenoid valve

Continued

Instructions:

Rearrange steps 4.3.17 and 4.4.18 to first fully open 2-LRR-32.2 and then place valve in throttled position. Once 2-LRR-32.2 is throttled, open valve 2-LRR-32.1 and control flow by adjusting 2-LRR-32.2 (HIC-9049B) variator.

Continued

TPC

Interim

Approval (1) Plant Mngt Staff Member Print/Sign/Date (2) SM/SRO/CFH on Unit Print/Sign/Date

Procedure Request/Feedback Disposition

Priority:  Perform Now  Perform Later - See Comments  Rejected - See Comments

Activity:  Revision  Minor Revision  Cleanup Rev  Biennial Review  Cancellation

See DC-GDL01 for guidance

TPC  OTC  Place in VOID  Edit Corr. =>

Plant Mngt Staff Member - Approval

Comments:

RI/DPC Print Name and Date Continued

| Reviews                                         | Print         | Sign               | Date    | SQR Qualified                       |                                     |          | If Comments       |
|-------------------------------------------------|---------------|--------------------|---------|-------------------------------------|-------------------------------------|----------|-------------------|
|                                                 |               |                    |         | Yes                                 | No                                  | Dept.    |                   |
| <input type="checkbox"/>                        |               |                    |         | <input type="checkbox"/>            | <input type="checkbox"/>            |          |                   |
| <input type="checkbox"/>                        |               |                    |         | <input type="checkbox"/>            | <input type="checkbox"/>            |          |                   |
| Engineering <input checked="" type="checkbox"/> | John Magyarik | <i>[Signature]</i> | 4/28/00 | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | Plt Engr | <i>[Initials]</i> |
| RAC 06 <input checked="" type="checkbox"/>      | Richard Cox   | <i>[Signature]</i> | 5/4/00  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | OPS      |                   |
| Independent <input checked="" type="checkbox"/> | Richard Cox   | <i>[Signature]</i> | 5/4/00  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | OPS      |                   |
| Writer's Guide <input type="checkbox"/>         |               |                    |         | <input type="checkbox"/>            | <input type="checkbox"/>            |          |                   |
| Validation <input type="checkbox"/>             |               |                    |         | <input type="checkbox"/>            | <input type="checkbox"/>            |          |                   |

Safety Evaluation/Environmental Review Attached?  Yes  No

a.  SQR Program Final Review and Approval

Approval  Disapproval

*[Signature]* 5/4/00  
SQR Qualified, Independent Reviewer / Date  
*[Signature]*  
Department Head/Responsible Individual  
5-8-00  
Approval Date

b.  SORC/PORC/RI/DH Final Review and Approval

Meeting No. \_\_\_\_\_  
Department Head/Responsible Individual / Date \_\_\_\_\_  
Approval Signature \_\_\_\_\_  
Approval Date \_\_\_\_\_

Effective Date: 5-8-00

# Document Action Request Continuation Page

SPG#

Initiated By: John Magyarik Date: 4/5/00 Department: Plant Engr Ext.: 3929

Document No.: SP2617A Rev. No.: 026 Minor Rev. 05

Title: Aerated and Clean Radioactive Liquid Waste Discharges

Section B

Section C

Section E

## Continuation:

### Section B

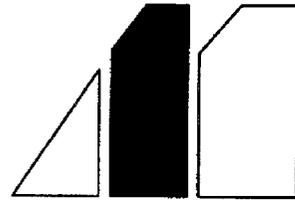
unreliable due to insufficient air pressure to air operator. This change will first open 2-LRR-32.2 using full air pressure of 30 psig and then place the valve in a throttled position. The inboard isolation valve 2-LRR-32.1 will be opened and 2-LRR-32.2 controller adjusted as required to maintain required flowrate.

Add logic to steps 4.3.22 and 4.3.23 to check position of valves when filter recirculation was used. This clarifies Rev 26 minor rev 4.  
*John*

Section C

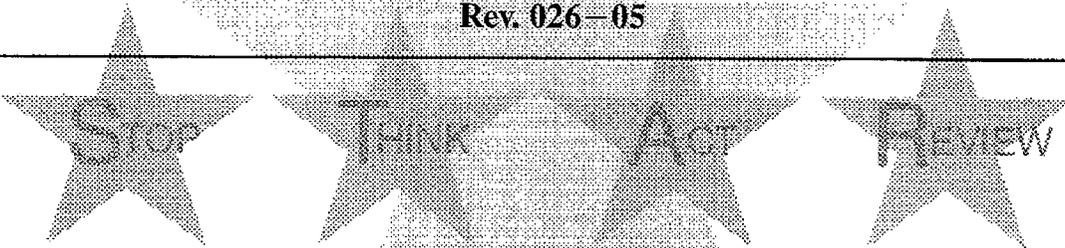
Add IF statement to step 4.3.22 to check 2-LRR-33 1-1/2 Turn open and 2-LRR-127 closed when filtered recirculation was used.

MILLSTONE NUCLEAR POWER STATION  
SURVEILLANCE PROCEDURE



**Aerated and Clean Radioactive Liquid Waste  
Discharges**

SP 2617A  
Rev. 026-05



Approval Date: 5/8/00

Effective Date: 5/8/00

**CONFIDENTIAL**

Level of Use  
**General**

**Millstone Unit 2  
Surveillance Procedure**

**Aerated and Clean Radioactive Liquid Waste Discharges**

TABLE OF CONTENTS

|                       |                                                                                                            |    |
|-----------------------|------------------------------------------------------------------------------------------------------------|----|
| 1.                    | PURPOSE .....                                                                                              | 2  |
| 2.                    | PREREQUISITES .....                                                                                        | 4  |
| 3.                    | PRECAUTIONS .....                                                                                          | 6  |
| 4.                    | INSTRUCTIONS .....                                                                                         | 8  |
| 4.1                   | Aligning PIOPS Prior to Discharge (Dual Verification) .....                                                | 8  |
| 4.2                   | Recirculating and Discharging AWMT .....                                                                   | 13 |
| 4.3                   | Recirculating and Discharging CWMTs .....                                                                  | 28 |
| 4.4                   | Recirculating and Discharging CWMTs Using CWRTs Pump .....                                                 | 46 |
| 5.                    | REVIEW AND SIGNOFF .....                                                                                   | 63 |
| 6.                    | REFERENCES .....                                                                                           | 63 |
| 7.                    | SUMMARY OF CHANGES .....                                                                                   | 63 |
| ATTACHMENTS AND FORMS |                                                                                                            |    |
|                       | Attachment 1, "Aerated Liquid Waste Discharge (% to gpm)" .....                                            | 66 |
|                       | Attachment 2, "Clean Liquid Waste Discharge (% to gpm)" .....                                              | 67 |
|                       | Attachment 3, "Aerated or Clean Radioactive Liquid Waste Discharge<br>With Inoperable Flow Recorder" ..... | 68 |
|                       | OPS Form 2617A-1, "Aerated and Clean Radioactive Liquid Waste Discharge"                                   |    |

Level of Use  
**General**



SP 2617A  
Rev. 026-05  
1 of 68

## 1. PURPOSE

### 1.1 Objective

This procedure provides instructions to ensure all requirements are met prior to and during all radioactive discharges from the following:

- Aerated Liquid Radwaste System (AWMT), to satisfy Technical Specifications Surveillance Requirement, 4.3.3.9, Table 4.3-12, items 1.b. and 3.b., "Radioactive Liquid Effluent Monitoring Instrumentation."
- Clean Liquid Radwaste System (CWMTs), to satisfy Technical Specifications Surveillance Requirement, 4.3.3.9, Table 4.3-12, items 1.a. and 3.a., "Radioactive Liquid Effluent Monitoring Instrumentation."

### 1.2 Discussion

The objective of this procedure is satisfied by performing the following:

- SOURCE CHECK of applicable radiation monitor prior to discharge:
  - IF discharging CWMT, RE-9049
  - IF discharging AWMT, RE-9116
- Checking flow recorders OPERABLE (tracking flow and indicating), prior discharge:
  - IF discharging CWMT, "FR-9050, SYSTEM DISCHARGE FLOW RECORDER"
  - IF discharging AWMT, "SYSTEM DISCHARGE FLOW, FR-9118"
- CHANNEL CHECK of applicable radiation monitor, 15 minutes after initiation of discharge
- If discharge is performed with radiation monitor *not* OPERABLE, ensuring 2 independent samples have been taken and analyzed
- Performing dual and independent verification of necessary steps for all discharges.

CHANNEL CHECK, as used in this procedure, refers to the qualitative assessment of applicable radiation monitor behavior during operation, as compared to other similar indications of the same instrumentation.

Level of Use  
**General**



SP 2617A  
Rev. 026-05  
2 of 68

The aerated and clean waste radiation monitors have design ranges of 10 to  $10^6$  cpm [FSAR Table 7.5-5]. These radiation monitors and PIOPS are *not* OPERABLE above  $10^6$  cpm.

One of the following methods shall be used to trend radiation levels during discharges of the aerated and clean waste monitor tanks:

- Process radiation recorder, RJR-9129
- Plant process computer (PPC) trend graph

The aerated and clean waste radiation monitors are OPERABLE when PIOPS is *not* available. RJR-9129 or PPC are used for recording requirements.

To allow proper mixing prior to obtaining samples, *regardless of level*, tanks to be discharged must be recirculated the appropriate time as specified in Table - 1:

| Table - 1, "Required Recirculation Times" |            |                                                                              |
|-------------------------------------------|------------|------------------------------------------------------------------------------|
| Tank                                      | With Mixer | Without Mixer                                                                |
| AWMT                                      | 30 minutes | 4 hours                                                                      |
| CWMTs                                     | 2 hours    | 7 hours, 42 minutes<br><u>OR</u><br>63,000 gallons integrated<br>recirc flow |

④

On "PROCESS RADIATION, RJR-9129" recorder (RC-14C):

- Clean waste radiation monitor, RM-9049, is point "2"
- Aerated waste radiation monitor, RM-9116, is point "4"

As directed by SM or US, signoff spaces within this procedure may be used for remote component manipulation control. Procedure performer is required to initial for completion of specified steps on a copy of the applicable pages.

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Radiation monitors addressed in this procedure may be considered inoperable due to the following [Ref. 6.8]:

- Inability to be flushed
- Inability to be cleaned
- Inability to achieve a background sufficient to calculate accurate setpoints for tank discharge

### 1.3 Applicability

To satisfy Technical Specifications LCO, 3.3.3.9, this surveillance is required to be met during *all* OPERATIONAL MODEs.

### 1.4 Frequency

This surveillance is required to be performed for *every* discharge of AWMT or CWMTs.

## 2. PREREQUISITES

### 2.1 General

2.1.1 If possible, prior to discharge, applicable radiation monitors, recorders, flow monitors, and PPC, are verified OPERABLE.

2.1.2 Applicable liquid radwaste system is available:

- If performing AWMT discharge, Aerated Liquid Radwaste System
- If performing CWMT discharge, Clean Liquid Radwaste System

Level of Use  
**General**



SP 2617A  
Rev. 026-05  
4 of 68

## 2.2 Documents

- 2.2.1 OP 2336A, "Station Sumps and Drains"
- 2.2.2 OP 2336B, "Aerated Liquid Radwaste System"
- 2.2.3 OP 2338A, "Solid Radwaste System—Filters"
- 2.2.4 OPS Form 2619A-4, "Shift Turnover Report"
- 2.2.5 Chem. Form 2864-1, "Millstone Unit #2 Liquid Discharge Permit No. XXXX"
- 2.2.6 SP 2852, "Unit 2 Liquid Radwaste Effluent Rad Monitor Inoperative"

## 2.3 Personnel

- 2.3.1 Personnel performing discharges must be qualified radwaste operators.

## 2.4 Responsibilities

- 2.4.1 Chemistry Department is required to perform the following:
  - Sample and analyze AWMT and CWMTs prior to discharge
  - If radiation monitor is *not* OPERABLE, sample and analyze AWMT or CWMTs prior to discharge using 2 independent samples
  - Send sample results to SM

## 2.5 Definitions

- 2.5.1 AWMT – Aerated Waste Monitor Tank
- 2.5.2 CWMT – Clean Waste Monitor Tank
- 2.5.3 CWRT – Clean Waste Receiver Tank
- 2.5.4 PIOPS – Programmable Input Output Processing System

Level of Use  
**General**



SP 2617A  
Rev. 026-05  
5 of 68

### 3. PRECAUTIONS

- 3.1 For all radioactive discharges, to satisfy Technical Specifications requirements, an independent and dual verification by a second qualified operator is required for *all* steps associated with initiating radioactive discharges.
- 3.2 Once recirculation has been initiated, *no* additions may be made to tanks.
- 3.3 When AWMT or CWMTs are placed on recirculation for sample, recirculation must *not* be suspended *at any time* following the sample and prior to initiation of the discharge (TSS concern).
- 3.4 Discharges *must* be terminated for any of the following reasons:
- Dilution flow rate drops to a value lower than that required on Chem. Form 2864-1, "Millstone Unit #2 Liquid Discharge Permit No. XXXX"
  - Applicable radiation monitor, (including PLOPS), becomes *not OPERABLE*
  - Applicable radiation monitor alarm sounds and discharge is *not* automatically terminated
  - Applicable radiation monitor alarm sounds and count rate continues to rise or count rate has raised significantly above setpoint
  - Applicable radiation monitor sample pump stops and discharge is *not* automatically terminated
  - Applicable discharge flow recorder becomes *not OPERABLE*
- 3.5 When discharging CWMTs, the following requirements of NPDES Permit Discharge Serial No. 001B-3, must be met:
- Maximum volume for every batch is 30,000 gallons
  - Maximum frequency is 2 times every day
  - Minimum dilution flow rate is as follows:
    - When unit is operating, 2 circulating water pumps operating
    - When unit is shutdown, maximum discharge flow rate is 30.5 gpm with minimum dilution flow equivalent to 2 service pumps operating
  - Chemistry Department is notified to sample unit discharge for hydrazine as specified in Discharge Serial No. 001B-9.
- 3.6 If, *at any time*, during discharge the flow recorder becomes *not OPERABLE*, discharge must be suspended and restarted using Attachment 3.

Level of Use  
**General**



SP 2617A  
Rev. 026-05  
6 of 68

3.7 When discharging AWMT, the following requirements of NPDES Permit Discharge Serial No. 001B-2, must be met:

- Maximum volume for every batch is 5,000 gallons
- Maximum frequency is 3 times every day
- Minimum dilution flow rate is as follows:
  - When unit is operating, 2 circulating water pumps operating
  - When unit is shutdown, maximum discharge flow rate is 30.5 gpm with minimum dilution flow equivalent to 2 service pumps operating

3.8 Waste water from SG chemical cleaning or decontamination processes shall *not* be introduced into Aerated or Clean Liquid Radwaste Systems until it has been sampled and determined to be in compliance with NPDES requirements.

3.9 When discharging water from either SG chemical cleaning or decontamination process, the following requirements of NPDES Permit Discharge Serial No. 001B-2(a) and 001B-2(b), must be met:

- Maximum volume for every batch:
  - From chemical cleaning is 107,000 gallons
  - From decontamination process is 30,000 gallons
- Maximum frequency is once every day (each)
- Minimum of 2 circulating water pumps are operating from Unit 2 during discharge
- Parameters listed in NPDES Permit Discharge Serial No. 001B-2(a) and 001B-2(b), are acceptable

3.10 When discharging water from SG wet layup drainage, the following requirements of NPDES Permit Discharge Serial No. 001B-1(a), must be met:

- Maximum volume for every batch is 70,000 gallons
- Maximum frequency is 2 times every day
- Minimum of 2 circulating water pumps are operating from Unit 2 during discharge
- Temperature of discharge shall *not* exceed 150°F
- Parameters listed in NPDES Permit Discharge Serial No. 001B-1(a), are acceptable

Level of Use  
**General**



SP 2617A  
Rev. 026-05  
7 of 68

#### 4. INSTRUCTIONS

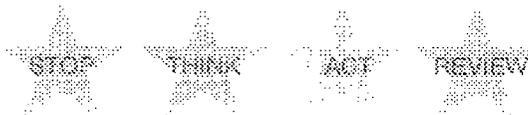
##### 4.1 Aligning PIOPS Prior to Discharge (Dual Verification)

#### NOTE

This section requires dual verification. Actions which indicate initialing OPS Form 2617A-1, apply to *both* operators.

- \_\_\_\_\_ 4.1.1 IF at any time, an error is made while keying menu, PRESS "0" (back-steps menu one level).
- \_\_\_\_\_ 4.1.2 IF at any time, an error is made while keying parameter, PRESS "DEL" (terminates operation *without* change of data).
- \_\_\_\_\_ 4.1.3 OBSERVE PIOPS radiation monitor background radiation reading:
- \_\_\_\_\_ • IF discharging CWMT, "RE-9049"
  - \_\_\_\_\_ • IF discharging AWMT, "RE-9116"
- \_\_\_\_\_ 4.1.4 RECORD radiation monitor indication on OPS Form 2617A-1 and INITIAL.
- \_\_\_\_\_ 4.1.5 ADJUST setpoints for applicable radiation monitor at PIOPS as follows:
- \_\_\_\_\_ a. OBSERVE PIOPS keypad installed in PIOPS cabinet.
  - \_\_\_\_\_ b. IF necessary, sequentially PRESS "0" until basic 9 function menu is displayed.
  - \_\_\_\_\_ c. WHEN PIOPS CRT displays basic 9 function menu, PRESS "1" (enters "LOCAL" mode).
  - \_\_\_\_\_ d. WHEN PIOPS CRT requests password, ENTER "7656" to replace "XXXX" on CRT.
  - \_\_\_\_\_ e. CHECK flashing block appears next to word "LOCAL" on CRT.
  - \_\_\_\_\_ f. IF flashing block does *not* appear next to word "LOCAL" on CRT, SUSPEND further actions and NOTIFY SM and I&C Department.

Level of Use  
**General**



SP 2617A  
Rev. 026-05  
8 of 68

\_\_\_\_\_

g. REQUEST Control Room for PPC date and time.

\_\_\_\_\_

h. CHECK PIOPS date and time display and COMPARE date and time displayed on PPC.

\_\_\_\_\_

i. IF PIOPS date and time is *not* within 1 minute of PPC date and time, PERFORM the following:

\_\_\_\_\_

1) PRESS "6" (enters "SET DATE & TIME" mode).

\_\_\_\_\_

2) ENTER correct date and time.

\_\_\_\_\_

3) PRESS "0" (exits "SET DATE & TIME" mode).

j. PRESS "4" (enters "DISPLAY/MODIFY SETPOINTS" mode).

\_\_\_\_\_

k. WHEN PIOPS requests which radiation monitor setpoint to display or modify, PERFORM *one* of the following:

\_\_\_\_\_

• IF discharging CWMT, PRESS "1" (for RE-9049).

\_\_\_\_\_

• IF discharging AWMT, PRESS "2" (for RE-9116).

l. OBSERVE "LOW ALARM" setpoint at  $1.000 \times 10^2$  cpm and INITIAL OPS Form 2617A-1.

\_\_\_\_\_

m. IF "LOW ALARM" setpoint is *not* at  $1.000 \times 10^2$  cpm, PERFORM the following:

\_\_\_\_\_

1) PRESS "2."

\_\_\_\_\_

2) WHEN "X"s appear next to current "LOW ALARM" setpoint, ENTER " $1.000 \times 10^2$ " cpm.

\_\_\_\_\_

3) CHECK setpoint at  $1.000 \times 10^2$  cpm and INITIAL OPS Form 2617A-1.

\_\_\_\_\_

4) IF "LOW ALARM" setpoint is still *not* at  $1.000 \times 10^2$  cpm, SUSPEND further actions and NOTIFY SM and I&C Department.

\_\_\_\_\_

n. To modify "HIGH ALARM" setpoint, PRESS "1."

\_\_\_\_\_

o. WHEN "X's" appear next to current high alarm setpoint, to enter new *high alarm* setpoint from OPS Form 2617A-1, PRESS appropriate keys to fill in *all* "X" spaces.

Level of Use  
General

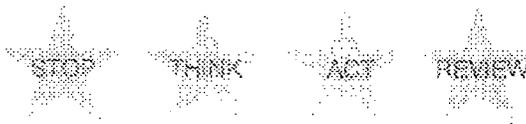


- \_\_\_\_\_ p. OBSERVE CRT indicates required *high alarm* setpoint and INITIAL OPS Form 2617A-1.
- \_\_\_\_\_ q. IF *high alarm* setpoint *cannot* be set, SUSPEND further actions and NOTIFY SM and I&C Department.
- \_\_\_\_\_ r. PRESS "0" (exits "DISPLAY/MODIFY SETPOINT" mode).
- \_\_\_\_\_ s. PRESS "0" (exits "Channel Selection" mode).

4.1.6 PERFORM SOURCE CHECK as follows:

- \_\_\_\_\_ a. WHEN PIOPS CRT displays basic 9 function menu, PRESS "3" (enters "CONTROL CHECK SOURCES/DIAGNOSTICS" mode).
- \_\_\_\_\_ b. IF discharging CWMT, PERFORM the following:
  - \_\_\_\_\_ 1) PRESS "1."
  - \_\_\_\_\_ 2) OBSERVE count rate *rises* for RE-9049.
  - \_\_\_\_\_ 3) PRESS "1" and OBSERVE count rate *lowers*.
- \_\_\_\_\_ c. IF discharging AWMT, PERFORM the following:
  - \_\_\_\_\_ 1) PRESS "2."
  - \_\_\_\_\_ 2) OBSERVE count rate *rises* for RE-9116.
  - \_\_\_\_\_ 3) PRESS "2" and OBSERVE count rate *lowers*.
- \_\_\_\_\_ d. ENSURE block does *not* appear under "CSI" on CRT [Ref. 6.7].
- \_\_\_\_\_ e. INITIAL OPS Form 2617A-1 for SOURCE CHECK.
- \_\_\_\_\_ f. IF count rate does *not* rise *or* lower for any radiation monitor, SUSPEND further actions and NOTIFY SM and I&C Department.
- \_\_\_\_\_ g. PRESS "0" (exits "CONTROL CHECK SOURCES/DIAGNOSTICS" mode).

Level of Use  
**General**



4.1.7 PERFORM high voltage check as follows:

- a. WHEN PIOPS CRT displays basic 9 function menu, PRESS "5" (enters "DISPLAY CURRENT DATA" mode).
- b. WHEN PIOPS requests which radiation monitor data to display, PERFORM *one* of the following:
  - IF discharging CWMT, PRESS "1" (for RE-9049).
  - IF discharging AWMT, PRESS "2" (for RE-9116).
- c. OBSERVE "OK" appears next to "HIGH VOLTAGE" field at bottom of CRT.
- d. IF "OK" appears next to "HIGH VOLTAGE" field, INITIAL OPS Form 2617A-1.
- e. IF "OFF" or "FAULT" appears next to "HIGH VOLTAGE" field, SUSPEND further actions and NOTIFY SM and I&C Department.
- f. PRESS "0" (exits "DISPLAY CURRENT DATA" mode).
- g. PRESS "0" (exits "Channel Selection" mode).

4.1.8 WHEN PIOPS CRT displays basic 9 function menu, PRESS "1" (exits "LOCAL" mode).

4.1.9 OBSERVE *no* flashing block next to word "LOCAL" on CRT.

4.1.10 IF "PROCESS RADIATION, RJR-9129" recorder on RC-14C, is *not* OPERABLE, ESTABLISH visual trend in Control Room as follows:

- a. SELECT a range between 0 and  $1 \times 10^6$  for applicable radiation monitor:
  - IF discharging CWMT, "R9049" (typical 6 hour trend)
  - IF discharging AWMT, "R9116" (typical 3 hour trend)
- b. As necessary during discharge, ADJUST trend duration.

Level of Use  
**General**



SP 2617A  
Rev. 026-05  
11 of 68

\_\_\_\_\_ c. INITIAL OPS Form 2617A-1.

4.1.11 PERFORM applicable action:

- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- IF discharging AWMT, Go To step 4.2.15.
  - IF discharging CWMT (normal method), Go To step 4.3.15.
  - IF discharging CWMT using CWRTs pump, Go To step 4.4.16.

– End of Section 4.1 –

Level of Use  
**General**



SP 2617A  
Rev. 026-05  
12 of 68

## 4.2 Recirculating and Discharging AWMT

### 4.2.1 PLACE AWMT on recirculation for sample as follows:

- \_\_\_\_\_
- a. IF RBCCW sump is aligned to LIS OR RM-9116 functional or calibration test is in progress, CLOSE final filter, L-16, inlet stop, 2-LRA-21 (-45'6" Aux Bldg).
- \_\_\_\_\_
- b. IF RBCCW sump is *not* aligned to LIS, ENSURE the following are closed (C-60):
- "2-LRA-22.1 (HS-9116A), SYSTEM DISCHARGE FLOW ISOLATION VALVE"
  - "2-LRA-22.2 (HS-9116B), SYSTEM DISCHARGE FLOW ISOLATION VALVE"
- \_\_\_\_\_
- c. ENSURE concentrator bypass stop, 2-LRA-49, is closed (-5' Aux Bldg).
- \_\_\_\_\_
- d. ENSURE Temporary demineralizer outlet to AWMT, 2-LRA-15, is locked closed (-5' Aux Bldg).
- \_\_\_\_\_
- e. OPEN "2-LRA-55.1 (HS-9196), WASTE MONITOR TK PUMP (P-32) RECIRC. VALVE" (C-60).
- \_\_\_\_\_
- f. START "WASTE MONITOR TK PUMP, P-32, HS-9113" (C-60).

### 4.2.2 Regardless of tank level, PERFORM *one* of the following to recirculate AWMT (C-60):

- \_\_\_\_\_
- IF available, START "AWM TK MIXER, MT-21" and RECIRCULATE tank for 30 minutes.
  - IF mixer is *not* available, RECIRCULATE tank 4 hours.

### 4.2.3 RECORD AWMT level and date and time placed on recirculation, in Radwaste Log Book.

### 4.2.4 WHEN required time for recirculation is complete, REQUEST Chemistry Department sample and analyze AWMT.

Level of Use  
**General**



SP 2617A  
Rev. 026-05  
13 of 68

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- \_\_\_\_\_ 4.2.5 IF radiation monitor, RM-9116, is *not* OPERABLE, REQUEST Chemistry Department independently sample AWMT and analyze as specified in SP 2852, "Unit 2 Liquid Radwaste Effluent Rad Monitor Inoperative."
  
- \_\_\_\_\_ 4.2.6 WHEN Chem. Form 2864-1 (Discharge Permit) is obtained from Chemistry Department, SM REVIEW and AUTHORIZE Chem Form 2864-1, "Millstone Unit #2 Liquid Discharge Permit No. XXXX," for discharge.
  
- \_\_\_\_\_ 4.2.7 WHEN Chem. Form 2864-1 (Discharge Permit) is authorized, SM or US Refer To OPS Form 2617A-1 and PERFORM the following:
  - REVIEW plant conditions and AUTHORIZE discharge.
  - ENSURE *no* other radioactive liquid discharges are in progress (other than SG blowdown) and INITIAL.
  - IF discharge is to be performed with radiation monitor *not* OPERABLE, ENSURE 2 independent samples have been analyzed for AWMT, as specified on Chem Form 2852-1, "Unit 2 Liquid Radwaste Effluent Rad Monitor Inoperative" and INITIAL.
  
- \_\_\_\_\_ 4.2.8 Refer To Chem. Form 2864-1 (Discharge Permit) and RECORD the following on OPS Form 2617A-1:
  - Discharge Permit number
  - Tank designation
  - Recirculation and sample data
  - If mixer was used
  - Liquid effluent monitor alarm setting
  - Maximum approved discharge flow rate
  - Required dilution flow rate
  
- \_\_\_\_\_ 4.2.9 Refer To OPS Form 2617A-1 and RECORD dilution flow rate with respect to running circulating water and service water pumps.

Level of Use  
**General**



- \_\_\_\_\_ 4.2.10 ENSURE actual dilution flow rate is greater than or equal to required dilution flow rate.
- \_\_\_\_\_ 4.2.11 ENSURE AWMT has been recirculated appropriate amount of time prior to sample and INITIAL OPS Form 2617A-1:
  - \_\_\_\_\_ • IF mixer was used, 30 minutes
  - \_\_\_\_\_ • IF mixer was *not* used, 4 hours
- \_\_\_\_\_ 4.2.12 IF RBCCW sump is aligned to LIS, Refer To OP 2336A, "Station Sumps and Drains" and PERFORM applicable actions to isolate RBCCW sump from LIS.
- \_\_\_\_\_ 4.2.13 IF RM-9116 is OPERABLE, Refer To Section 4.1 and PERFORM applicable actions to align RM-9116 for discharge.
- \_\_\_\_\_ 4.2.14 IF RM-9116 is *not* OPERABLE, CONTINUE with this section.
- \_\_\_\_\_ 4.2.15 Refer To OPS Form 2617A-1 and PERFORM the following:
  - \_\_\_\_\_ a. ENSURE AWMT is aligned as specified for discharge.
  - \_\_\_\_\_ b. INITIAL and DATE.
  - \_\_\_\_\_ c. Independently VERIFY AWMT discharge alignment.
  - \_\_\_\_\_ d. INITIAL applicable column and DATE.
  - \_\_\_\_\_ e. RECORD the following (C-60):
    - \_\_\_\_\_ • "SYSTEM DISCHARGE FLOW, FQI-9118," integrator reading prior to starting discharge
    - \_\_\_\_\_ • AWMT level
- \_\_\_\_\_ 4.2.16 ENSURE the following (C-60):
  - \_\_\_\_\_ • "2-LRA-55.1 (HS-9196), WASTE MONITOR TK PUMP (P-32) RECIRC. VALVE," is open
  - \_\_\_\_\_ • "WASTE MONITOR TK PUMP, P-32, HS-9113," is operating
- \_\_\_\_\_ 4.2.17 ENSURE "SYSTEM DISCHARGE FLOW, FR-9118," power switch to "ON" (C-60).

Level of Use  
**General**



4.2.18 IF at any time, it is necessary to operate "2-LRA-22.1 (HS-9116A), SYSTEM DISCHARGE FLOW ISOLATION VALVE," in manual, Refer To OP 2336B, "Aerated Liquid Radwaste System" and PERFORM applicable actions.

 CAUTION 

If an abnormal sample flow condition exists after starting a discharge, the override feature of "2-LRA-22.1 (HS-9116A), SYSTEM DISCHARGE FLOW ISOLATION VALVE" and "2-LRA-22.2 (HS-9116B), SYSTEM DISCHARGE FLOW ISOLATION VALVE," must *not* be used. RM-9116 skid inlet, 2-LRA-373, should be used to clear alarm [Ref. 6.6]

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**NOTE**

"RM9116 LOSS OF FLOW" annunciator clears when sample loop pressure is greater than 40 psig (C-60).

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4.2.19 IF RM-9116 is OPERABLE, PERFORM the following:

- a. PLACE "P-156, RM9116 SAMPLE PUMP, HS-9118" switch to "ON" (C-60).
- b. OPEN "2-LRA-22.1 (HS-9116A), SYSTEM DISCHARGE FLOW ISOLATION VALVE" (C-60).
- c. ADJUST "2-LRA-22.2 (HIC-9116B), SYSTEM DISCHARGE FLOW ISOLATION VALVE," variator to full open position (C-60).
- d. OPEN "2-LRA-22.2 (HS-9116B), SYSTEM DISCHARGE FLOW ISOLATION VALVE" (C-60).

4.2.20 IF RM-9116 is *not* OPERABLE and Aerated Waste System discharge isolation valves are to be overridden open, PERFORM the following:

- a. OBTAIN permission of SM or US.
- b. IF valves are to be maintained in override through shift turnover, Refer To OPS Form 2619A-4, "Shift Turnover Report" and DOCUMENT valve status.

Level of Use  
**General**



SP 2617A  
Rev. 026-05  
16 of 68

c. PLACE the following associated switches to "CLOSE" and RETURN to "OPEN" (C-60):

- "2-LRA-22.1 (HS-9116A), SYSTEM DISCHARGE FLOW ISOLATION VALVE"
- "2-LRA-22.2 (HS-9116B), SYSTEM DISCHARGE FLOW ISOLATION VALVE"

4.2.21 IF operating, STOP "AWM TK MIXER, MT-21" (C-60).

4.2.22 CLOSE "2-LRA-55.1 (HS-9196), WASTE MONITOR TK PUMP (P-32) RECIRC. VALVE" (C-60).

4.2.23 IF an abnormal sample flow condition (alarm) exists while attempting to commence discharge, as necessary, THROTTLE RM-9116 skid inlet, 2-LRA-373, to clear alarm [Ref. 6.6].

4.2.24 OBSERVE flow as indicated on "SYSTEM DISCHARGE FLOW, FR-9118" (C-60).

4.2.25 Refer To Attachment 1 and DETERMINE discharge flow.

4.2.26 ADJUST "2-LRA-22.2 (HIC-9116B), SYSTEM DISCHARGE FLOW ISOLATION VALVE," variator to maintain discharge flow to the following limits:

- Less than or equal to maximum approved flow on OPS Form 2617A-1
- Less than or equal to maximum reading on "SYSTEM DISCHARGE FLOW, FR-9118"

4.2.27 WHEN discharge is started, PERFORM the following:

a. Refer To OPS Form 2617A-1 and RECORD the following:

- Date and time discharge is started
- Discharge flow rate
- ENSURE discharge flow rate is less than maximum approved flow rate
- AW final filter, L-16, D/P after starting discharge

Level of Use  
General



SP 2617A  
Rev. 026-05  
17 of 68

\_\_\_\_\_

b. NOTIFY SM or US of time AWMT discharge is started and Discharge Permit number.

4.2.28 MARK chart paper on "SYSTEM DISCHARGE FLOW, FR-9118" on C-60 and, IF applicable, "PROCESS RADIATION, RJR-9129" recorder on RC-14C, with the following:

\_\_\_\_\_

• Date and time discharge was started

\_\_\_\_\_

• AWMT

\_\_\_\_\_

• Discharge Permit number

4.2.29 WHEN required data listed in step 4.2.28 are recorded at the specified locations, INITIAL OPS Form 2617A-1.

\_\_\_\_\_

4.2.30 IF AW final filter, L-16, D/P is between 20 and 40 psid AND adequate discharge flow can be maintained, CONTINUE discharging AWMT.

\_\_\_\_\_

4.2.31 IF RM-9116 is OPERABLE and discharge automatically terminates within the first 3 minutes of initiation, PERFORM the following:

\_\_\_\_\_

a. IF this step has been performed at least *once* previously for this discharge AND discharge automatically terminates a *second* time, PERFORM the following:

\_\_\_\_\_

1) PERFORM substeps b. through f. of step 4.2.31.

\_\_\_\_\_

2) Go To step 4.2.1 and PERFORM actions to recirculate and resample AWMT.

\_\_\_\_\_

b. ENSURE the following are closed (C-60):

\_\_\_\_\_

• "2-LRA-22.1 (HS-9116A), SYSTEM DISCHARGE FLOW ISOLATION VALVE"

\_\_\_\_\_

• "2-LRA-22.2 (HS-9116B), SYSTEM DISCHARGE FLOW ISOLATION VALVE"

\_\_\_\_\_

c. OPEN the following (RM-9116 skid) [Ref 6.9]:

\_\_\_\_\_

• RM-9116 bottom drain, 2-LRA-375

\_\_\_\_\_

• RM-9116 outlet drain, 2-LRA-351

Level of Use  
**General**



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d. PLACE "RM9116 FLUSH VALVES, HS-9117" switch to "OPEN" (C-60).

\_\_\_\_\_

e. FLUSH radiation monitor, RM-9116, until radiation levels are as low as practical.

\_\_\_\_\_

f. WHEN radiation monitor has been sufficiently flushed, PERFORM the following:

\_\_\_\_\_

1) PLACE "P-156, RM9116 SAMPLE PUMP, HS-9118" switch to "OFF" (C-60).

\_\_\_\_\_

2) PLACE "RM9116 FLUSH VALVES, HS-9117" switch to "CLOSE" (C-60).

\_\_\_\_\_

3) CLOSE the following (RM-9116 skid):

\_\_\_\_\_

• RM-9116 bottom drain, 2-LRA-375

\_\_\_\_\_

• RM-9116 outlet drain, 2-LRA-351

g. Go To step 4.2.16 and PERFORM necessary actions to resume discharge.

4.2.32 IF discharge is being performed with flow recorder *not* OPERABLE, Refer To Attachment 3 and PERFORM the following once every hour:

\_\_\_\_\_

a. RECORD time and previous level.

\_\_\_\_\_

b. OBSERVE AWMT level and RECORD current indication (C-60).

\_\_\_\_\_

c. CALCULATE discharge flow rate (gpm) as follows and RECORD:

$$\text{Flow rate (gpm)} = \frac{[\text{Previous level (\%)} - \text{Current level (\%)}] \times 38 \text{ gallons/\%}}{\text{Time interval between recording levels (minutes)}}$$

Level of Use  
**General**



4.2.33 WHEN approximately 15 minutes has elapsed since start of discharge, PERFORM the following:

a. IF RM-9116 is OPERABLE, PERFORM the following (C-60):

- 1) OBSERVE RM-9116 indications at PLOPS, PPC, and RC-14C.
- 2) Refer To OPS Form 2617A-1 and RECORD RM-9116 indication from PLOPS, or PPC.
- 3) IF all available RM-9116 indications tracking AND indicate approximately the same, INITIAL OPS Form 2617A-1 for CHANNEL CHECK.

b. IF FR-9118 is OPERABLE, PERFORM the following (C-60):

- 1) OBSERVE "SYSTEM DISCHARGE FLOW, FR-9118" indications.
- 2) IF "SYSTEM DISCHARGE FLOW, FR-9118," is tracking flow and indicating, INITIAL OPS Form 2617A-1 for flow recorder being OPERABLE.

4.2.34 Refer To OPS Form 2617A-1 and RECORD the following on Chem. Form 2864-1 (Discharge Permit):

- Date and time discharge is started
- Dilution flow rate with respect to running circulating water and service water pumps
- "SYSTEM DISCHARGE FLOW, FQI-9118," integrator reading prior to starting discharge (C-60)
- IF FR-9118 is OPERABLE, discharge flow rate
- IF RM-9116 is OPERABLE, source check performed
- IF RM-9116 is OPERABLE, RM-9116 indication from PLOPS, or PPC, 15 minutes after start of discharge

Level of Use  
**General**



SP 2617A  
Rev. 026-05  
20 of 68

4.2.35 Refer To OPS Form 2617A-1 and RECORD the following into Radwaste Log Book:

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\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

- Date and time discharge was started
- "SYSTEM DISCHARGE FLOW, FQI-9118," integrator reading prior to starting discharge
- Discharge flow rate
- AWMT level at start of discharge (in percent)
- AW final filter, L-16, D/P after starting discharge

Level of Use  
**General**



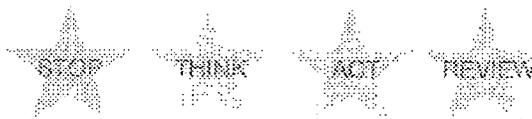
4.2.36 IF at any time, AW final filter, L-16, D/P reaches 40 psid OR adequate discharge flow *cannot* be maintained, **PERFORM** the following:

- a. OPEN "2-LRA-55.1 (HS-9196), WASTE MONITOR TK PUMP (P-32) RECIRC. VALVE" (C-60).
- b. CLOSE the following:
  - "2-LRA-22.1 (HS-9116A), SYSTEM DISCHARGE FLOW ISOLATION VALVE" (C-60 or local)
  - "2-LRA-22.2 (HS-9116B), SYSTEM DISCHARGE FLOW ISOLATION VALVE" (C-60)
- c. PLACE "P-156, RM9116 SAMPLE PUMP, HS-9118" switch to "OFF" (C-60).
- d. NOTIFY SM or US discharge was stopped for filter changout.
- e. Refer To OP 2338A, "Solid Radwaste System-Filters" and **PERFORM** applicable actions to replace AW final filter, L-16.

4.2.37 WHEN AW final filter, L-16, has been replaced, to restart discharge, **PERFORM** the following:

- a. REQUEST SM or US ensure OPS Form 2617A-1 is still effective (*no* other discharges in progress).
- b. REQUEST permission from SM or US to restart discharge.
- c. PLACE "P-156, RM9116 SAMPLE PUMP, HS-9118" switch to "ON" (C-60).
- d. OPEN the following:
  - "2-LRA-22.1 (HS-9116A), SYSTEM DISCHARGE FLOW ISOLATION VALVE" (C-60 or local)
  - "2-LRA-22.2 (HS-9116B), SYSTEM DISCHARGE FLOW ISOLATION VALVE" (C-60)
- e. CLOSE "2-LRA-55.1 (HS-9196), WASTE MONITOR TK PUMP (P-32) RECIRC. VALVE" (C-60).

Level of Use  
**General**



SP 2617A  
Rev. 026-05  
22 of 68

- \_\_\_\_\_ f. OBSERVE flow as indicated on "SYSTEM DISCHARGE FLOW, FR-9118" (C-60).
- \_\_\_\_\_ g. Refer To Attachment 1 and DETERMINE discharge flow.
- \_\_\_\_\_ h. ADJUST "2-LRA-22.2 (HIC-9116B), SYSTEM DISCHARGE FLOW ISOLATION VALVE," variator to maintain discharge flow less than or equal to that allowed on Chem. Form 2864-1 (Discharge Permit), but *not* to exceed maximum reading on "SYSTEM DISCHARGE FLOW, FR-9118."
- \_\_\_\_\_ i. NOTIFY SM or US discharge was restarted.

**NOTE**

Upon completion of discharging AWMT, AWMT pump automatically trips. Operators should obtain AW final filter, L-16, D/P prior to pump tripping on low level (approximately 11%).

- \_\_\_\_\_ 4.2.38 IF possible, OBTAIN AW final filter, L-16, D/P prior to automatic tripping of AWMT pump.
- \_\_\_\_\_ 4.2.39 WHEN discharge of AWMT is complete, ENSURE AWMT pump is stopped (C-60).
- \_\_\_\_\_ 4.2.40 CLOSE the following:
  - \_\_\_\_\_ • "2-LRA-22.1 (HS-9116A), SYSTEM DISCHARGE FLOW ISOLATION VALVE" (C-60 or local)
  - \_\_\_\_\_ • "2-LRA-22.2 (HS-9116B), SYSTEM DISCHARGE FLOW ISOLATION VALVE" (C-60)
- \_\_\_\_\_ 4.2.41 IF "2-LRA-22.1 (HS-9116A), SYSTEM DISCHARGE FLOW ISOLATION VALVE" and "2-LRA-22.2 (HS-9116B), SYSTEM DISCHARGE FLOW ISOLATION VALVE," were in override, PERFORM the following [Ref. 6.10]:
  - \_\_\_\_\_ a. OPEN the following (RM-9116 skid) [Ref 6.9]:
    - \_\_\_\_\_ • RM-9116 bottom drain, 2-LRA-375
    - \_\_\_\_\_ • RM-9116 outlet drain, 2-LRA-351

Level of Use  
**General**



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- b. PLACE "RM9116 FLUSH VALVES, HS-9117" switch to "OPEN" (C-60).
- c. WHEN 5 seconds has elapsed, PLACE "RM9116 FLUSH VALVES, HS-9117" switch to "CLOSE" (C-60).
- d. ACKNOWLEDGE annunciators on C-60 and PIOPS.
- e. CLOSE the following (RM-9116 skid):
  - RM-9116 bottom drain, 2-LRA-375
  - RM-9116 outlet drain, 2-LRA-351

4.2.42 IF RM-9116 is OPERABLE, PERFORM the following:

- a. OPEN the following (RM-9116 skid) [Ref 6.9]:
  - RM-9116 bottom drain, 2-LRA-375
  - RM-9116 outlet drain, 2-LRA-351
- b. PLACE "RM9116 FLUSH VALVES, HS-9117" switch to "OPEN" (C-60).
- c. FLUSH radiation monitor, RM-9116, until radiation levels are as low as practical.
- d. WHEN radiation monitor has been sufficiently flushed, PERFORM the following:
  - 1) PLACE "P-156, RM9116 SAMPLE PUMP, HS-9118" switch to "OFF" (C-60).
  - 2) PLACE "RM9116 FLUSH VALVES, HS-9117" switch to "CLOSE" (C-60).
  - 3) CLOSE the following (RM-9116 skid):
    - RM-9116 bottom drain, 2-LRA-375
    - RM-9116 outlet drain, 2-LRA-351
  - 4) ENSURE RM-9116 skid inlet, 2-LRA-373, is open.

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Level of Use  
**General**



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5) OBSERVE RM-9116, background radiation reading and RECORD on OPS Form 2617A-1.

\_\_\_\_\_

6) IF background radiation reading is less than  $5 \times 10^4$  cpm, INITIAL OPS Form 2617A-1.

\_\_\_\_\_

7) IF background radiation reading is greater than  $5 \times 10^4$  cpm, NOTIFY Chemistry and I&C Departments [Ref. 6.5].

4.2.43 Refer To OPS Form 2617A-1 and RECORD the following:

\_\_\_\_\_

- Date and time discharge was stopped
- Dilution flow with respect to running circulating water and service water pumps
- "SYSTEM DISCHARGE FLOW, FQI-9118," integrator reading at completion of discharge
- Discharge flow rate when discharge was stopped
- AWMT level after stopping discharge (in percent)
- AW final filter, L-16, D/P just prior to stopping discharge
- Total gallons discharged
- Total milliliters discharged

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4.2.44 IF "2-LRA-22.1 (HS-9116A), SYSTEM DISCHARGE FLOW ISOLATION VALVE," was placed in manual, Refer To OP 2336B, "Aerated Liquid Radwaste System" and PERFORM applicable actions to restore to automatic.

\_\_\_\_\_

4.2.45 IF PPC visual trend was used, ATTACH hardcopy of trend to OPS Form 2617A-1 and INITIAL.

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4.2.46 IF discharge was performed with flow recorder, *not* OPERABLE, ATTACH completed Attachment 3, "Aerated or Clean Radioactive Liquid Waste Discharge With Inoperable Flow Recorder" to OPS Form 2617A-1.

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Level of Use  
**General**



4.2.47 MARK chart paper on "SYSTEM DISCHARGE FLOW, FR-9118" on C-60 and, IF applicable, "PROCESS RADIATION, RJR-9129" recorder on RC-14C, with the following:

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\_\_\_\_\_  
\_\_\_\_\_

- Date and time discharge was stopped
- AWMT
- Discharge Permit number

4.2.48 Refer To OPS Form 2617A-1 and RECORD the following on Chem. Form 2864-1 (Discharge Permit):

①

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

- Date and time discharge was stopped
- Dilution flow with respect to running circulating water and service water pumps
- "SYSTEM DISCHARGE FLOW, FQI-9118," integrator reading at completion of discharge
- Discharge flow rate when discharge was stopped
- Total gallons discharged
- Total milliliters discharged
- IF RM-9116 is OPERABLE, Liquid effluent monitor reading after flush

②

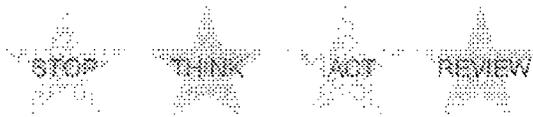
4.2.49 Refer To OPS Form 2617A-1 and RECORD the following for entry into Radwaste Log Book:

①

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

- Date and time discharge was stopped
- "SYSTEM DISCHARGE FLOW, FQI-9118," integrator reading at completion of discharge
- Discharge flow rate when discharge was stopped
- AWMT level after stopping discharge (in percent)
- AW final filter, L-16, D/P just prior to stopping discharge
- Total gallons discharged

Level of Use  
**General**



4.2.50 IF AW final filter, L-16, D/P was greater than 20 psid at completion of discharge, Go To OP 2338A, "Solid Radwaste System" and REPLACE filter.

| ①

— End of Section 4.2 —

Level of Use  
**General**



SP 2617A  
Rev. 026-05  
27 of 68

4.3 Recirculating and Discharging CWMTs

4.3.1 PLACE CWMT on recirculation for sample as follows:

a. ENSURE the following are closed (C-63):

- "2-LRR-32.1 (HS-9049A), SYSTEM DISCHARGE ISOLATION VALVE"
- "2-LRR-32.2 (HS-9049B), SYSTEM DISCHARGE ISOLATION VALVE"

RC  
RC

**NOTE**

Filtered recirculation may be used when:

- Suspected high total suspended solids or activity
- Need to rapidly process monitor tank
- Mixer is out of service

N/A

b. IF filtered recirculation will be used, REQUEST CBM to install controlotron ultra sonic flow instrument on CWMT pump piping (1" - HSC-20) and RECORD installation on OPS Form 2617A-1.

④

**NOTE**

When CWMT outlets are opened, CWMT pump automatically starts.

c. IF recirculating "A" CWMT, PERFORM the following:

- 1) PLACE "2-LRR-27.1A (HS-9186), CWM TK (T-15A) INLET VALVE" to "CLOSE" (C-63).
- 2) OPEN "2-LRR-124.1A (HS-9224), CWM TK (T-15A) RECIRC. INLET" (C-63).
- 3) OPEN "2-LRR-29.1A (HS-9040), CWM TK (T-15A) OUTLET VALVE" (C-63).

RC  
RC  
RC

d. IF recirculating "B" CWMT, PERFORM the following:

- 1) PLACE "2-LRR-27.1B (HS-9187), CWM TK (T-15B) INLET VALVE" to "CLOSE" (C-63).
- 2) OPEN "2-LRR-124.1B (HS-9225), CWM TK (T-15B) RECIRC. INLET" (C-63).

N/A  
N/A

Level of Use  
**General**



N/A

3) OPEN "2-LRR-29.1B (HS-9041), CWM TK (T-15B) OUTLET VALVE" (C-63).

e. **IF** filtered recirculation is desired, **PERFORM** the following:

N/A

1) OPEN system recirculation stop, 2-LRR-127, (-25'6" Aux Bldg).

N/A

2) PRESS and HOLD F1 key and simultaneously PRESS numeric key 1 to reset controlotron totalizer to zero.

N/A

3) CLOSE monitor tanks pump recirculation stop, 2-LRR-33, (-25'6" Aux Bldg).

N/A

4) OBSERVE D/P of clean waste final filter, L-15 (PD9048, local, PPC).

N/A

5) RECORD date and time "A" CWMT was placed on recirculation and D/P of clean waste final filter, L-15, in radwaste log book.

f. **IF** at any time while performing filtered recirculation, the clean waste final filter, L-15, D/P reaches 40 psid, **PERFORM** the following:

④

N/A

1) CLOSE the applicable CWMT outlet valve:

N/A

- "2-LRR-29.1A (HS-9040), CWM TK (T-15A) OUTLET VALVE," (C-63)
- "2-LRR-29.1B (HS-9049), CWM TK (T-15B) OUTLET VALVE," (C-63)

N/A

2) ENSURE applicable CWMT pump stops, (C-63).

N/A

3) NOTIFY SM/US that recirculation was suspended for replacement.

N/A

4) Refer To 2338A, "Solid Radwaste System," and **PERFORM** the applicable actions to replace clean waste final filter, L-15.

N/A

5) **WHEN** clean waste final filter, L-15, has been replaced, **OBTAIN** SM/US permission to restart recirculation of applicable CWMT.

Level of Use  
**General**



N/A  
N/A  
N/A

- 6) OPEN the applicable CWMT outlet valve:
  - “2-LRR-29.1A (HS-9040), CWM TK (T-15A) OUTLET VALVE,” (C-63)
  - “2-LRR-29.1B (HS-9049), CWM TK (T-15B) OUTLET VALVE,” (C-63)
- 7) ENSURE applicable CWMT pump starts, (C-63).

④

4.3.2 Regardless of tank level, PERFORM one of the following to recirculate CWMT (C-63):

N/A  
N/A  
R/L

- IF mixer is available, START applicable mixer and RECIRCULATE for 2 hours:
  - IF “A” CWMT, “CWM TK MIXER, MT-15A”
  - IF “B” CWMT, “CWM TK MIXER, MT-15B”
- IF mixer is not available, RECIRCULATE tank for 7 hours and 42 minutes.
- IF mixer is not available, AND filtered recirculation is desired, RECIRCULATE tank until controlotron indicates at least 63,000 gallons.

④

N/A  
R/L

4.3.3 RECORD CWMT level and date and time placed on recirculation, in Radwaste Log Book.

4.3.4 WHEN required time or volume for recirculation is complete, PERFORM the following:

R/L

- a. REQUEST Chemistry Department sample and analyze tank being recirculated.
- b. IF filtered recirculation was used, Refer To OPS Form 2617A-1 and RECORD CWMT recirc integrated flow total from controlotron.
- c. IF there is no further need for filtered recirculation, REQUEST CBM to remove controlotron ultra sonic flow instrument from CWMT pump piping (1”-HSC-20) and RECORD removal on OPS Form 2617A-1.

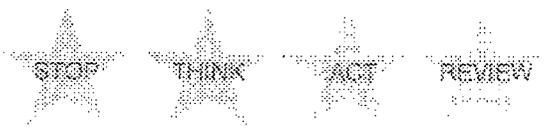
④

N/A  
N/A

4.3.5 IF chemistry sample results are unacceptable, Refer To OP 2335A, “Clean Liquid Radwaste System,” PERFORM applicable section for reducing total suspended solids and activity.

N/A

Level of Use  
**General**



\_\_\_\_\_ 4.3.6 IF radiation monitor, RM-9049, is *not* OPERABLE, REQUEST Chemistry Department independently sample CWMT and analyze as specified in SP 2852, "Unit 2 Liquid Radwaste Effluent Rad Monitor Inoperative."

\_\_\_\_\_ 4.3.7 WHEN Chem. Form 2864-1 (Discharge Permit) is obtained from Chemistry Department, SM REVIEW and AUTHORIZE Chem Form 2864-1, "Millstone Unit #2 Liquid Discharge Permit No. XXXX," for discharge.

\_\_\_\_\_ 4.3.8 WHEN Chem. Form 2864-1 (Discharge Permit) is authorized, SM or US Refer To OPS Form 2617A-1 and PERFORM the following:

- REVIEW plant conditions and AUTHORIZE discharge.
- ENSURE *no* other radioactive liquid discharges are in progress (other than SG blowdown) and INITIAL.
- IF discharge is to be performed with radiation monitor *not* OPERABLE, ENSURE 2 independent samples have been analyzed for CWMT, as specified on Chem Form 2852-1, "Unit 2 Liquid Radwaste Effluent Rad Monitor Inoperative" and INITIAL.

\_\_\_\_\_ 4.3.9 Refer To Chem. Form 2864-1 (Discharge Permit) and RECORD the following on OPS Form 2617A-1:

- Discharge Permit number
- Tank designation
- Recirculation and sample data
- If mixer was used
- Liquid effluent monitor alarm setting
- Maximum approved discharge flow rate
- Required dilution flow rate

\_\_\_\_\_ 4.3.10 Refer To OPS OPS Form 2617A-1 and RECORD dilution flow rate with respect to running circulating water and service water pumps.

Level of Use  
**General**



- \_\_\_\_\_ 4.3.11 ENSURE actual dilution flow rate is greater than or equal to required dilution flow rate.
  
- \_\_\_\_\_ 4.3.12 ENSURE CWMT has been recirculated appropriate amount of time or volume prior to sample and INITIAL OPS Form 2617A-1:
  - \_\_\_\_\_ • IF mixer was used, 2 hours
  - \_\_\_\_\_ • IF mixer was *not* used, 7 hours and 42 minutes
  - \_\_\_\_\_ • IF mixer was *not* available, and filtered recirculation was used, controlotron indicates at least 63,000 gallons
  
- \_\_\_\_\_ 4.3.13 IF RM-9049 is OPERABLE, Refer To Section 4.1 and PERFORM applicable actions to align RM-9049 for discharge.
  
- \_\_\_\_\_ 4.3.14 IF RM-9049 is *not* OPERABLE, CONTINUE with this section.
  
- \_\_\_\_\_ 4.3.15 Refer To OPS Form 2617A-1 and PERFORM the following:
  - \_\_\_\_\_ a. ENSURE *applicable* CWMT is aligned as specified for discharge.
  - \_\_\_\_\_ b. INITIAL and DATE.
  - \_\_\_\_\_ c. Independently VERIFY *applicable* CWMT discharge alignment.
  - \_\_\_\_\_ d. INITIAL *applicable* column and DATE.
  - \_\_\_\_\_ e. RECORD the following (C-63):
    - \_\_\_\_\_ • "SYSTEM DISCHARGE FLOW, FQI-9050," integrator reading prior to starting discharge
    - \_\_\_\_\_ • *Applicable* CWMT level
  
- \_\_\_\_\_ 4.3.16 ENSURE "FR-9050, SYSTEM DISCHARGE FLOW RECORDER," power switch to "ON" (C-63).

Level of Use  
**General**





### CAUTION



If an abnormal sample flow condition exists after starting a discharge, the override feature of "2-LRR-32.1 (HS-9049A), SYSTEM DISCHARGE ISOLATION VALVE" and "2-LRR-32.2 (HS-9049B), SYSTEM DISCHARGE ISOLATION VALVE," must *not* be used. RM-9049 skid inlet, 2-LRA-446, should be used to clear alarm [Ref. 6.6]

①

### NOTE

"RM9049 LOSS OF FLOW" annunciator clears when sample loop pressure is greater than 40 psig (C-63).

②

4.3.17 IF RM-9049 is OPERABLE, PERFORM the following (C-63):

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

- a. PLACE "P-157, RM9049 SAMPLE PUMP, HS-9051" switch to "ON" (C-63).
- b. ADJUST "2-LRR-32.2 (HIC-9049B), SYSTEM DISCHARGE ISOLATION VALVE," variator to full open signal (C-63).
- c. OPEN "2-LRR-32.2 (HS-9049B), SYSTEM DISCHARGE ISOLATION VALVE."
- d. ADJUST "2-LRR-32.2 (HS-9049B), SYSTEM DISCHARGE ISOLATION VALVE" variator to 20 psig open signal (C-63).
- e. OPEN "2-LRR-32.1 (HS-9049A), SYSTEM DISCHARGE ISOLATION VALVE" (C-63).
- f. To maintain flow within range of recorder, as necessary, ADJUST "2-LRR-32.2 (HIC-9049B), SYSTEM DISCHARGE ISOLATION VALVE" variator.

⑤

4.3.18 IF RM-9049 is *not* OPERABLE and Clean Waste System discharge isolation valves are to be overridden open, PERFORM the following:

\_\_\_\_\_

- a. OBTAIN permission of SM or US.

Level of Use  
**General**



\_\_\_\_\_

b. IF valves are to be maintained in override through shift turnover, Refer To OPS Form 2619A-4, "Shift Turnover Report" and DOCUMENT valve status.

\_\_\_\_\_

c. PLACE the following associated switches to "CLOSE" and RETURN to "OPEN" (C-63):

\_\_\_\_\_

• "2-LRR-32.1 (HS-9049A), SYSTEM DISCHARGE ISOLATION VALVE"

• "2-LRR-32.2 (HS-9049B), SYSTEM DISCHARGE ISOLATION VALVE"

4.3.19 IF operating, STOP mixer (C-63):

\_\_\_\_\_

• IF discharging "A" CWMT, "CWM TK MIXER, MT-15A"

\_\_\_\_\_

• IF discharging "B" CWMT, "CWM TK MIXER, MT-15B"

4.3.20 CLOSE CWMT recirculation valve and INITIAL OPS Form 2617A-1 (C-63):

\_\_\_\_\_

• IF discharging "A" CWMT, "2-LRR-124.1A (HS-9224), CWM TK (T-15A) RECIRC. INLET"

\_\_\_\_\_

• IF discharging "B" CWMT, "2-LRR-124.1B (HS-9225), CWM TK (T-15B) RECIRC. INLET"

\_\_\_\_\_

4.3.21 Independently VERIFY *applicable* recirculation valve is closed and INITIAL OPS Form 2617A-1.

\_\_\_\_\_

4.3.22 IF filtered recirculation was performed, ENSURE the following:

\_\_\_\_\_

a. THROTTLE monitor tanks pump recirculation stop, 2-LRR-33, 1 and 1/2 turns open, (-25'6" Aux Bldg).

\_\_\_\_\_

b. CLOSE system recirculation stop, 2-LRR-127, (-25'6" Aux Bldg).

\_\_\_\_\_

4.3.23 IF an abnormal sample flow condition (alarm) exists while attempting to commence discharge, as necessary, THROTTLE RM-9049 skid inlet, 2-LRR-446, to clear alarm [Ref. 6.6].

\_\_\_\_\_

4.3.24 OBSERVE flow as indicated on "FR-9050, SYSTEM DISCHARGE FLOW RECORDER" (C-63).

⑤

④

Level of Use  
**General**



\_\_\_\_\_

4.3.25 Refer To Attachment 2 and DETERMINE discharge flow.

\_\_\_\_\_

4.3.26 ADJUST "2-LRR-32.2 (HIC-9049B), SYSTEM DISCHARGE ISOLATION VALVE" variator to maintain discharge flow within the following limits:

\_\_\_\_\_

- Less than or equal to maximum approved flow on OPS Form 2617A-1
- Less than or equal to maximum reading on "FR-9050, SYSTEM DISCHARGE FLOW RECORDER"

4.3.27 WHEN discharge is started, PERFORM the following:

\_\_\_\_\_

a. Refer To OPS Form 2617A-1 and RECORD the following:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

- Date and time discharge is started
- Discharge flow rate
- ENSURE discharge flow rate is less than maximum approved flow rate
- Clean waste final filter, L-15, D/P after starting discharge

\_\_\_\_\_

b. NOTIFY SM or US time CWMT discharge is started and Discharge Permit number.

4.3.28 MARK chart paper on "FR-9050, SYSTEM DISCHARGE FLOW RECORDER," on C-63 and, IF applicable, "PROCESS RADIATION, RJR-9129" recorder on RC-14C, with the following:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

- Date and time discharge was started
- CWMT designation ("A" or "B")
- Discharge Permit number

\_\_\_\_\_

4.3.29 WHEN required data listed in step 4.3.28 are recorded at the specified locations, INITIAL OPS Form 2617A-1.

\_\_\_\_\_

4.3.30 IF clean waste final filter, L-15, D/P is between 20 and 40 psid AND adequate discharge flow can be maintained, CONTINUE discharging CWMT.

Level of Use  
**General**



4.3.31 **IF** RM-9049 is OPERABLE and discharge automatically terminates within the first 3 minutes of initiation, **PERFORM** the following:

a. **IF** this step has been performed at least *once* previously for this discharge **AND** discharge automatically terminates a *second* time, **PERFORM** the following:

\_\_\_\_\_

1) **PERFORM** substeps b. through f. of step 4.3.31.

\_\_\_\_\_

2) Go To step 4.3.1 and **PERFORM** actions to recirculate and resample respective CWMT.

b. **ENSURE** the following are closed (C-63):

\_\_\_\_\_

- "2-LRR-32.1 (HS-9049A), SYSTEM DISCHARGE ISOLATION VALVE"

\_\_\_\_\_

- "2-LRR-32.2 (HS-9049B), SYSTEM DISCHARGE ISOLATION VALVE"

c. **OPEN** the following (RM-9049 skid) [Ref 6.9]:

\_\_\_\_\_

- RM-9049 bottom drain, 2-LRR-432

\_\_\_\_\_

- RM-9049 outlet drain, 2-LRR-410

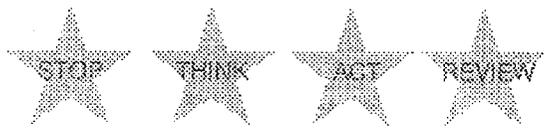
\_\_\_\_\_

d. **PLACE** "RM9049 FLUSH VALVES, HS-9050" switch to "OPEN" (C-63).

\_\_\_\_\_

e. **FLUSH** radiation monitor, RM-9049, until radiation levels are as low as practical

Level of Use  
**General**



SP 2617A  
Rev. 026-05  
36 of 68

f. **WHEN** radiation monitor has been sufficiently flushed, **PERFORM** the following:

- 1) PLACE "P-157, RM9049 SAMPLE PUMP, HS-9051" switch to "OFF" (C-63).
- 2) PLACE "RM9049 FLUSH VALVES, HS-9050" switch to "CLOSED" (C-63).
- 3) CLOSE the following (RM-9116 skid):
  - RM-9049 bottom drain, 2-LRR-432
  - RM-9049 outlet drain, 2-LRR-410

g. Go To step 4.3.15 and **PERFORM** necessary actions to resume discharge *with the exception of re-initialing form.*

4.3.32 **IF** discharge is being performed with flow recorder *not OPERABLE*, Refer To Attachment 3 and **PERFORM** the following once every hour:

- a. **RECORD** time and previous level.
- b. **OBSERVE** applicable CWMT level and **RECORD** current indication (C-63).
- c. **CALCULATE** discharge flow rate (gpm) as follows and **RECORD**:

$$\text{Flow rate (gpm)} = \frac{[\text{Previous level (\%)} - \text{Current level (\%)}] \times 320 \text{ gallons/\%}}{\text{Time interval between recording levels (minutes)}}$$

Level of Use  
**General**



SP 2617A  
Rev. 026-05  
37 of 68



4.3.33 WHEN approximately 15 minutes has elapsed since start of discharge, PERFORM the following:

a. IF RM-9049 is OPERABLE, PERFORM the following (C-63):

- 1) OBSERVE RM-9049 indications at PLOPS, PPC, and RC-14C.
- 2) Refer To OPS Form 2617A-1 and RECORD RM-9049 indication from PLOPS, or PPC.
- 3) IF all available RM-9049 indications tracking AND indicate approximately the same, INITIAL OPS Form 2617A-1 for CHANNEL CHECK.

b. IF FR-9050 is OPERABLE, PERFORM the following (C-60):

- 1) OBSERVE "FR-9050, SYSTEM DISCHARGE FLOW RECORDER," indications.
- 2) IF "FR-9050, SYSTEM DISCHARGE FLOW RECORDER," is tracking flow and indicating, INITIAL OPS Form 2617A-1 for flow recorder being OPERABLE.

4.3.34 Refer To OPS Form 2617A-1 and RECORD the following on Chem. Form 2864-1 (Discharge Permit):

- Date and time discharge was started
- Dilution flow rate with respect to running circulating water and service water pumps
- "SYSTEM DISCHARGE FLOW, FQI-9050," integrator reading prior to starting discharge
- IF FR-9118 is OPERABLE, discharge flow rate
- IF RM-9049 is OPERABLE, source check performed
- IF RM-9049 is OPERABLE, RM-9116 indication from PLOPS, or PPC, 15 minutes after start of discharge

Level of Use  
**General**



SP 2617A  
Rev. 026-05  
38 of 68

4.3.35 Refer To OPS Form 2617A-1 and RECORD the following into Radwaste Log Book:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

- Date and time discharge was started
- "SYSTEM DISCHARGE FLOW, FQI-9050," integrator reading prior to starting discharge
- Discharge flow rate
- *Applicable* CWMT level prior to starting discharge (in percent)
- Clean waste final filter, L-15, D/P after starting discharge

4.3.36 IF, at any time, clean waste final filter, L-15, D/P reaches 40 psid OR adequate discharge flow *cannot* be maintained, PERFORM the following:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

- a. PERFORM applicable action (C-63):
  - IF discharging "A" CWMT, CLOSE "2-LRR-29.1A (HS-9040), CWM TK (T-15A) OUTLET VALVE."
  - IF discharging "B" CWMT, CLOSE "2-LRR-29.1B (HS-9041), CWM TK (T-15B) OUTLET VALVE."
- b. CLOSE the following (C-63):
  - "2-LRR-32.1 (HS-9049A), SYSTEM DISCHARGE ISOLATION VALVE"
  - "2-LRR-32.2 (HS-9049B), SYSTEM DISCHARGE ISOLATION VALVE"
- c. PLACE "P-157, RM9049 SAMPLE PUMP, HS-9051" switch to "OFF" (C-63).
- d. NOTIFY SM or US discharge was stopped for filter changeout.
- e. Refer To OP 2338A, "Solid Radwaste System-Filters" and PERFORM applicable actions to replace clean waste final filter, L-15.

4.3.37 WHEN clean waste final filter, L-15, has been replaced, to restart discharge, PERFORM the following:

\_\_\_\_\_

- a. REQUEST SM or US ensure OPS Form 2617A-1 is still effective (*no* other discharges in progress).

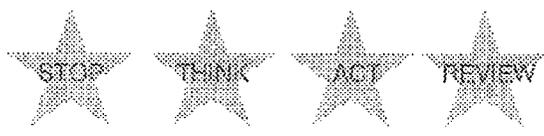
Level of Use  
**General**



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- b. REQUEST permission from SM or US to restart discharge.
- c. PERFORM applicable actions (C-63):
  - IF discharging "A" CWMT, OPEN the following:
    - "2-LRR-124.1A (HS-9224), CWM TK (T-15A) RECIRC. INLET"
    - "2-LRR-29.1A (HS-9040), CWM TK (T-15A) OUTLET VALVE"
  - IF discharging "B" CWMT, OPEN the following:
    - "2-LRR-124.1B (HS-9225), CWM TK (T-15B) RECIRC. INLET"
    - "2-LRR-29.1B (HS-9041), CWM TK (T-15B) OUTLET VALVE"
- d. PLACE "P-157, RM9049 SAMPLE PUMP, HS-9051" switch to "ON" (C-63).
- e. OPEN the following (C-63):
  - "2-LRR-32.1 (HS-9049A), SYSTEM DISCHARGE ISOLATION VALVE"
  - "2-LRR-32.2 (HS-9049B), SYSTEM DISCHARGE ISOLATION VALVE"
- f. PERFORM applicable action (C-63):
  - IF discharging "A" CWMT, CLOSE "2-LRR-124.1A (HS-9224), CWM TK (T-15A) RECIRC. INLET."
  - IF discharging "B" CWMT, CLOSE "2-LRR-124.1B (HS-9225), CWM TK (T-15B) RECIRC. INLET."
- g. OBSERVE flow as indicated on "FR-9050, SYSTEM DISCHARGE FLOW RECORDER" (C-63).
- h. Refer To Attachment 2 and DETERMINE discharge flow.

Level of Use  
**General**



i. ADJUST "2-LRR-32.2 (HIC-9049B), SYSTEM DISCHARGE ISOLATION VALVE" variator to maintain discharge flow within the following limits:

- Less than or equal to maximum approved flow on OPS Form 2617A-1
- Less than or equal to maximum reading on "FR-9050, SYSTEM DISCHARGE FLOW RECORDER"

j. NOTIFY SM or US discharge was restarted.

### NOTE

Upon completion of discharging CWMT, associated tank outlet valve closes on low tank level, causing CWMTs pump to trip. Operators should obtain clean waste final filter, L-15, D/P prior to pump tripping on low level.

4.3.38 IF possible, OBTAIN clean waste final filter, L-15, D/P prior to automatic tripping of CWMTs pump.

4.3.39 WHEN discharge of CWMT is complete, ENSURE CWMTs pump is stopped (C-63).

4.3.40 CLOSE the following (C-63):

- "2-LRR-32.1 (HS-9049A), SYSTEM DISCHARGE ISOLATION VALVE"
- "2-LRR-32.2 (HS-9049B), SYSTEM DISCHARGE ISOLATION VALVE"

Level of Use  
**General**



SP 2617A  
Rev. 026-05  
41 of 68

4.3.41 IF "2-LRR-32.1 (HS-9049A), SYSTEM DISCHARGE ISOLATION VALVE" and "2-LRR-32.2 (HS-9049B), SYSTEM DISCHARGE ISOLATION VALVE," were in override, PERFORM the following [Ref. 6.10]:

a. OPEN the following (RM-9049 skid) [Ref 6.9]:

- RM-9049 bottom drain, 2-LRR-432
- RM-9049 outlet drain, 2-LRR-410

b. PLACE "RM9049 FLUSH VALVES, HS-9050" switch to "OPEN" (C-63).

c. WHEN 5 seconds has elapsed, PLACE "RM9049 FLUSH VALVES, HS-9050" switch to "CLOSED" (C-63).

d. ACKNOWLEDGE annunciators on C-63 and PIOPS.

4.3.42 Refer To OPS Form 2617A-1 and RECORD the following:

- Date and time discharge was stopped
- Dilution flow rate with respect to running circulating water and service water pumps
- "SYSTEM DISCHARGE FLOW, FQI-9050," integrator reading at completion of discharge
- Discharge flow rate when discharge was stopped
- *Applicable* CWMT level after stopping discharge (in percent)
- Clean waste final filter, L-15, D/P just prior to stopping discharge
- Total gallons discharged
- Total milliliters discharged

Level of Use  
**General**



SP 2617A  
Rev. 026-05  
42 of 68

4.3.43 PERFORM applicable actions (C-63):

- IF "A" CWMT was discharged:
  - 1) PLACE "2-LRR-29.1A (HS-9040), CWM TK (T-15A) OUTLET VALVE" switch to "CLOSE."
  - 2) PLACE "2-LRR-27.1A (HS-9186), CWM TK (T-15A) INLET VALVE" switch to "AUTO."
- IF "B" CWMT was discharged:
  - 1) PLACE "2-LRR-29.1B (HS-9041), CWM TK (T-15B) OUTLET VALVE" switch to "CLOSE."
  - 2) PLACE "2-LRR-27.1B (HS-9187), CWM TK (T-15B) INLET VALVE" switch to "AUTO."

4.3.44 IF RM-9049 is OPERABLE, PERFORM the following:

- a. OPEN the following (RM-9049 skid) [Ref 6.9]:
  - RM-9049 bottom drain, 2-LRR-432
  - RM-9049 outlet drain, 2-LRR-410
- b. PLACE "RM9049 FLUSH VALVES, HS-9050" switch to "OPEN" (C-63).
- c. FLUSH radiation monitor, RM-9049, until radiation levels are as low as practical.
- d. WHEN radiation monitor has been sufficiently flushed, PERFORM the following:
  - 1) PLACE "P-157, RM9049 SAMPLE PUMP, HS-9051" switch to "OFF" (C-63).
  - 2) PLACE "RM9049 FLUSH VALVES, HS-9050" switch to "CLOSED" (C-63).
  - 3) CLOSE the following (RM-9049 skid):
    - RM-9049 bottom drain, 2-LRR-432
    - RM-9049 outlet drain, 2-LRR-410

②

Level of Use  
**General**



SP 2617A  
Rev. 026-05  
43 of 68

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4) ENSURE RM-9049 skid inlet, 2-LRR-446, is open.

\_\_\_\_\_

5) OBSERVE RM-9049, background radiation reading and RECORD on OPS Form 2617A-1.

\_\_\_\_\_

6) IF background radiation reading is less than  $5 \times 10^4$  cpm, INITIAL OPS Form 2617A-1.

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7) IF background radiation reading is greater than  $5 \times 10^4$  cpm, NOTIFY Chemistry and I&C Departments [Ref. 6.5].

\_\_\_\_\_

4.3.45 IF PPC visual trend was used, ATTACH hardcopy of trend to OPS Form 2617A-1 and INITIAL.

\_\_\_\_\_

4.3.46 IF discharge was performed with flow recorder, *not* OPERABLE, ATTACH completed Attachment 3, "Aerated or Clean Radioactive Liquid Waste Discharge With Inoperable Flow Recorder" to OPS Form 2617A-1.

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\_\_\_\_\_

4.3.47 MARK chart paper on "FR-9050, SYSTEM DISCHARGE FLOW RECORDER" on C-63 and, IF applicable, "PROCESS RADIATION, RJR-9129" recorder on RC-14C, with the following:

\_\_\_\_\_

- Date and time discharge was stopped
- CWMT discharged
- Discharge Permit number

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Level of Use  
**General**



4.3.48 Refer To OPS Form 2617A-1 and RECORD the following on Chem. Form 2864-1 (Discharge Permit):

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- Date and time discharge was stopped
- Dilution flow rate with respect to running circulating water and service water pumps
- "SYSTEM DISCHARGE FLOW, FQI-9050," integrator reading at completion of discharge
- Discharge flow rate when discharge was stopped
- Total gallons discharged
- Total milliliters discharged
- IF RM-9046 is OPERABLE, Liquid effluent monitor reading after flush

②

4.3.49 Refer To OPS Form 2617A-1 and RECORD the following into Radwaste Log Book:

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- Date and time discharge was stopped
- "SYSTEM DISCHARGE FLOW, FQI-9050," integrator reading at completion of discharge
- Discharge flow rate when discharge was stopped
- *Applicable* CWMT level after stopping discharge (in percent)
- Clean waste final filter, L-15, D/P just prior to stopping discharge
- Total gallons discharged

4.3.50 IF clean waste final filter, L-15, D/P was greater than 20 psid at completion of discharge, Go To OP 2338A, "Solid Radwaste System" and REPLACE filter.

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- End of Section 4.3 -

Level of Use  
**General**



SP 2617A  
Rev. 026-05  
45 of 68

4.4 **Recirculating and Discharging CWMTs Using CWRTs Pump**

- 4.4.1 ENSURE spool piece installed between discharge bypass to system discharge filter, 2-LRR-121, and receiver tank pump discharge to secondary demineralizer, 2-LRR-20 (-25'6" Aux Bldg).

**NOTE**

CWMTs pump breaker must be "OFF" so pump does *not* automatically start when CWMT outlet valve is opened.

- 4.4.2 PLACE supply breaker for CWMTs pump, P-30, B31A07, to "OFF."

- 4.4.3 PLACE CWMT on recirculation for sample as follows:

a. CLOSE the following:

- Monitor tanks pump recirculation stop, 2-LRR-33 (-25'6" Aux Bldg)
- "2-LRR-32.1 (HS-9049A), SYSTEM DISCHARGE ISOLATION VALVE" (C-63)
- "2-LRR-32.2 (HS-9049B), SYSTEM DISCHARGE ISOLATION VALVE" (C-63)
- "2-LRR-16.1A (HS-9027) CWR TK (T-14A) OUTLET VALVE" (C-63)
- "2-LRR-16.1B (HS-9028) CWR TK (T-14B) OUTLET VALVE" (C-63)

b. PERFORM applicable actions (C-63):

- IF recirculating "A" CWMT, PERFORM the following:
  - PLACE "2-LRR-27.1A (HS-9186), CWM TK (T-15A) INLET VALVE" to "CLOSED."
  - OPEN "2-LRR-124.1A (HS-9224), CWM TK (T-15A) RECIRC. INLET."
- IF recirculating "B" CWMT, PERFORM the following:
  - PLACE "2-LRR-27.1B (HS-9187), CWM TK (T-15B) INLET VALVE" to "CLOSED."
  - OPEN "2-LRR-124.1B (HS-9225), CWM TK (T-15B) RECIRC. INLET."

Level of Use  
**General**



c. CLOSE the following:

- "2-LRR-103.1A (HS-9222) CWR TK (T-14A) RECIRC. VALVE" (C-63)
- "2-LRR-103.1B (HS-9223) CWR TK (T-14B) RECIRC. VALVE" (C-63)
- Receiver tank pump discharge to secondary demineralizer, 2-LRR-20 (-25'6" Aux Bldg)

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d. OPEN the following (-25'6" Aux Bldg):

- Monitor and receiver tanks recirculation cross tie, 2-LRR-89
- Receiver and monitor tanks cross tie stop, 2-LRR-184

### NOTE

When CWMT outlets are opened with receiver tanks and monitor tanks cross tie stop, 2-LRR-184, open, CWRT pump automatically starts.

e. PERFORM applicable action (C-63):

- IF recirculating "A" CWMT, OPEN "2-LRR-29.1A (HS-9040), CWM TK (T-15A) OUTLET VALVE."
- IF recirculating "B" CWMT, OPEN "2-LRR-29.1B (HS-9041) CWM TK (T-15B) OUTLET VALVE."

4.4.4 Regardless of tank level, PERFORM *one* of the following to recirculate CWMT (C-63):

- IF mixer is available, START applicable mixer and RECIRCULATE for 2 hours:
  - IF "A" CWMT, "CWM TK MIXER, MT-15A"
  - IF "B" CWMT, "CWM TK MIXER, MT-15B"
- IF mixer is *not* available, RECIRCULATE tank for 7 hours and 42 minutes.

4.4.5 RECORD date and time CWMT was placed on recirculation, in Radwaste Log Book.

Level of Use  
**General**



SP 2617A  
Rev. 026-05  
47 of 68

\_\_\_\_\_ 4.4.6 WHEN required time for recirculation is complete, REQUEST Chemistry Department sample and analyze tank being recirculated.

\_\_\_\_\_ 4.4.7 IF radiation monitor, RM-9049, is *not* OPERABLE, REQUEST Chemistry Department independently sample CWMT and analyze as specified in SP 2852, "Unit 2 Liquid Radwaste Effluent Rad Monitor Inoperative."

\_\_\_\_\_ 4.4.8 WHEN Chem. Form 2864-1 (Discharge Permit) is obtained from Chemistry Department, SM REVIEW and AUTHORIZE Chem Form 2864-1, "Millstone Unit #2 Liquid Discharge Permit No. XXXX," for discharge.

\_\_\_\_\_ 4.4.9 WHEN Chem. Form 2864-1 (Discharge Permit) is authorized, SM or US Refer To OPS Form 2617A-1 and PERFORM the following:

- REVIEW plant conditions and AUTHORIZE discharge.
- ENSURE *no* other radioactive liquid discharges are in progress (other than SG blowdown) and INITIAL.
- IF discharge is to be performed with radiation monitor *not* OPERABLE, ENSURE 2 independent samples have been analyzed for CWMT, as specified on Chem Form 2852-1, "Unit 2 Liquid Radwaste Effluent Rad Monitor Inoperative" and INITIAL.

\_\_\_\_\_ 4.4.10 Refer To Chem. Form 2864-1 (Discharge Permit) and RECORD the following on OPS Form 2617A-1:

- Discharge Permit number
- Tank designation
- Recirculation and sample data
- If mixer was used
- Liquid effluent monitor alarm setting
- Maximum approved discharge flow rate
- Required dilution flow rate

Level of Use  
**General**



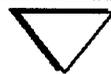
- \_\_\_\_\_ 4.4.11 Refer To OPS OPS Form 2617A-1 and RECORD dilution flow rate with respect to running circulating water and service water pumps.
- \_\_\_\_\_ 4.4.12 ENSURE actual dilution flow rate is greater than or equal to required dilution flow rate.
- \_\_\_\_\_ 4.4.13 ENSURE CWMT has been recirculated appropriate amount of time prior to sample and INITIAL OPS Form 2617A-1:
- \_\_\_\_\_ • IF mixer was used, 2 hours
  - \_\_\_\_\_ • IF mixer was *not* used, 7 hours and 42 minutes
- \_\_\_\_\_ 4.4.14 IF RM-9049 is OPERABLE, Refer To Section 4.1 and PERFORM applicable actions to align RM-9049 for discharge.
- \_\_\_\_\_ 4.4.15 IF RM-9049 is *not* OPERABLE, CONTINUE with this section.
- \_\_\_\_\_ 4.4.16 Refer To OPS Form 2617A-1 and PERFORM the following:
- \_\_\_\_\_ a. ENSURE applicable CWMT is aligned as specified for discharge.
  - \_\_\_\_\_ b. INITIAL and DATE.
  - \_\_\_\_\_ c. Independently VERIFY applicable CWMT discharge alignment.
  - \_\_\_\_\_ d. INITIAL applicable column and DATE.
  - \_\_\_\_\_ e. RECORD the following (C-63):
    - \_\_\_\_\_ • "SYSTEM DISCHARGE FLOW, FQI-9050," integrator reading prior to starting discharge
    - \_\_\_\_\_ • *Applicable* CWMT level
- \_\_\_\_\_ 4.4.17 ENSURE "FR-9050, SYSTEM DISCHARGE FLOW RECORDER," power switch to "ON" (C-63).

Level of Use  
**General**





### CAUTION



If an abnormal sample flow condition exists after starting a discharge, the override feature of "2-LRR-32.1 (HS-9049A), SYSTEM DISCHARGE ISOLATION VALVE" and "2-LRR-32.2 (HS-9049B), SYSTEM DISCHARGE ISOLATION VALVE," must *not* be used. RM-9049 skid inlet, 2-LRA-446, should be used to clear alarm [Ref. 6.6]

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### NOTE

"RM9049 LOSS OF FLOW" annunciator clears when sample loop pressure is greater than 40 psig (C-63).

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4.4.18 IF RM-9049 is OPERABLE, PERFORM the following (C-63):

\_\_\_\_\_

- a. PLACE "P-157, RM9049 SAMPLE PUMP, HS-9051" switch to "ON."
- b. ADJUST "2-LRR-32.2 (HS-9049B), SYSTEM DISCHARGE ISOLATION VALVE," variator to full open signal (C-63).
- c. OPEN "2-LRR-32.2 (HS-9049B), SYSTEM DISCHARGE ISOLATION VALVE."
- d. ADJUST "2-LRR-32.2 (HIC-9049B), SYSTEM DISCHARGE ISOLATION VALVE" variator to 20 psig open signal (C-63).
- e. OPEN "2-LRR-32.1 (HS-9049A), SYSTEM DISCHARGE ISOLATION VALVE."
- f. To maintain flow within range of recorder, as necessary, ADJUST "2-LRR-32.2 (HIC-9049B), SYSTEM DISCHARGE ISOLATION VALVE" variator.

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4.4.19 IF RM-9049 is *not* OPERABLE and Clean Waste System discharge isolation valves are to be overridden open, PERFORM the following:

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- a. OBTAIN permission of SM or US.

Level of Use  
**General**



SP 2617A  
Rev. 026-05  
50 of 68

- b. IF valves are to be maintained in override through shift turnover, Refer To OPS Form 2619A-4, "Shift Turnover Report" and DOCUMENT valve status.
- c. PLACE the following associated switches to "CLOSE" and RETURN to "OPEN" (C-63):
  - "2-LRR-32.1 (HS-9049A), SYSTEM DISCHARGE ISOLATION VALVE"
  - "2-LRR-32.2 (HS-9049B), SYSTEM DISCHARGE ISOLATION VALVE"

4.4.20 IF operating, STOP mixer (C-63):

- IF discharging "A" CWMT, "CWM TK MIXER, MT-15A"
- IF discharging "B" CWMT, "CWM TK MIXER, MT-15B"

4.4.21 PERFORM the following to stop recirculation:

- a. CLOSE monitor tanks pump discharge stop, 2-LRR-32 (-25'6" Aux Bldg).
- b. OPEN discharge bypass to system discharge filter, 2-LRR-121 (-25'6" Aux Bldg).
- c. CLOSE monitor and receiver tanks recirculation cross tie, 2-LRR-89 (-25'6" Aux Bldg).
- d. CLOSE CWMT recirculation valve and INITIAL OPS Form 2617A-1 (C-63):
  - IF discharging "A" CWMT, "2-LRR-124.1A (HS-9224), CWM TK (T-15A) RECIRC. INLET"
  - IF discharging "B" CWMT, "2-LRR-124.1B (HS-9225), CWM TK (T-15B) RECIRC. INLET"

4.4.22 Independently VERIFY *applicable* recirculation valve is closed and INITIAL OPS Form 2617A-1.

4.4.23 IF an abnormal sample flow condition (alarm) exists while attempting to commence discharge, as necessary, THROTTLE RM-9049 skid inlet, 2-LRR-446, to clear alarm [Ref. 6.6].

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Level of Use  
General



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4.4.24 OBSERVE flow as indicated on "FR-9050, SYSTEM DISCHARGE FLOW RECORDER" (C-63).

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4.4.25 Refer To Attachment 2 and DETERMINE discharge flow.

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4.4.26 ADJUST "2-LRR-32.2 (HIC-9049B), SYSTEM DISCHARGE ISOLATION VALVE" variator to maintain discharge flow within the following limits:

\_\_\_\_\_

- Less than or equal to maximum approved flow on OPS Form 2617A-1

\_\_\_\_\_

- Less than or equal to maximum reading on "FR-9050, SYSTEM DISCHARGE FLOW RECORDER"

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4.4.27 WHEN discharge is started, PERFORM the following:

\_\_\_\_\_

a. Refer To OPS Form 2617A-1 and RECORD the following:

\_\_\_\_\_

- Date and time discharge is started
- Discharge flow rate
- ENSURE discharge flow rate is less than maximum approved flow rate
- Clean waste final filter, L-15, D/P after starting discharge

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

b. NOTIFY SM or US time CWMT discharge is started and Discharge Permit number.

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4.4.28 MARK chart paper on "FR-9050, SYSTEM DISCHARGE FLOW RECORDER," on C-63 and, IF applicable, "PROCESS RADIATION, RJR-9129" recorder on RC-14C, with the following:

\_\_\_\_\_

- Date and time discharge was started
- CWMT designation ("A" or "B")
- Discharge Permit number

\_\_\_\_\_

\_\_\_\_\_

4.4.29 WHEN required data listed in step 4.4.28 are recorded at the specified locations, INITIAL OPS Form 2617A-1.

Level of Use  
**General**



\_\_\_\_\_ 4.4.30 IF clean waste final filter, L-15, D/P is between 20 and 40 psid AND adequate discharge flow can be maintained, CONTINUE discharging CWMT.

\_\_\_\_\_ 4.4.31 IF RM-9049 is OPERABLE and discharge automatically terminates within the first 3 minutes of initiation, PERFORM the following:

\_\_\_\_\_ a. IF this step has been performed at least *once* previously for this discharge AND discharge automatically terminates a *second* time, PERFORM the following:

\_\_\_\_\_ 1) PERFORM substeps b. through f. of step 4.4.31.

\_\_\_\_\_ 2) Go To step 4.4.1 and PERFORM actions to recirculate and resample respective CWMT.

\_\_\_\_\_ b. ENSURE the following are closed (C-63):

\_\_\_\_\_ • "2-LRR-32.1 (HS-9049A), SYSTEM DISCHARGE ISOLATION VALVE"

\_\_\_\_\_ • "2-LRR-32.2 (HS-9049B), SYSTEM DISCHARGE ISOLATION VALVE"

\_\_\_\_\_ c. OPEN the following (RM-9049 skid) [Ref 6.9]:

\_\_\_\_\_ • RM-9049 bottom drain, 2-LRR-432

\_\_\_\_\_ • RM-9049 outlet drain, 2-LRR-410

\_\_\_\_\_ d. PLACE "RM9049 FLUSH VALVES, HS-9050" switch to "OPEN" (C-63).

\_\_\_\_\_ e. FLUSH radiation monitor, RM-9049, until radiation levels are as low as practical.

Level of Use  
**General**



SP 2617A  
Rev. 026-05  
53 of 68

f. WHEN radiation monitor has been sufficiently flushed, PERFORM the following:

- 1) PLACE "P-157, RM9049 SAMPLE PUMP, HS-9051" switch to "OFF" (C-63).
- 2) PLACE "RM9049 FLUSH VALVES, HS-9050" switch to "CLOSED" (C-63).
- 3) CLOSE the following (RM-9116 skid):
  - RM-9049 bottom drain, 2-LRR-432
  - RM-9049 outlet drain, 2-LRR-410

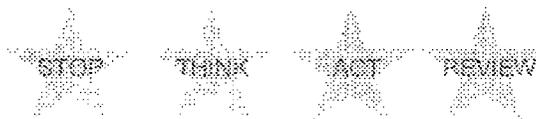
g. Go To step 4.4.16 and PERFORM necessary actions to resume discharge *with the exception of re-initialing form.*

4.4.32 IF discharge is being performed with flow recorder *not* OPERABLE, Refer To Attachment 3 and PERFORM the following once every hour:

- a. RECORD time and previous level.
- b. OBSERVE applicable CWMT level and RECORD current indication (C-63).
- c. CALCULATE discharge flow rate (gpm) as follows and RECORD:

$$\text{Flow rate (gpm)} = \frac{[\text{Previous level (\%)} - \text{Current level (\%)}] \times 320 \text{ gallons/\%}}{\text{Time interval between recording levels (minutes)}}$$

Level of Use  
**General**



SP 2617A  
Rev. 026-05  
54 of 68

4.4.33 WHEN approximately 15 minutes has elapsed since start of discharge, PERFORM the following:

a. IF RM-9049 is OPERABLE, PERFORM the following (C-63):

- 1) OBSERVE RM-9049 indications at PLOPS, PPC, and RC-14C.
- 2) Refer To OPS Form 2617A-1 and RECORD RM-9049 indication from PLOPS, or PPC.
- 3) IF all available RM-9049 indications tracking AND indicate approximately the same, INITIAL OPS Form 2617A-1 for CHANNEL CHECK.

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b. IF FR-9050 is OPERABLE, PERFORM the following (C-60):

- 1) OBSERVE "FR-9050, SYSTEM DISCHARGE FLOW RECORDER," indications.
- 2) IF "FR-9050, SYSTEM DISCHARGE FLOW RECORDER," is tracking flow and indicating, INITIAL OPS Form 2617A-1 for flow recorder being OPERABLE.

4.4.34 Refer To OPS Form 2617A-1 and RECORD the following on Chem. Form 2864-1 (Discharge Permit):

- Date and time discharge was started
- Dilution flow rate with respect to running circulating water and service water pumps
- "SYSTEM DISCHARGE FLOW, FQI-9050," integrator reading prior to starting discharge
- IF FR-9050 is OPERABLE, discharge flow rate
- IF RM-9049 is OPERABLE, source check performed
- IF RM-9049 is OPERABLE, RM-9049 indication from PLOPS, or PPC, 15 minutes after start of discharge

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Level of Use  
General



4.4.35 Refer To OPS Form 2617A-1 and RECORD the following into Radwaste Log Book:

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- Date and time discharge was started
- "SYSTEM DISCHARGE FLOW, FQI-9050," integrator reading prior to starting discharge
- Discharge flow rate
- *Applicable* CWMT level prior to starting discharge (in percent)
- Clean waste final filter, L-15, D/P after starting discharge

4.4.36 IF, at any time, clean waste final filter, L-15, D/P reaches 40 psid OR adequate discharge flow *cannot* be maintained, PERFORM the following:

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- a. PERFORM applicable action (C-63):
  - IF discharging "A" CWMT, CLOSE "2-LRR-29.1A (HS-9040), CWM TK (T-15A) OUTLET VALVE."
  - IF discharging "B" CWMT, CLOSE "2-LRR-29.1B (HS-9041), CWM TK (T-15B) OUTLET VALVE."
- b. CLOSE the following (C-63):
  - "2-LRR-32.1 (HS-9049A), SYSTEM DISCHARGE ISOLATION VALVE"
  - "2-LRR-32.2 (HS-9049B), SYSTEM DISCHARGE ISOLATION VALVE"
- c. PLACE "P-157, RM9049 SAMPLE PUMP, HS-9051" switch to "OFF" (C-63).
- d. NOTIFY SM or US discharge was stopped for filter changeout.
- e. Refer To OP 2338A, "Solid Radwaste System-Filters" and PERFORM applicable actions to replace clean waste final filter, L-15.

Level of Use  
**General**



4.4.37 WHEN clean waste final filter, L-15, has been replaced, to restart discharge, PERFORM the following:

- a. REQUEST SM or US ensure OPS Form 2617A-1 is still effective (*no* other discharges in progress).
- b. REQUEST permission from SM or US to restart discharge.

**NOTE**

When CWMT outlets are opened with receiver tanks and monitor tanks cross tic stop, 2-LRR-184, open, CWRT pump automatically starts.

- c. PERFORM applicable action (C-63):
  - IF discharging "A" CWMT, OPEN "2-LRR-29.1A (HS-9040), CWM TK (T-15A) OUTLET VALVE."
  - IF discharging "B" CWMT, OPEN "2-LRR-29.1B (HS-9041), CWM TK (T-15B) OUTLET VALVE."
- d. PLACE "P-157, RM9049 SAMPLE PUMP, HS-9051" switch to "ON" (C-63).
- e. OPEN the following (C-63):
  - "2-LRR-32.1 (HS-9049A), SYSTEM DISCHARGE ISOLATION VALVE"
  - "2-LRR-32.2 (HS-9049B), SYSTEM DISCHARGE ISOLATION VALVE"
- f. OBSERVE flow as indicated on "FR-9050, SYSTEM DISCHARGE FLOW RECORDER" (C-63).
- g. Refer To Attachment 2 and DETERMINE discharge flow.
- h. ADJUST "2-LRR-32.2 (HIC-9049B), SYSTEM DISCHARGE ISOLATION VALVE" variator to maintain discharge flow within the following limits:
  - Less than or equal to maximum approved flow on OPS Form 2617A-1
  - Less than or equal to maximum reading on "FR-9050, SYSTEM DISCHARGE FLOW RECORDER"
- i. NOTIFY SM or US discharge was restarted.

Level of Use  
**General**



SP 2617A  
Rev. 026-05  
57 of 68

**NOTE**

Upon completion of discharging CWMT, associated tank outlet valve closes on low tank level, causing CWRTs pump to trip. Operators should obtain clean waste final filter, L-15, D/P prior to pump tripping on low level.

4.4.38 IF possible, OBTAIN clean waste final filter, L-15, D/P prior to automatic tripping of CWMTs pump.

4.4.39 WHEN discharge of CWMT is complete, ENSURE CWRTs pump is stopped (C-63). | ③

4.4.40 CLOSE the following (C-63):

- "2-LRR-32.1 (HS-9049A), SYSTEM DISCHARGE ISOLATION VALVE"
- "2-LRR-32.2 (HS-9049B), SYSTEM DISCHARGE ISOLATION VALVE"

4.4.41 IF "2-LRR-32.1 (HS-9049A), SYSTEM DISCHARGE ISOLATION VALVE" and "2-LRR-32.2 (HS-9049B), SYSTEM DISCHARGE ISOLATION VALVE," were in override, PERFORM the following [Ref. 6.10]:

a. OPEN the following (RM-9049 skid) [Ref 6.9]:

- RM-9049 bottom drain, 2-LRR-432
- RM-9049 outlet drain, 2-LRR-410

b. PLACE "RM9049 FLUSH VALVES, HS-9050" switch to "OPEN" (C-63).

c. WHEN 5 seconds has elapsed, PLACE "RM9049 FLUSH VALVES, HS-9050" switch to "CLOSED" (C-63).

d. ACKNOWLEDGE annunciators on C-63 and PIOPS.

Level of Use  
**General**



4.4.42 Refer To OPS Form 2617A-1 and RECORD the following:

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- Date and time discharge was stopped
- Dilution flow rate with respect to running circulating water and service water pumps
- "SYSTEM DISCHARGE FLOW, FQI-9050," integrator reading at completion of discharge
- Discharge flow rate when discharge was stopped
- *Applicable* CWMT level after stopping discharge (in percent)
- Clean waste final filter, L-15, D/P just prior to stopping discharge
- Total gallons discharged
- Total milliliters discharged

4.4.43 PERFORM applicable actions (C-63):

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\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

- IF "A" CWMT was discharged:
  - 1) PLACE "2-LRR-29.1A (HS-9040), CWM TK (T-15A) OUTLET VALVE" switch to "CLOSE."
  - 2) PLACE "2-LRR-27.1A (HS-9186), CWM TK (T-15A) INLET VALVE" switch to "AUTO."
- IF "B" CWMT was discharged:
  - 1) PLACE "2-LRR-29.1B (HS-9041), CWM TK (T-15B) OUTLET VALVE" switch to "CLOSE."
  - 2) PLACE "2-LRR-27.1B (HS-9187), CWM TK (T-15B) INLET VALVE" switch to "AUTO."

4.4.44 IF RM-9049 is OPERABLE, PERFORM the following:

\_\_\_\_\_  
\_\_\_\_\_

- a. OPEN the following (RM-9049 skid) [Ref 6.9]:
- RM-9049 bottom drain, 2-LRR-432
  - RM-9049 outlet drain, 2-LRR-410

②

Level of Use  
**General**



\_\_\_\_\_

b. PLACE "RM9049 FLUSH VALVES, HS-9050" switch to "OPEN" (C-63).

\_\_\_\_\_

c. FLUSH radiation monitor, RM-9049, until radiation levels are as low as practical.

\_\_\_\_\_

d. WHEN radiation monitor has been sufficiently flushed, PERFORM the following:

②

\_\_\_\_\_

1) PLACE "P-157, RM9049 SAMPLE PUMP, HS-9051" switch to "OFF" (C-63).

\_\_\_\_\_

2) PLACE "RM9049 FLUSH VALVES, HS-9050" switch to "CLOSED" (C-63).

\_\_\_\_\_

3) CLOSE the following (RM-9049 skid):

- RM-9049 bottom drain, 2-LRR-432
- RM-9049 outlet drain, 2-LRR-410

\_\_\_\_\_

4) ENSURE RM-9049 skid inlet, 2-LRR-446, is open.

\_\_\_\_\_

5) OBSERVE RM-9049, background radiation reading and RECORD on OPS Form 2617A-1.

\_\_\_\_\_

6) IF background radiation reading is less than  $5 \times 10^4$  cpm, INITIAL OPS Form 2617A-1.

②

\_\_\_\_\_

7) IF background radiation reading is greater than  $5 \times 10^4$  cpm, NOTIFY Chemistry and I&C Departments [Ref. 6.5].

\_\_\_\_\_

4.4.45 IF PPC visual trend was used, ATTACH hardcopy of trend to OPS Form 2617A-1 and INITIAL.

\_\_\_\_\_

4.4.46 IF discharge was performed with flow recorder, *not* OPERABLE, ATTACH completed Attachment 3, "Aerated or Clean Radioactive Liquid Waste Discharge With Inoperable Flow Recorder" to OPS Form 2617A-1.

①

Level of Use  
**General**



4.4.47 MARK chart paper on "FR-9050, SYSTEM DISCHARGE FLOW RECORDER" on C-63 and, IF applicable, "PROCESS RADIATION, RJR-9129" recorder on RC-14C, with the following:

①

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

- Date and time discharge was stopped
- CWMT discharged
- Discharge Permit number

4.4.48 Refer To OPS Form 2617A-1 and RECORD the following on Chem. Form 2864-1 (Discharge Permit):

①

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

- Date and time discharge was stopped
- Dilution flow rate with respect to running circulating water and service water pumps
- "SYSTEM DISCHARGE FLOW, FQI-9050," integrator reading at completion of discharge
- Discharge flow rate when discharge was stopped
- Total gallons discharged
- Total milliliters discharged
- IF RM-9046 is OPERABLE, Liquid effluent monitor reading after flush

②

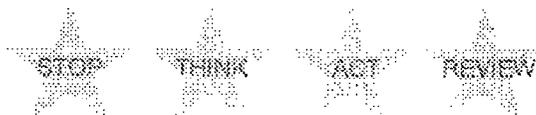
4.4.49 Refer To OPS Form 2617A-1 and RECORD the following into Radwaste Log Book:

①

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

- Date and time discharge was stopped
- "SYSTEM DISCHARGE FLOW, FQI-9050," integrator reading at completion of discharge
- Discharge flow rate when discharge was stopped
- *Applicable* CWMT level after stopping discharge (in percent)
- Clean waste final filter, L-15, D/P just prior to stopping discharge
- Total gallons discharged

Level of Use  
**General**



4.4.50 CLOSE the following (-25'6" Aux Bldg):

| ①

\_\_\_\_\_  
\_\_\_\_\_

- Discharge bypass to system discharge filter, 2-LRR-121
- Receiver and monitor tanks cross tie stop, 2-LRR-184

4.4.51 PERFORM the following (-25'6" Aux Bldg):

| ③

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

- a. OPEN monitor tanks pump discharge stop, 2-LRR-32
- b. THROTTLE open monitor tanks pump recirculation stop, 2-LRR-33, one and one half turns.
- c. OPEN receiver tank pump discharge to secondary demineralizer, 2-LRR-20.

| ①

| ③

4.4.52 PLACE supply breaker for CWMTs pump, P-30, B31A07, to "ON."

| ①  
| ③

\_\_\_\_\_  
\_\_\_\_\_

4.4.53 IF clean waste final filter, L-15, D/P was greater than 20 psid at completion of discharge, Go To OP 2338A, "Solid Radwaste System" and REPLACE filter.

| ①

- End of Section 4.4 -

Level of Use  
**General**



SP 2617A  
Rev. 026-05  
62 of 68

5. REVIEW AND SIGNOFF

5.1 Review and signoff is accomplished on OPS Form 2617A-1.

6. REFERENCES

6.1 Technical Specifications LCO, 3.3.3.9

6.2 Technical Specifications Surveillance Requirements, 4.3.3.9, Table 4.3-12, items 1.a., 1.b., 3.a. and 3.b.

6.3 NPDES Permit

6.4 Millstone Unit 2 Radiation Monitor Manual

6.5 CR #7844

6.6 PIR #2-93-4, "Failure of RM Discharge Valves to Close"

6.7 ACR #2465

6.8 ACR# 11276

6.9 MP2-I-95-081, "Radiation Monitor R-9116 and R-9049 Flushing Procedure"

6.10 CR# M2-97-1687

6.11 Proceduralized temp mod. - M2-00-0002

6.12 MP-28-WSW-REF000, "Wastewater and Stormwater Program Requirements Reference Manual"

4

7. SUMMARY OF CHANGES

7.1 Incorporated previous PORC approved changes to Revision 25.

7.2 Added steps to allow use of surveillance form and transposition of information instead of using discharge permit and surveillance form.

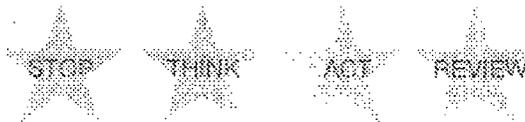
Change 1:

7.3 Require background readings of radiation monitors only if OPERABLE. Clarify caution to ensure low sample flow condition is evaluated properly. Changed step levels on 4.2.43 for clarity (subsequent step numbering changed).

Change 2:

7.4 Electronically incorporated Change 1.

Level of Use  
**General**



- 7.5 Changed step 4.2.1.d to indicate 2-LRA-15, is locked closed.
- 7.6 Changed notes prior to 4.2.19, 4.3.17 and 4.4.18 to remove reference to flow meter affecting the listed alarm.
- 7.7 Clarified steps 4.2.33, 4.2.34, 4.3.34, 4.3.35, 4.4.33 and 4.4.34 to separate actions associated with RM being operable and flow recorder being operable.
- 7.8 Grouped steps associated with flushing of rad. monitors (steps 4.2.42, 4.3.45 and 4.4.44) to clarify that actions are only performed if monitors are operable and to make steps consistent in each section.
- 7.9 Moved actions for stopping recirculation in section 4.4 to follow actions to commence discharge to be consistent with other sections and comply with precaution 3.3.

Summary of Changes – Change 3:

- 7.10 Added bullet to step 4.4.3.c to close 2-LRR-20.
- 7.11 Rearranged substeps of step 4.4.21. Deleted substep to throttle open 2-LRR-33.
- 7.12 Reformatted step 4.4.51 with 3 substeps; added substeps to throttle open 2-LRR-33 and open 2-LRR-20.
- 7.13 Changed “CWRTs pump” to “CWMTs pump” in step 4.4.52.
- 7.14 Changed “CWMT” to “CWRT” in step 4.4.39.
- 7.15 Changed “FR-9118” to “FR-9050” in fourth bullet of step 4.4.34.
- 7.16 Changed “RM-9116” to “RM-9049” in last bullet of step 4.4.34.

Summary of Changes – Minor Rev. 04:

- 7.17 Added steps to incorporate proceduralized temp mod M2-00-0002 to allow installation of controlotron for measuring and crediting flow while recirculating CWMTs using filtration.
- 7.18 Added reference 6.12 and basis information for environmental requirements. (editorial)

Level of Use  
**General**



SP 2617A  
Rev. 026-05  
64 of 68

Summary of Changes – Minor Rev. 05:

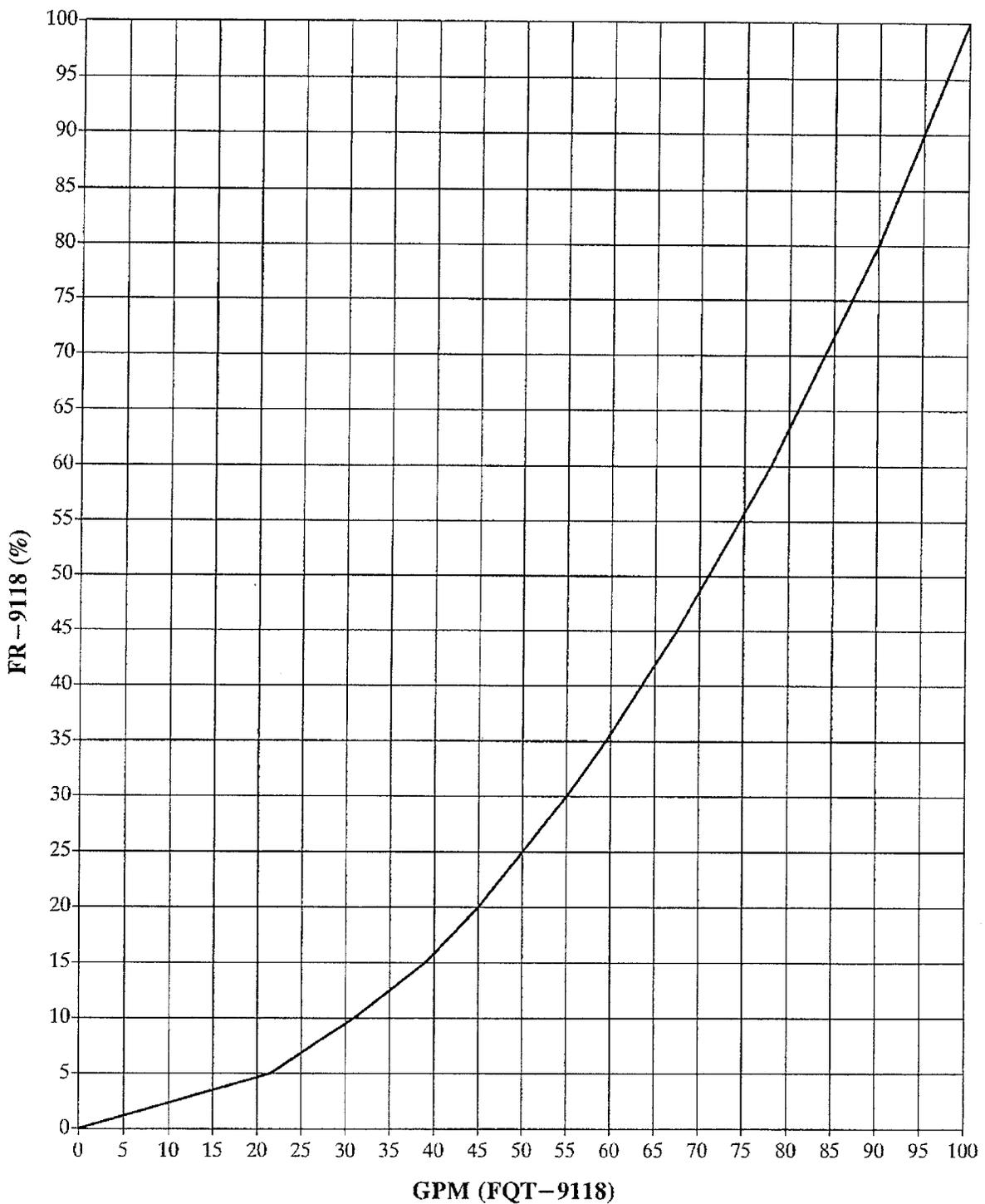
- 7.19 Rearranged steps 4.3.17 and 4.4.18 to first fully open 2-LRR-32.2 and then place the valve in a throttled position. When 2-LRR-32.2 is throttled, 2-LRR-32.1 is opened and flow is controlled by adjusting 2-LRR-32.2 (HIC-9049B) variator.
- 7.20 Added step 4.3.22, and made the following two substeps since they are applicable to filtered recirculation.

Level of Use  
**General**

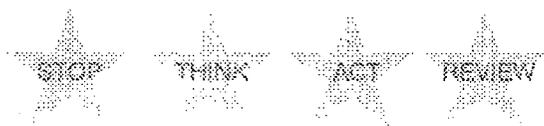


SP 2617A  
Rev. 026-05  
65 of 68

**Attachment 1**  
**Aerated Liquid Waste Discharge (% to gpm)**  
(Sheet 1 of 1)

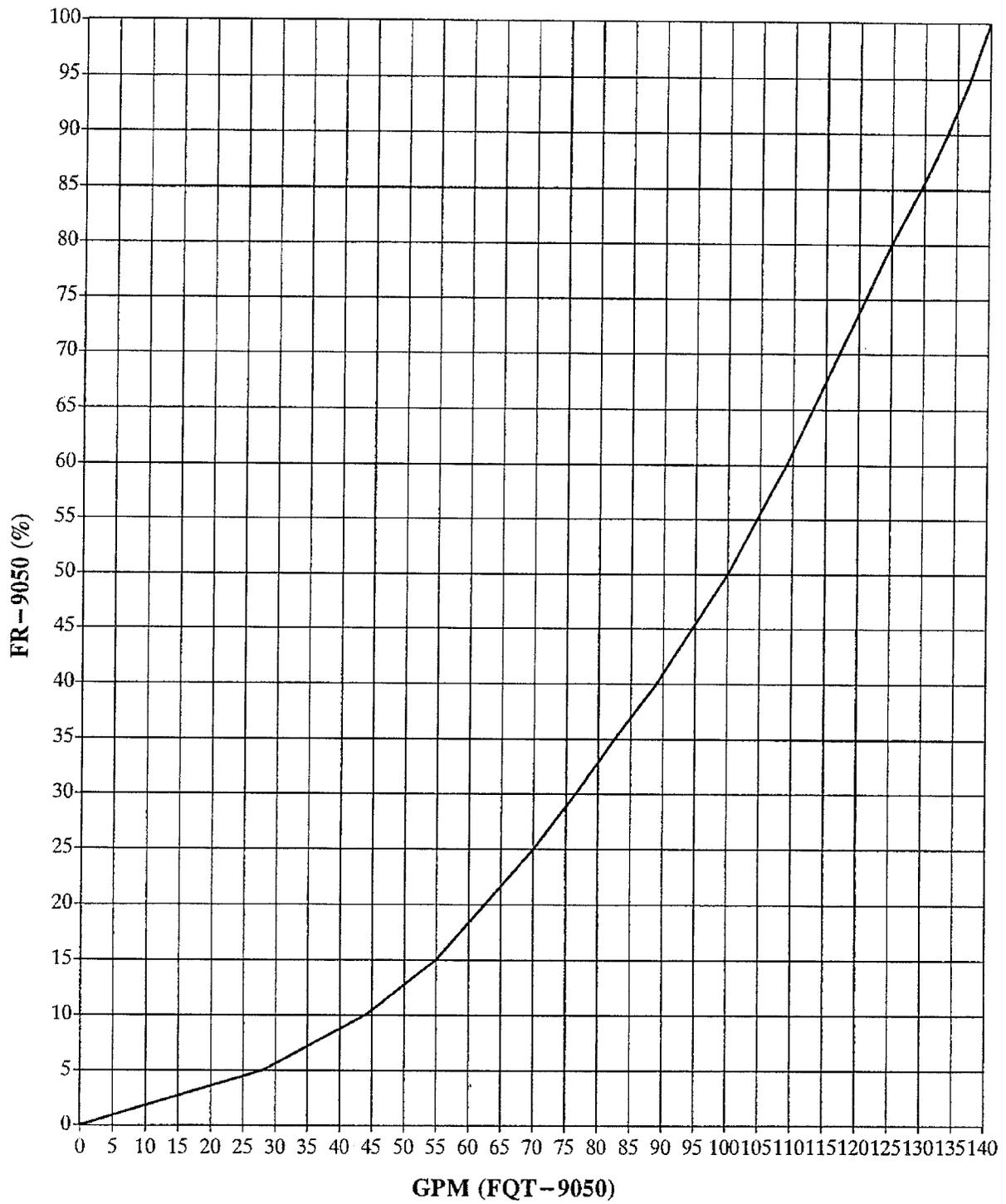


Level of Use  
**General**



SP 2617A  
Rev. 026-05  
66 of 68

**Attachment 2**  
**Clean Liquid Waste Discharge (% to gpm)**  
(Sheet 1 of 1)



Level of Use  
**General**



SP 2617A  
Rev. 026-05  
67 of 68



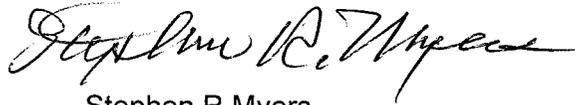
# JOB PERFORMANCE MEASURE APPROVAL SHEET

I. JPM Title: EAL Classification

ID Number: JPM-A23

Revision: 0

II. Initiated:



Stephen R Myers  
Developer

10/11/00  
Date

III. Reviewed:



Robert Commey  
Technical Reviewer

1/23/01  
Date

IV. Approved:



[Signature]  
User Department Supervisor

1/24/01  
Date



M.C. Jensen  
Nuclear Training Supervisor

01/24/01  
Date



## JOB PERFORMANCE MEASURE WORKSHEET

### Initiating Cues:

- You are the on-duty SM.
- Your task is to determine the NRC and state posture code classification for the simulator scenario that has just been completed.
- For purposes of this classification, assume the conditions shown on the simulator at completion of the scenario.

### Initial Conditions:

- Assume the conditions as shown on the simulator at the completion of the scenario.
- Consider historical event data that may be provided by the examiner.

Simulator Requirements:     N/A

---

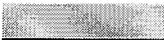
**\*\*\*\* NOTES TO EXAMINER \*\*\*\***

1. Critical steps for this JPM are indicated with an "X". For the examinee to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.
2. When examinee states what his/her simulated action/observation would be, read the appropriate "Cue".

**PERFORMANCE INFORMATION**

JPM ID NUMBER: JPM- A23 TITLE: EAL Classification

---

START TIME: 

STEP 1       Performance Steps::      Classify the event.

GRADE \_\_\_       Standards:      *Classifies the event as described in the scenario. If the event deviated from the planned scenario or if the examinee classifies the event for conditions earlier in the scenario, the classification must be verified by the examiner. This event should be classified as a Site Area Emergency ( Charlie 2 ) due to: 1. SGTR {RCB4}  
2. ESD {CNB3}*

- Cue:
- Ask the examinee to justify his classification.
  - If a temporary condition was reached earlier in the scenario that resulted in a higher classification, the examiner may provide that condition to determine if the examinee can classify the event based on that information.

- Comments:
- If the event deviated from the planned scenario or if the examinee classifies the event for conditions earlier in the scenario, the classification must be verified by the examiner.
  - Classifications based on temporary events in the scenario may not be recognized by a three person crew during NRC initial license exams.

**After this step is completed, the JPM is considered complete.**

Classification Information: Scenario Identification: \_\_\_\_\_

Justification for classifications that do not match the classification in the scenario:

STOP TIME: 

**VERIFICATION OF JPM COMPLETION**

Job Performance Measure No. JPM-A23

Rev. 0

Date Performed: \_\_\_\_\_

Operator: \_\_\_\_\_

Evaluator(s): \_\_\_\_\_

For examinee to achieve a satisfactory grade, **ALL** critical steps must be completed correctly. If task is Time Critical, it **MUST** be completed within the specified time to achieve a satisfactory grade.

Time Critical Task? Yes \_\_\_\_\_ No X

Validated Time (minutes): 15

Actual Time to Complete (minutes): \_\_\_\_\_

Result of JPM: \_\_\_\_\_ (Denote by an S for satisfactory or a U for unsatisfactory)

Areas for Improvement:

## EXAMINEE HANDOUT

JPM ID Number: A23

### Initiating Cues:

- You are the on-duty SM.
- Your task is to determine the NRC and state posture code classification for the simulator scenario that has just been completed.
- For purposes of this classification, assume the conditions shown on the simulator at completion of the scenario.

### Initial Conditions:

- Assume the conditions as shown on the simulator at the completion of the scenario.
- Consider historical event data that may be provided by the examiner.

6/27/00  
Approval Date

6/30/00  
Effective Date

# Document Action Request

SPG# N/A

A

Initiated By: K. Burgess Date: 11/6/00 Department: EPSD Ext.: 2490

Document No.: MP-26-EPI-FAP06-002 Rev. No.: 000 Minor Rev.: 01

Title: **Millstone Unit 2 Emergency Action Levels**

B

Reason for Request (attach commitments, CRs, ARs, OEs etc)

Update procedure reference

Continued

C

Instructions:

Continued

D

TPC  
Interim

Approval (1) Plant Mngt Staff Member Print/Sign/Date (2) SM/SRO/CFH on Unit Print/Sign/Date

E

## Procedure Request/Feedback Disposition

Priority:  Perform Now  Perform Later - See Comments  Rejected - See Comments

Activity:  Revision  Minor Revision  Cleanup Rev  Biennial Review  Cancellation  Supersedure

See DC-GDL01 for guidance

TPC  OTC  Place in VOID

Edit Corr. =>

*Paula A. [Signature]* 12/5/00  
Plant Mngt Staff Member - Approval

Comments:

RI/DPC Print Name and Date Continued

F

| Reviews                  | Print                    | Sign | Date | SQR Qualified            |                          |       | ✓ if Comments |
|--------------------------|--------------------------|------|------|--------------------------|--------------------------|-------|---------------|
|                          |                          |      |      | Yes                      | No                       | Dept. |               |
| <input type="checkbox"/> |                          |      |      | <input type="checkbox"/> | <input type="checkbox"/> |       |               |
| <input type="checkbox"/> |                          |      |      | <input type="checkbox"/> | <input type="checkbox"/> |       |               |
| <input type="checkbox"/> |                          |      |      | <input type="checkbox"/> | <input type="checkbox"/> |       |               |
| <input type="checkbox"/> |                          |      |      | <input type="checkbox"/> | <input type="checkbox"/> |       |               |
| <input type="checkbox"/> |                          |      |      | <input type="checkbox"/> | <input type="checkbox"/> |       |               |
| <input type="checkbox"/> |                          |      |      | <input type="checkbox"/> | <input type="checkbox"/> |       |               |
| RCD                      | <input type="checkbox"/> |      |      |                          |                          |       |               |
| Independent              | <input type="checkbox"/> |      |      | <input type="checkbox"/> | <input type="checkbox"/> |       |               |

G

Safety Evaluation Required  Yes  No

Environmental Review Required  Yes  No

H

1.  **SQR Program Final Review and Approval**

Approval  Disapproval

\_\_\_\_\_  
SQR Qualified Independent Reviewer / Date

\_\_\_\_\_  
Department Head/Responsible Individual

\_\_\_\_\_  
Approval Date

2.  **SORC/PORC/RI/DH Final Review and Approval**

\_\_\_\_\_  
Department Head/Responsible Individual / Date

Meeting No.: \_\_\_\_\_

\_\_\_\_\_  
Approval Signature

\_\_\_\_\_  
Approval Date

I

Effective Date: 12-21-00