# FINAL AS-ADMINISTERED ADMINISTRATIVE JPMS

# FOR THE DUANE ARNOLD EXAMINATION

# THE WEEK OF APRIL 9, 2001

A.1.a (R)

# *DUANE ARNOLD ENERGY CENTER*

## JOB PERFORMANCE MEASURE

**NUMBER: 2.1.33-03**

**TASK NUMBER: 97.11**

**TITLE: Limiting Control Rod Pattern Determination Using STP 3.0.0-01**

**Rev. 3**

| | | |
|---|---|---|
| DEVELOPED BY: | Instructor | 3/20/2001 Date |
| VALIDATED BY: | SME/Instructor | 3/20/01 Date |
| REVIEWED BY: | Plant Reviewer | 3.30.2001 Date |
| APPROVED BY: | for Training Supervisor-Operations | 4/2/01 Date |

# DUANE ARNOLD ENERGY CENTER

## JOB PERFORMANCE MEASURE

| | | | |
|---|---|---|---|
| **JPM No.** 2.1.33-03 | **JPM Description:** Limiting control rod pattern determination using STP 3.0.0-01 (faulted) | | |
| **Task No.** 97.11 | **Task Description:** Perform daily and shift instrument checklist | | |
| **K/A Reference:** 2.1.33 | 2.1.10 2.7/3.9 | 2.2.22 3.4/4.1 | |
| APPLICABLE METHOD OF TESTING: RO/SRO | | | |
| Simulate Performance | | Actual Performance X | |
| Simulator X | In-Plant | Control Room | |
| Time for Completion: 10 minutes | | | |

# JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

**NOTE**

All steps of this checklist should be performed upon initial validation. Prior to JPM usage, revalidate JPM using steps 7 through 10.

JPM No. 2.1.33-03 JPM Title Limiting control rod pattern determination using STP 3.0.0-01 (faulted)

✓ 1. Task description and number, JPM description and number are identified

✓ 2. Task elements identified and K/A references are included

✓ 3. Performance location specified

   a. in-plant

   b. control room

   c. simulator

✓ 4. Initial conditions and cues identified

   a. setup, required materials, and procedure

   b. malfunctions and instructor actions

   c. initiating and terminating cues

✓ 5. Task standards identified and verified by SME review

✓ 6. Critical tasks/steps identified meet criteria and identified with a "C"

✓ 7. Verify JPM steps fit the most current procedures
Procedure Rev. 9 Date 2-28-01

✓ 8. Pilot test JPM

   a. verify cues both verbal and visual are free of conflict

   b. ensure performance time is accurate

9. If the JPM cannot be performed as written with proper responses, then revise the JPM

____ 10. When JPM is revalidated, SME/Instructor signs and dates JPM

SME/Instructor Date

SME/Instructor Date

SME/Instructor Date

**SIMULATOR SETUP:** IC 20

**EVENT TRIGGERS**

None

**MALFUNCTIONS:**

| Time | Malfunction No. | Malfunction Title | ET | Delay | F. Sev. | Ramp | I. Sev. |
|---|---|---|---|---|---|---|---|
| 0 | FW14A | "A" FW FLOW XMTR FAILURE | NA | 0 | 0 | NA | NA |

**OVERRIDES:**

| Time | Override Tag | Override Description | ET | Delay | Value | Ramp |
|---|---|---|---|---|---|---|
| 0 | DI FW HSS-4450 | 1/3 ELEM SW | NA | NA | 1-Elemnt | |
| 0 | AO FW FI-1581 | "A" FW FLOW IND. | NA | NA | AS IS | |
| 0 | AO FW FR-4450B | TOTAL FW FLOW RECORDER | NA | NA | AS IS | |

**REMOTE FUNCTIONS:**

None

## INSTRUCTOR ACTIONS:

1. Insert overrides listed on table above.
2. Insert malfunction listed on table.
3. Read initial conditions and initiating cues to the operator.
4. Provide a copy of Official Case to the student if necessary.

## TASK STANDARDS:

1. Operator obtains an "Official 3D Case" from the process computer.
2. Determines that the "Official 3D Case" is invalid by noting that Core Thermal Power (MWT) is lower than expected and informs the OSS.
3. Determines that a Limiting Control Rod Pattern does exist.

## REQUIRED MATERIALS:

Copy of "Official 3D Case"
Copy of STP 3.0.0-01, Instrument Checks"

## GENERAL REFERENCES:

STP 3.0.0-01, Instrument Checks"

**Read to the operator the following information:**

**INITIAL CONDITIONS:**

1. The plant is operating at 100% power.

2. You are the NSOE.

**INITIATING CUES:**

1. The OSS directs you to perform the "Limiting Control Rod Pattern Determination, RBM operability" section of STP 3.0.0-01 and report the results.

**This task is not time critical.**

**Inform the evaluator when you have completed the task.**

## PERFORMANCE INFORMATION

| NOTE: |
|---|
| Critical steps are denoted with a "C". Failure to meet the standard for this step constitutes failure. |

Time Start _____

| | |
|---|---|
| PERFORMANCE STEP:<br>Critical: | Obtains a copy of Instrument Checks (STP 3.0.0-01) |
| STANDARD: | Obtains a copy of Instrument Checks (STP 3.0.0-01) |
| COMMENTS:<br><br>Cue: When the operator goes to the "hanging files" to get a copy of STP 3.0.0-01, provide a copy of the STP for the operator. | |

| | |
|---|---|
| PERFORMANCE STEP:<br>Critical: C | Operator obtains an "Official 3D Case." |
| STANDARD: | Operator obtains an "Official 3D Case" from the process computer. |
| COMMENTS:<br><br>Cue: If the simulator PPC is not working, provide the operator with the "Official 3D Case" attached to the JPM. | |

| | |
|---|---|
| PERFORMANCE STEP:<br>Critical: C | Determines that the "Official 3D Case" is invalid. |
| STANDARD: | Determines that the "Official 3D Case" is invalid by noting that core thermal power (MWT) is lower than expected and informs the OSS. |
| COMMENTS:<br><br>Cue: If the operator does not recognize that the process computer data is invalid and completes the determination, role play as the OSS and acknowledge the report that the reactor is not on a limiting control rod pattern. | |

Note: When the operator determines that the "Official 3D Case" is invalid, provide the student with the valid "Official 3D Case" and direct him to complete the STP.

| | |
|---|---|
| PERFORMANCE STEP:<br>Critical: C | Determine that a Limiting Control Rod pattern does exist. |
| STANDARD: | Determines that a Limiting Control Rod Pattern does exist. |
| COMMENTS:<br><br>Cue: Role Play as the Shift Supervisor and acknowledge that a Limiting Control Rod Pattern does exist. | |

Time Stop _____

**TERMINATING CUES:** When the operator informs you as the OSS that a Limiting Control Rod Pattern does exist.

## VERIFICATION OF COMPLETION

JPM No.: 2.1.33-03 JPM Description: Limiting control rod pattern determination using STP 3.0.0-01 (faulted)

Operator: _____ Evaluator: _____

Licensee: ☐ RO ☐ SRO ☐ SRO Cert
☐ STA ☐ NSPEO

Result: ☐ SATISFACTORY ☐ UNSATISFACTORY

**COMMENTS/FEEDBACK:** (Note any trainee discrepancies or misperformed steps.)

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_____ _____
Evaluator's Signature Date

>>>> SIMULATOR <<<<
3D MONICORE
PERIODIC LOG

SEQUENCE NO 14
13-OCT-2000 13:41 CALCULATED
13-OCT-2000 13:41 PRINTED
CASE ID FMLD1001013134122
RESTART FMLD1001013134122
LPRM ABSOLUTE - FULL CORE

| CORE PARAMETERS | | | CALC RESULTS | |
|---|---|---|---|---|
| POWER | MWT | 924. | | |
| POWER | MWE | 561. | | |
| FLOW | MLB/HR | 44.691 | | |
| FPAPDR | | 0.909 | | |
| SUBC | BTU/LB | 11.52 | Keff | 1.0000 |
| PR | PSIa | 1022.1 | XE WORTH % | -2.41 |
| CORE | MWD/sT | 16353.7 | XE/RATED | 1.00 |
| CYCLE | MWD/sT | 4163.7 | | |
| MCPR | | 2.239 | | |

| LOAD LINE SUMMARY | |
|---|---|
| CORE POWER | 55.7% |
| CORE FLOW | 91.2% |
| LOAD LINE | 56.5% |

CORRECTION FACTOR: MFLCPR= 1.168 MFLPD= 1.000 MAPRAT= 0.779
OPTION: ARTS DUAL LOOP MANUAL FLOW MCPRLIM= 1.400

MOST LIMITING LOCATIONS (NON-SYMMETRIC)

| MFLCPR | LOC | MFLPD | LOC | MAPRAT | LOC | PCRAT | LOC |
|---|---|---|---|---|---|---|---|
| 0.558 | 19-32 | 0.318 | 13-26- 5 | 0.449 | 13-20- 5 | 0.384 | 31-26- 5 |
| 0.549 | 19-14 | 0.309 | 31-26- 5 | 0.440 | 13-26- 5 | 0.375 | 13-26- 5 |
| 0.540 | 25-32 | 0.300 | 31-20- 5 | 0.431 | 31-26- 5 | 0.366 | 25-14- 5 |
| 0.531 | 25-14 | 0.284 | 25-14- 5 | 0.422 | 31-20- 5 | 0.353 | 31-20- 5 |
| 0.521 | 25-22 | 0.276 | 19-14- 5 | 0.405 | 25-14- 5 | 0.340 | 25-32- 5 |
| 0.512 | 25-24 | 0.267 | 25-32- 5 | 0.396 | 19-14- 5 | 0.331 | 19-14- 5 |
| 0.502 | 23-20 | 0.243 | 29-32- 5 | 0.387 | 19-32- 5 | 0.315 | 29-14- 5 |
| 0.493 | 23-26 | 0.234 | 29-14- 5 | 0.372 | 29-14- 5 | 0.303 | 29-32- 5 |
| 0.484 | 21-26 | 0.225 | 15-32- 5 | 0.363 | 15-32- 5 | 0.294 | 15-14- 5 |
| 0.475 | 21-20 | 0.216 | 15-14- 5 | 0.354 | 15-14- 5 | 0.285 | 15-32- 5 |

SEQ. A-1 C=MFLCPR D=MFLPD M=MAPRAT P=PCRAT *=MULTIPLE

| | | | | | |
|---|---|---|---|---|---|
| 43 | | | | | |
| L | | | | | |
| 39 | | | | | |
| 35 | | 36 | 36 | | |
| L | | | | | |
| 31 | | C | | | |
| 27 | 36 D | 00 | 00 | P 36 | |
| L | | | | | |
| 23 | | | | | |
| 19 | 36 M | 00 | 00 | 36 | |
| L | | | | | |
| 15 | | | | | |
| 11 | | 36 | 36 | | |
| L | | | | | |
| 07 | | | | | |
| 03 | L | L | L | L | L |
| 02 06 10 14 18 22 26 30 34 38 42 | | | | | |

CORE AVE AXIAL

| NOTCH | REL PW | LOC |
|---|---|---|
| | 0.274 | 25 |
| 00 | 0.548 | 24 |
| 02 | 0.690 | 23 |
| 04 | 0.833 | 22 |
| 06 | 0.901 | 21 |
| 08 | 0.970 | 20 |
| 10 | 0.987 | 19 |
| 12 | 1.005 | 18 |
| 14 | 1.020 | 17 |
| 16 | 1.034 | 16 |
| 18 | 1.031 | 15 |
| 20 | 1.028 | 14 |
| 22 | 1.042 | 13 |
| 24 | 1.055 | 12 |
| 26 | 1.077 | 11 |
| 28 | 1.099 | 10 |
| 30 | 1.145 | 09 |
| 32 | 1.191 | 08 |
| 34 | 1.222 | 07 |
| 36 | 1.252 | 06 |
| 38 | 1.237 | 05 |
| 40 | 1.222 | 04 |
| 42 | 0.992 | 03 |
| 44 | 0.763 | 02 |
| 46 | 0.381 | 01 |

CORE AVERAGE RADIAL POWER DISTRIBUTION

| RING # | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| REL PW | 1.143 | 1.081 | 1.262 | 1.185 | 1.089 | 0.686 |

>>>> SIMULATOR <<<< INSTRUMENT READINGS/STATUS
CALIBRATED LPRM READINGS

SEQUENCE NO 14
13-OCT-2000 13:41 CALCULATED
13-OCT-2000 13:41 PRINTED
CASE ID FMLD1001013134122
LPRM ABSOLUTE - FULL CORE

| | | | | | |
|---|---|---|---|---|---|
| 41D | | 20.9 | 28.5 | | |
| C | | 24.8 | 33.9 | | |
| B | | 25.3 | 34.6 | | |
| A | | 28.3 | 38.7 | | |
| 33D | 28.5 | 33.2C | 35.3 | 32.8 | |
| C | 33.9 | 42.8 | 45.7 | 39.8 | |
| B | 34.6 | 45.3 | 48.8 | 41.7 | |
| A | 38.7D | 45.4 | 47.6P | 43.2 | |
| 25D | 31.2 | 34.8 | 34.3 | 35.3 | 0.0 |
| C | 39.8 | 42.5 | 41.5 | 45.7 | 33.9 |
| B | 41.7 | 45.0 | 43.4 | 48.8 | 34.6 |
| A | 43.2M | 41.1 | 36.9 | 47.6 | 38.7 |
| 17D | 29.2 | 35.0 | 34.8 | 33.2 | 20.9 |
| C | 36.9 | 43.0 | 42.5 | 42.8 | 24.8 |
| B | 38.2 | 45.7 | 45.0 | 45.3 | 25.3 |
| A | 40.9 | 43.2 | 41.1 | 45.4 | 28.3 |
| 09D | 20.9 | 29.2 | 31.2 | 28.5 | |
| C | 24.8 | 36.9 | 39.8 | 33.9 | |
| B | 25.3 | 38.2 | 41.7 | 34.6 | |
| A | 28.3 | 40.9 | 43.2 | 38.7 | |
| | 08 | 16 | 24 | 32 | 40 |

# OF TIPS REJECTED: 2

FAILED SENSORS:
LPRM ( SIGNAL FAILED)
LPRM ( 1 PANACEA REJECTED)
4025D
OTHER SENSORS ( 0 TOTAL)
SUB RODS
NONE

T = TIP RUN RECOMMENDED
C = MFLCPR LOCATION
M = MAPRAT LOCATION
D = MFLPD LOCATION
P = PCRAT LOCATION
* = MULTIPLE LIMIT

CORE SUMMARY

| | | | | | |
|---|---|---|---|---|---|
| CORE POWER | 55.7% | CALC SUB FLOW | 91.0% | DP MEAS PSI | 20.55 |
| CORE FLOW | 91.2% | OPER SUB FLOW | -2.0% | DP CALC PSI | 21.96 |
| LOAD LINE | 56.5% | FLOW BASIS | MEAS | FEEDWTR FLOW MLB/HR | 3.97 |

APRM CALIBRATION

| | A | B | C | D | E | F |
|---|---|---|---|---|---|---|
| READING | 100.8 | 100.3 | 100.3 | 100.6 | 100.5 | 99.9 |
| AGAF | 0.553 | 0.557 | 0.556 | 0.555 | 0.556 | 0.557 |
| APRM - %CTP | 45.0 | 44.5 | 44.6 | 44.9 | 44.7 | 44.1 |

TIP RUNS RECOMMENDED
STRINGS: NONE

>>>> SIMULATOR <<<<
3D MONICORE
PERIODIC LOG

SEQUENCE NO 12
11-FEB-2001 11:41 CALCULATED
11-FEB-2001 11:41 PRINTED
CASE ID FMLS1010211114147
RESTART FMLS1010211114147
LPRM ABSOLUTE - FULL CORE

| CORE PARAMETERS | | | CALC RESULTS | |
|---|---|---|---|---|
| POWER | MWT | 1653. | | |
| POWER | MWE | 561. | | |
| FLOW | MLB/HR | 44.775 | | |
| FPAPDR | | 1.053 | | |
| SUBC | BTU/LB | 21.82 | Keff | 1.0000 |
| PR | PSIa | 1022.1 | XE WORTH % | -2.41 |
| CORE | MWD/sT | 16353.6 | XE/RATED | 1.00 |
| CYCLE | MWD/sT | 4163.6 | | |
| MCPR | | 1.316 | | |

| LOAD LINE SUMMARY | |
|---|---|
| CORE POWER | 99.7% |
| CORE FLOW | 91.4% |
| LOAD LINE | 104.4% |

CORRECTION FACTOR: MFLCPR= 1.000 MFLPD= 1.000 MAPRAT= 1.000
OPTION: ARTS DUAL LOOP MANUAL FLOW MCPRLIM= 1.400

MOST LIMITING LOCATIONS (NON-SYMMETRIC)

| MFLCPR | LOC | MFLPD | LOC | MAPRAT | LOC | PCRAT | LOC |
|---|---|---|---|---|---|---|---|
| 0.950 | 37-28 | 0.883 | 7-28- 8 | 0.931 | 35-28- 8 | 0.907 | 7-18- 8 |
| 0.940 | 7-28 | 0.874 | 7-18- 8 | 0.923 | 35-18- 8 | 0.898 | 7-28- 8 |
| 0.930 | 7-18 | 0.865 | 37-28- 8 | 0.914 | 9-18- 8 | 0.889 | 9-30- 8 |
| 0.920 | 37-18 | 0.847 | 9-30- 8 | 0.905 | 9-28- 8 | 0.876 | 37-28- 8 |
| 0.886 | 9-30 | 0.838 | 35-16- 8 | 0.857 | 37-18- 8 | 0.848 | 9-16- 8 |
| 0.876 | 35-30 | 0.829 | 9-16- 8 | 0.848 | 7-28- 8 | 0.839 | 35-16- 8 |
| 0.866 | 9-16 | 0.821 | 35-30- 8 | 0.839 | 7-18- 8 | 0.830 | 37-16- 9 |
| 0.841 | 19-32 | 0.645 | 37-16- 9 | 0.830 | 37-28- 8 | 0.737 | 35-30- 8 |
| 0.831 | 25-32 | 0.636 | 7-30- 9 | 0.815 | 35-16- 8 | 0.726 | 37-30- 9 |
| 0.821 | 25-14 | 0.627 | 37-30- 9 | 0.806 | 35-30- 8 | 0.717 | 7-30- 9 |

SEQ. A-1 C=MFLCPR D=MFLPD M=MAPRAT P=PCRAT *=MULTIPLE

```
43
  L
39

35                36      36
  L
31

27      D 36      00      00      36MC
  L
23

19      P 36      00      00      36
  L
15

11                36      36
  L
07

03        L       L       L       L       L
   02  06  10  14  18  22  26  30  34  38  42
```

CORE AVE AXIAL

| NOTCH | REL PW | LOC |
|---|---|---|
| | 0.311 | 25 |
| 00 | 0.621 | 24 |
| 02 | 0.753 | 23 |
| 04 | 0.885 | 22 |
| 06 | 0.936 | 21 |
| 08 | 0.987 | 20 |
| 10 | 0.988 | 19 |
| 12 | 0.990 | 18 |
| 14 | 1.013 | 17 |
| 16 | 1.036 | 16 |
| 18 | 1.039 | 15 |
| 20 | 1.042 | 14 |
| 22 | 1.065 | 13 |
| 24 | 1.089 | 12 |
| 26 | 1.112 | 11 |
| 28 | 1.134 | 10 |
| 30 | 1.174 | 09 |
| 32 | 1.214 | 08 |
| 34 | 1.232 | 07 |
| 36 | 1.250 | 06 |
| 38 | 1.211 | 05 |
| 40 | 1.171 | 04 |
| 42 | 0.875 | 03 |
| 44 | 0.580 | 02 |
| 46 | 0.290 | 01 |

CORE AVERAGE RADIAL POWER DISTRIBUTION

| RING # | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| REL PW | 1.129 | 1.060 | 1.222 | 1.165 | 1.132 | 0.687 |

>>>> SIMULATOR <<<< INSTRUMENT READINGS/STATUS
CALIBRATED LPRM READINGS

SEQUENCE NO 12
11-FEB-2001 11:41 CALCULATED
11-FEB-2001 11:41 PRINTED
CASE ID FMLS1010211114147
LPRM ABSOLUTE - FULL CORE

| | | | | | |
|---|---|---|---|---|---|
| 41D | | 20.9 | 28.5 | | |
| C | | 24.9 | 33.9 | | |
| B | | 25.3 | 34.6 | | |
| A | | 28.3 | 38.7 | | |
| 33D | 28.5 | 33.3 | 35.3 | 32.8C | |
| C | 33.9 | 42.8 | 45.8 | 39.9 | |
| B | 34.6 | 45.3 | 48.9 | 41.8 | |
| A | 38.7D | 45.4 | 47.6 | 43.2M | |
| 25D | 31.2 | 34.8 | 34.3 | 35.3 | 0.0 |
| C | 39.9 | 42.6 | 41.5 | 45.8 | 33.9 |
| B | 41.8 | 45.0 | 43.4 | 48.9 | 34.6 |
| A | 43.2P | 41.1 | 36.9 | 47.6 | 38.7 |
| 17D | 29.2 | 35.1 | 34.8 | 33.3 | 20.9 |
| C | 36.9 | 43.0 | 42.6 | 42.8 | 24.9 |
| B | 38.2 | 45.8 | 45.0 | 45.3 | 25.3 |
| A | 40.9 | 43.2 | 41.1 | 45.4 | 28.3 |
| 09D | 20.9 | 29.2 | 31.3 | 28.5 | |
| C | 24.9 | 36.9 | 39.9 | 33.9 | |
| B | 25.3 | 38.2 | 41.8 | 34.6 | |
| A | 28.3 | 40.9 | 43.2 | 38.7 | |
| | 08 | 16 | 24 | 32 | 40 |

# OF TIPS REJECTED: 2

FAILED SENSORS:
LPRM ( SIGNAL FAILED)
LPRM ( 1 PANACEA REJECTED)
4025D
OTHER SENSORS ( 0 TOTAL)
SUB RODS
NONE

T = TIP RUN RECOMMENDED
C = MFLCPR LOCATION
M = MAPRAT LOCATION
D = MFLPD LOCATION
P = PCRAT LOCATION
* = MULTIPLE LIMIT

CORE SUMMARY

| | | | | | |
|---|---|---|---|---|---|
| CORE POWER | 99.7% | CALC SUB FLOW | 91.2% | DP MEAS PSI | 20.63 |
| CORE FLOW | 91.4% | OPER SUB FLOW | -2.0% | DP CALC PSI | 24.77 |
| LOAD LINE | 104.4% | FLOW BASIS | MEAS | FEEDWTR FLOW MLB/HR | 7.11 |

APRM CALIBRATION

| | A | B | C | D | E | F |
|---|---|---|---|---|---|---|
| READING | 100.8 | 100.0 | 100.5 | 100.4 | 99.4 | 100.3 |
| AGAF | 0.990 | 0.997 | 0.993 | 0.993 | 1.003 | 0.993 |
| APRM - %CTP | 1.1 | 0.3 | 0.8 | 0.7 | -0.2 | 0.7 |

TIP RUNS RECOMMENDED
STRINGS: NONE

| DAEC<br>DUANE ARNOLD ENERGY CENTER | SURVEILLANCE TEST PROCEDURE<br>TITLE: INSTRUMENT CHECKS | STP 3.0.0-01<br>Page 1 of 56<br>Rev. 26 |
|---|---|---|

Effective Date: JAN 17 2001

Verified By: Michael Winchester — Date: 12-26-00
Testing and Surveillance

Validated By: Ben Westcott — Date: 12-27-00
Operations

Verified By: Russell J. Severson — Date: 01/03/2001
IST Engineer

Verified By: D. Carnesi — Date: 1-8-01
System Engineering

Approved By: Joel Westcott — Date: 1/9/01
Procedures

Reviewed By: [illegible] for — Date: 1/9/2001
Operations Committee

Approved By: Rob Anderson — Date: 1/9/01
Plant Manager, Nuclear

Reference Only

## 1.0 PURPOSE

1.1 The purpose of this procedure is to perform the various Technical Specification, Technical Requirements Manual, and other Plant Required Surveillances that are required on short term frequencies. This procedure includes the shiftly and daily requirements, as well as weekly, monthly and requirements on frequencies less than every 12 hours.

1.2 This procedure satisfies the following various Technical Specification (SR) and Technical Requirements Manual (TSR) surveillance requirements:

SR 3.1.3.1 ..... SR 3.1.5.1 .....SR 3.1.6.1.....SR 3.1.7.1 ..... SR 3.1.7.2
SR 3.1.7.3 ..... SR 3.2.1.1 .....SR 3.2.2.1.....SR 3.3.1.1.1-1.a ..... SR 3.3.1.1.1-2.a
SR 3.3.1.1.1-2.b ..... SR 3.3.1.1.1-4.....SR 3.3.1.1.2-2.b.....SR 3.3.1.1.2-2.c..... SR 3.3.1.2.1-1
SR 3.3.1.2.3-1 ..... SR 3.3.1.2.4-1 .....SR 3.3.3.1.1-1.....SR 3.3.3.1.1-2.a ..... SR 3.3.3.1.1-2.b
SR 3.3.3.1.1-3 ..... SR 3.3.3.1.1-4.a .....SR 3.3.3.1.1-4.b.....SR 3.3.3.1.1-5.a ..... SR 3.3.3.1.1-5.b
SR 3.3.4.2.1 ..... SR 3.3.5.1.1-1.a .....SR 3.3.5.1.1-2.a.....SR 3.3.5.1.1-2.d ..... SR 3.3.5.1.1-2.g
SR 3.3.5.1.1-2.i..... SR 3.3.5.1.1-2.j .....SR 3.3.5.1.1-3.a.....SR 3.3.5.1.1-3.c..... SR 3.3.5.1.1-4.a
SR 3.3.5.1.1-4.c..... SR 3.3.5.1.1-5.a .....SR 3.3.5.1.1-5.c.....SR 3.3.5.2.1-1 ..... SR 3.3.5.2.1-2
SR 3.3.6.1.1-1.a ..... SR 3.3.6.1.1-1.c .....SR 3.3.6.1.1-1.f.....SR 3.3.6.1.1-2.a ..... SR 3.3.6.1.1-5.e
SR 3.3.6.1.1-6.b ..... SR 3.3.6.1.2-1.e .....SR 3.3.6.1.2-1.g.....SR 3.3.6.1.2-2.e ..... SR 3.3.6.1.2-3.e
SR 3.3.6.1.2-3.g ..... SR 3.3.6.1.2-3.h .....SR 3.3.6.1.2-3.i.....SR 3.3.6.1.2-4.e ..... SR 3.3.6.1.2-4.g
SR 3.3.6.1.2-4.h ..... SR 3.3.6.1.2-4.i .....SR 3.3.6.1.2-5.a.....SR 3.3.6.1.2-5.b ..... SR 3.3.6.1.2-5.c
SR 3.3.6.1.2-5.f ..... SR 3.3.6.2.1-1 .....SR 3.3.6.2.2-4.....SR 3.4.1.2 ..... SR 3.4.4.1
SR 3.4.5.1.b ..... SR 3.4.5.2 .....SR 3.4.7.1.....SR 3.4.8.1 ..... SR 3.4.9.7
SR 3.4.10.1 ..... SR 3.5.1.1 .....SR 3.5.1.3.....SR 3.5.2.1 ..... SR 3.5.2.2.a
SR 3.5.2.2.b ..... SR 3.5.2.3 .....SR 3.5.3.1.....SR 3.6.1.4.1..... SR 3.6.1.6.1
SR 3.6.1.7.1 ..... SR 3.6.2.1.1 .....SR 3.6.2.2.1 .....SR 3.6.3.1.1..... SR 3.6.3.1.2
SR 3.6.3.2.1 ..... SR 3.7.2.1 .....SR 3.7.2.2.....SR 3.7.3.1 ..... SR 3.7.8.1
SR 3.8.3.1 ..... SR 3.8.3.2

TSR 3.2.1 ..... TSR 3.3.1.1.a .....TSR 3.3.2.1-1.a .....TSR 3.3.2.1-1.b ..... TSR 3.3.2.1-1.d
TSR 3.3.2.1-2.b ..... TSR 3.3.2.1-2.d.....TSR 3.3.2.1-3.b .....TSR 3.3.2.1-3.d ..... TSR 3.3.3.2-1
TSR 3.3.3.2-2 ..... TSR 3.3.3.2-6.....TSR 3.3.6.1-1 .....TSR 3.3.6.1-2 ..... TSR 3.3.6.1-3
TSR 3.3.6.1-4 ..... TSR 3.3.6.1-5.....TSR 3.3.6.1-6 .....TSR 3.3.6.1-7 ..... TSR 3.3.6.2-7

1.3 This procedure, when performed in its entirety, PARTIALLY SATISFIES the DAEC Technical Specification surveillance requirements to verify each subsystem power-operated and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position for the ESW system.

1.4 This procedure when performed in its entirety, FULLY SATISFIES the DAEC Technical Specificatic surveillance requirement to verify that each CAD system manual valve in the required flowpath (s) that is not locked, sealed, or otherwise secured in position is in the correct position or can be aligned to the correct position.

Reference Only

1.5 This STP verifies plant conditions are maintained as described in the following UFSAR sections:

6.2.5.3 T-Seal Leakage into Containment

9.2.3.2.1 RHRSW River Water Temperature Requirement

9.3.4.5 SBLC Tank Level

11.5.1.5 Main Steam Line Radiation Monitors

1.6 This STP records the number of fish caught at the Intake Structure as required by Environmental Sampling Procedure (ESP) 4.1.1.9.

1.7 This STP FULLY SATISFIES the requirements of 12.2.D.1.a of the DAEC Fire Plan.

1.8 This STP PARTIALLY SATISFIES the requirements of 6.2.5.1 of the Offsite Dose Assessment Manual (ODAM) for Offgas Charcoal Adsorber operation.

1.9 This STP records fuel pool pump inlet temperatures for trending purposes.

1.10 This STP PARTIALLY SATISFIES the ASME testing requirements associated with Excess Flow Check Valves (EFCV).

1.11 This STP verifies that total Well Water flow does not exceed the allowed flow of the Iowa Department of Natural Resources (DNR) Well Water Permit.

## 2.0 BRIEFING INFORMATION

### 2.1 PERFORMANCE INFORMATION

2.1.1 Alternate means of satisfying an instrument's Channel Check shall be documented in the Comment Section when a comparison cannot be made due to the other instrument(s) being inoperable or otherwise unavailable. See General Instruction 4.10 for additional information.

2.1.2 Personnel recommended to perform this procedure:

3 Operations

1 STA, OSS, or OSM

2.1.3 The following test equipment may be needed to perform this STP:

1 Fluke 8062A Digital Multimeter or equivalent

### 2.2 GENERAL CAUTIONS

2.2.1 None

### 2.3 SPECIAL PRECAUTIONS

2.3.1 None

Reference Only

## 3.0 REFERENCES

3.1 DAEC Environmental Sampling Procedure (ESP) 4.1.1.9

3.2 DAEC Fire Plan

3.3 Offsite Dose Assessment Manual (ODAM)

3.4 ASME Relief Request VR-24 and AR 19442

3.5 Commitment Items

3.5.1 C001 - Requirements Relocated to Plant Procedures per Improved Technical Specification Submittal

## 4.0 GENERAL INSTRUCTIONS

4.1 Readings may be taken in any sequence desired.

4.1.1 The previous day's 1900-0700 crew takes all readings designated shift 1.

4.1.2 The 0700-1900 crew takes all readings designated shift 2.

4.1.3 The 1900-0700 crew takes all readings designated shift 3.

4.2 For checks of conditions where the data blocks call for an Operator's initials, the Operator only initials the block if the Acceptance Criteria is met. For checks of conditions not requiring recorded data from an instrument or a calculation where the data blocks are blank, the operator has the option of initialing the block signifying that the Acceptance Criteria is met or they may write in the condition of the component. (For lights: ON/OFF)

4.3 Data marked with a "TS" or "TM" in the Acceptance Criteria column are required by Technical Specifications or the Technical Requirements Manual. If the data does not meet its acceptance criteria or cannot be recorded, a NRC reportable condition may exist. The data shall be circled and immediately reported to the Operations Shift Supervisor (OSS).

4.4 An Action Request (AR) shall be completed for any problems encountered with "TS", "TM", or "FP"-marked steps during the test/inspection, unless it is noted that an AR is not required.

4.5 The OSS shall be immediately notified and the appropriate Limiting Condition for Operation section of Technical Specifications or the Technical Requirements Manual referred to whenever problems are encountered during the performance of this STP.

4.6 The OSS and Fire Marshal shall be notified immediately and the appropriate Limiting Condition for Operation section of the DAEC Fire Plan referred to whenever problems are encountered with "FP"-marked steps during the performance of this STP.

4.7 If a component does not meet the acceptance criteria of ASME that component may or may not be considered inoperable. Refer to ACP 1407.3 (ASME) to determine system operability.

4.8 If any equipment or components are observed to be in a state of disrepair during the performance of this STP, appropriate corrective maintenance shall be initiated.

Reference Only

4.9 Some checks in this procedure are not required after the reactor has been placed in MODE 4 as defined in DAEC Technical Specifications. These checks are identified by a diamond (♦) in the Function and Data columns. Additionally, some Acceptance Criteria does not apply in MODE 4. This Acceptance Criteria is also identified by a ♦ preceding it. Whenever the reactor is in MODE 4, this data is not required to be taken and NR (Not Required) may be placed in all the data blocks for each parameter marked by a ♦ in the Function and Data columns of Data Tables. Whenever the reactor is in MODE 4, if data taken does not comply with Acceptance Criteria that is preceded with a ♦, an Action Request (AR) is not required.

4.10 CHANNEL CHECKS - Although, when performing channel checks, it is preferential to perform quantitative instrument checks, conditions may not always support quantitative checks. There may be times when a qualitative channel check may need to be performed in lieu of the preferred quantitative check. For example, if a daily channel check were to compare a set of A and B channel readings and the A channel was either inoperable or in a "trip" condition, the B channel shouldn't be declared INOP simply because the daily channel check can't be performed as written. Alternative means may be used to determine channel operability. Alternative means might include (but not be limited to) a use of historical records (STPs or possibly PI/computer point data for similar plant conditions) to verify channel indication, when the channel was known to be OPERABLE. Note any alternative means that are used in the Comment Section.

## 5.0 APPENDICES

5.1 None

Reference Only

## 6.0 PREREQUISITES

**NOTE**

Perform STP 3.0.0-03, Refueling Instrument Checks, if the plant is in Mode 5.

6.1 Plant is currently in Mode 1, 2, 3, or 4. _____ OPS

Reference Only

## 7.0 PROCEDURE

7.1 Every 4 hours, record the required data in the 4-Hour and Shiftly Instrument Checks data sheets.

7.2 Every 12 hours, record the required data in the Shiftly Instrument Checks data sheets.

7.3 Every 24 hours, record the required data in the Daily Instrument Checks data sheets.

Reference Only

| | Shifts 2 | Shifts 3 |
|---|---|---|
| Reactor MODE | | |

If the Reactor is in MODE 4, then the readings annotated by a ♦ are not required and the instructions of General Instruction 4.8 may be followed.

| PANEL NUMBER | FUNCTION | INSTRUMENT NUMBER | TECH SPEC | ACCEPTANCE CRITERIA | SHIFTS 1 | | SHIFTS 2 | | SHIFTS 3 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | ♦Drywell Unidentified Leakage | Complete Section 4.1, Step (3) of OI 920 | SR 3.4.4.1.a 3.4.5.2 | Complete Calculation Sheet Attachment 1 and initial here (TS). If ≥ 1.0 gpm, see OI 920, Precautions and Limitations. (Note 1) | 0000 ♦ | 0400 ♦ | 0800 ♦ | 1200 ♦ | 1600 ♦ | 2000 ♦ |
| | ♦Drywell Identified Leakage | Complete Section 4.1, Step (2) of OI 920 | SR 3.4.4.1.b 3.4.5.2 | Complete Calculation Sheet Attachment 2 and initial here (TS). | 0000 ♦ | 0400 ♦ | 0800 ♦ | 1200 ♦ | 1600 ♦ | 2000 ♦ |

NOTE 1: If all three components (Flow Totalizer FQ-3707 and timers KS-3706A/B) are all inoperable, verify that section 7.1 of STP 3.4.5-06 has been performed by recording the performance date and time below (otherwise "N/A"):

Section 7.1 of STP 3.4.5-06 performed: Date_____ Time_____

Reference Only

## ATTACHMENT 1
## UNIDENTIFIED AVERAGE LEAK RATE CALCULATION

(Note: Not required in MODE 4 ♦ )

All readings are to be taken at Panel 1C19.

0000 (1)

a. FQ 3707 present reading _____ Time of Reading _____
b. FQ 3707 previous reading _____ Time of Reading _____
c. Total gallons pumped (a-b) _____
d. Time interval (a-b) _____ hours x 60 = _____ min.
e. Unidentified average leak rate = Total Gallons Pumped (c) / Time Interval (minutes) (d) = _____ gpm
f. Confirm unidentified average leak rate (e) is ≤ 5 gpm _____ Operator's Initials

0400 (2)

a. FQ 3707 present reading _____ Time of Reading _____
b. FQ 3707 previous reading _____ Time of Reading _____
c. Total gallons pumped (a-b) _____
d. Time interval (a-b) _____ hours x 60 = _____ min.
e. Unidentified average leak rate = Total Gallons Pumped (c) / Time Interval (minutes) (d) = _____ gpm
f. Confirm unidentified average leak rate (e) is ≤ 5 gpm _____ Operator's Initials

0800 (3)

a. FQ 3707 present reading _____ Time of Reading _____
b. FQ 3707 previous reading _____ Time of Reading _____
c. Total gallons pumped (a-b) _____
d. Time interval (a-b) _____ hours x 60 = _____ min.
e. Unidentified average leak rate = Total Gallons Pumped (c) / Time Interval (minutes) (d) = _____ gpm
f. Confirm unidentified average leak rate (e) is ≤ 5 gpm _____ Operator's Initials

1200 (4)

a. FQ 3707 present reading _____ Time of Reading _____
b. FQ 3707 previous reading _____ Time of Reading _____
c. Total gallons pumped (a-b) _____
d. Time interval (a-b) _____ hours x 60 = _____ min.
e. Unidentified average leak rate = Total Gallons Pumped (c) / Time Interval (minutes) (d) = _____ gpm
b. Confirm unidentified average leak rate (e) is ≤ 5 gpm _____ Operator's Initials

1600 (5)

a. FQ 3707 present reading _____ Time of Reading _____
b. FQ 3707 previous reading _____ Time of Reading _____
c. Total gallons pumped (a-b) _____
d. Time interval (a-b) _____ hours x 60 = _____ min.
e. Unidentified average leak rate = Total Gallons Pumped (c) / Time Interval (minutes) (d) = _____ gpm
f. Confirm unidentified average leak rate (e) is ≤ 5 gpm _____ Operator's Initials

2000 (6)

a. FQ 3707 present reading _____ Time of Reading _____
b. FQ 3707 previous reading _____ Time of Reading _____
c. Total gallons pumped (a-b) _____
d. Time interval (a-b) _____ hours x 60 = _____ min.
e. Unidentified average leak rate = Total Gallons Pumped (c) / Time Interval (minutes) (d) = _____ gpm
f. Confirm unidentified average leak rate (e) is ≤ 5 gpm _____ Operator's Initials

Reference Only

## ATTACHMENT 2
## IDENTIFIED AVERAGE LEAK RATE CALCULATION
(Note: Not required in MODE 4 ♦)

All readings are to be taken at Panel 1C19.

0000 (1)

a. FQ 3708 present reading _____ Time of Reading _____
b. FQ 3708 previous reading _____ Time of Reading _____
c. Total gallons pumped (a-b) _____
d. Time interval (a-b) _____ hours x 60 = _____ min.
e. Identified average leak rate = $\frac{\text{Total Gallons Pumped (c)}}{\text{Time Interval (minutes) (d)}}$ = _____ gpm
f. Add identified (e) and unidentified (App B2, e) = _____
g. Confirm total average leak rate (f) is ≤ 25 gpm _____
Operator's Initials

0400 (2)

a. FQ 3708 present reading _____ Time of Reading _____
b. FQ 3708 previous reading _____ Time of Reading _____
c. Total gallons pumped (a-b) _____
d. Time interval (a-b) _____ hours x 60 = _____ min.
e. Identified average leak rate = $\frac{\text{Total Gallons Pumped (c)}}{\text{Time Interval (minutes) (d)}}$ = _____ gpm
f. Add identified (e) and unidentified (App B2, e) = _____
g. Confirm total average leak rate (f) is ≤ 25 gpm _____
Operator's Initials

0800 (3)

a. FQ 3708 present reading _____ Time of Reading _____
b. FQ 3708 previous reading _____ Time of Reading _____
c. Total gallons pumped (a-b) _____
d. Time interval (a-b) _____ hours x 60 = _____ min.
e. Identified average leak rate = $\frac{\text{Total Gallons Pumped (c)}}{\text{Time Interval (minutes) (d)}}$ = _____ gpm
f. Add identified (e) and unidentified (App B2, e) = _____
g. Confirm total average leak rate (f) is ≤ 25 gpm _____
Operator's Initials

1200 (4)

a. FQ 3708 present reading _____ Time of Reading _____
b. FQ 3708 previous reading _____ Time of Reading _____
c. Total gallons pumped (a-b) _____
d. Time interval (a-b) _____ hours x 60 = _____ min.
e. Identified average leak rate = $\frac{\text{Total Gallons Pumped (c)}}{\text{Time Interval (minutes) (d)}}$ = _____ gpm
f. Add identified (e) and unidentified (App B2, e) = _____
g. Confirm total average leak rate (f) is ≤ 25 gpm _____
Operator's Initials

1600 (5)

a. FQ 3708 present reading _____ Time of Reading _____
b. FQ 3708 previous reading _____ Time of Reading _____
c. Total gallons pumped (a-b) _____
d. Time interval (a-b) _____ hours x 60 = _____ min.
e. Identified average leak rate = $\frac{\text{Total Gallons Pumped (c)}}{\text{Time Interval (minutes) (d)}}$ = _____ gpm
f. Add identified (e) and unidentified (App B2, e) = _____
g. Confirm total average leak rate (f) is ≤ 25 gpm _____
Operator's Initials

2000 (6)

a. FQ 3708 present reading _____ Time of Reading _____
b. FQ 3708 previous reading _____ Time of Reading _____
c. Total gallons pumped (a-b) _____
d. Time interval (a-b) _____ hours x 60 = _____ min.
e. Identified average leak rate = $\frac{\text{Total Gallons Pumped (c)}}{\text{Time Interval (minutes) (d)}}$ = _____ gpm
f. Add identified (e) and unidentified (App B2, e) = _____
g. Confirm total average leak rate (f) is ≤ 25 gpm _____
Operator's Initials

Reference Only

| PANEL NUMBER | FUNCTION | INSTRUMENT NUMBER | TECH SPEC | ACCEPTANCE CRITERIA | SHIFTS 2 | SHIFTS 3 |
|---|---|---|---|---|---|---|
| N/A | Surveillance Frequency | N/A | SR 3.0.2 | Shiftly Instrument Checks shall be started and completed within the following time bands for each specific shift.<br>Shift 2 within 0700-1000<br>Shift 3 within 1900-2200 | Start Time _____<br>Completion Time _____<br>Operator's Initials | Start Time _____<br>Completion Time _____<br>Operator's Initials |
| N/A | Surveillance Frequency | N/A | | Shiftly Instrument Checks second reviews shall be completed by the following time for each specific shift.<br>Shift 2 by 1000<br>Shift 3 by 2200 | Time _____<br>Reviewer's Initials | Time _____<br>Reviewer's Initials |
| Computer Console or 1C05 | ♦ Power Level | Computer Pt. C133 or Average of APRM readings | N/A | Power level should remain constant while shiftly readings are being taken. If power changes or has to be changed, note this in Section 8.5. | ♦ | ♦ |
| Computer Console | River Water Temperature | Computer Pt. C196<br>or<br>Inputs to M022 read with a Fluke and calculated per following equation:<br>$\frac{mV-12.8}{0.512} = M022$<br>or<br>TR 2900<br>or<br>Local Thermometer . **(Note 1)** | SR 3.7.2.2 | For Ultimate Heat Sink, verify River Water Temp. ≤ 95°F **(TS)** | | |

Note 1: If all other remote temperature indication for river water temperature is out of service, river water temperature may be obtained locally with a thermometer in the vicinity of the Intake Structure. If river water temperatures are taken manually, they are only required once every 24 hours to satisfy Tech Spec SR 3.7.2.2. If the readings are taken manually for an extended period of time (i.e., more than 24 hours), the readings shall be taken between 0700 and 1300 to ensure the frequency requirements of Tech Spec SR 3.0.2 and SR 3.7.2.2 are met.

Record following thermometer data: ID#_____ Cal Due Date: _____

Reference Only

| PANEL NUMBER | FUNCTION | INSTRUMENT NUMBER | TECH SPEC | ACCEPTANCE CRITERIA | SHIFTS 2 | SHIFTS 3 |
|---|---|---|---|---|---|---|
| N/A | ♦ Reactor Coolant Leakage Calculation | N/A | SRs 3.4.4.1.a 3.4.4.1.b 3.4.4.1.c | Complete Calculation Sheet (TS) (Attachment 3/4) Note: Should be completed using 0800/2000 readings. | Initials ♦ | Initials ♦ |
| 1C03 | | MODE 3 < RCIC Steam Line Low Pressure Isolation | SR 3.4.7.1 | One Recirc Pump or one SDC subsystem in operation. (N/A if not applicable to current conditions) | Initials | Initials |
| | | MODE 4 | SR 3.4.8.1 | One Recirc Pump or one SDC subsystem in operation. (N/A if not applicable to current conditions) | Initials | Initials |
| 1C04 | Reactor Vessel | TR 4569 Green Pen | SR 3.4.9.7 | ≥ 74°F (TS) (Only required in MODE 4 and RCS Temperature is ≤100°F - see Note 1 below). | | |
| | Flange and Head Bolt Temperature | TR 4569 Red Pen | | | | |

Note 1: If RCS Temperature is planned to be reduced to 80F or below, commence 30 minute temperature checks per STP-3.4.9-02.

Reference Only

| PANEL NUMBER | FUNCTION | INSTRUMENT NUMBER | TECH SPEC | ACCEPTANCE CRITERIA | SHIFTS 2 | SHIFTS 3 |
|---|---|---|---|---|---|---|
| 1C05 | ♦ Narrow Range Reactor Water Level | LRS 4559 or LRS 4560 as selected by HSS 4560 | | | A<br>B<br>♦ | A<br>B<br>♦ |
| | | LI 4559 | | | ♦ | ♦ |
| | | LI 4560 | | | ♦ | ♦ |
| | | LI 4561 | | | ♦ | ♦ |
| | | Difference between LRS 4559 and LI 4559 or LRS 4560 and LI 4560 as selected by HSS 4560. (High-Low) | TSR 3.3.6.1-1 | ≤ 2.5 inches (TM) | ♦ | ♦ |
| | | Difference between the highest and lowest of LI 4559, LI 4560 and LI 4561 | TSR 3.3.6.1-1 | ≤ 2.5 inches (TM) | ♦ | ♦ |
| | ♦ Reactor Pressure | PR 4542 / Comp Pt. B049 OR B025 (B/U) | SR 3.4.10.1 | ≤ 1025 psig (TS) (Record B025 reading only if PR 4542 and B049 not available) | ♦ | ♦ |
| | | PR 4563 or PR 4564 as selected by HSS 4560 | | | ♦ | ♦ |
| | | PI 4563 | | | ♦ | ♦ |
| | | PI 4564 | | | ♦ | ♦ |
| | | PI 4565 | | | ♦ | ♦ |
| | | Difference between PR 4563 and PI 4563 or PR 4564 and PI 4564 as selected by HSS 4560 (High-Low) | TSR 3.3.6.1-2 | ≤ 48 psig (TM) | ♦ | ♦ |
| | | Difference between the highest and lowest of PI 4563, PI 4564 and PI 4565 | TSR 3.3.6.1-2 | ≤ 48 psig (TM) | ♦ | ♦ |

Reference Only

| PANEL NUMBER | FUNCTION | INSTRUMENT NUMBER | | TECH SPEC | ACCEPTANCE CRITERIA | SHIFTS 2 | | 3 | |
|---|---|---|---|---|---|---|---|---|---|
| Computer Console, 1C05 and 1C37 | ♦APRM Level | Comp. Pt. B000 | Comp. Pt. B001 | SR 3.3.1.1.1-2.a | | ♦ | ♦ | ♦ | ♦ |
| | | NMR 9254A Black Pen | NMR 9254B Black Pen | 3.3.1.1.1-2.b | | ♦ | ♦ | ♦ | ♦ |
| | | NM 9270 | NM 9271 | TSR | | ♦ | ♦ | ♦ | ♦ |
| | | Comp. Pt. B002 | Comp. Pt. B003 | 3.3.2.1-1.a<br>3.3.2.1-1.b | | ♦ | ♦ | ♦ | ♦ |
| | | NMR 9254A Red Pen | NMR 9254D Red Pen | 3.3.2.1-1.d<br>3.3.6.1-7 | | ♦ | ♦ | ♦ | ♦ |
| | | NM 9272 | NM 9273 | | | ♦ | ♦ | ♦ | ♦ |
| | | Comp. Pt. B004 | Comp. Pt. B005 | | | ♦ | ♦ | ♦ | ♦ |
| | | NMR 9254C Black Pen | NMR 9254D Black Pen | | | ♦ | ♦ | ♦ | ♦ |
| | | NM 9274 | NM 9275 | | | ♦ | ♦ | ♦ | ♦ |
| | | From the above 18 readings subtract the lowest from the highest (Highest-Lowest) | | | ≤ 10% (TS, TM) | ♦ | | ♦ | |

Reference Only

| PANEL NUMBER | FUNCTION | INSTRUMENT NUMBER | TECH SPEC | ACCEPTANCE CRITERIA | SHIFTS 2 | SHIFTS 3 |
|---|---|---|---|---|---|---|
| 1C05 | IRM Level | A-NMR9254 A (Black) | SR 3.3.1.1.1-1.a | (Not Required in MODE 1) | | |
| | | C-NMR9254 A (Red) | | | | |
| | | E-NMR9254 C (Black) | | | | |
| | | B-NMR9254 B (Black) | | | | |
| | | D-NMR9254 D (Red) | | | | |
| | | F-NMR9254 D (Black) | TSR 3.3.2.1-2.b 3.3.2.1-2.d 3.3.6.1-7 | (Note 1) | | |
| | | From the above six readings, take the highest and divide by the lowest. Highest / Lowest | | ≤ 10 (TS, TM) (Not Required in MODE 1) | | |
| | SRM Level | NMI 9278 A | SR 3.3.1.2.1-1 3.3.1.2.3-1 3.3.1.2.4-1 | ≥ 3.0 cps (TS) (Not Required in MODE 1) | | |
| | | NMI 9278 B | | | | |
| | | NMI 9278 C | | | | |
| | | NMI 9278 D | | | | |
| | | From the above four readings, take the highest and divide by the lowest. Highest / Lowest | TSR 3.3.2.1-3.b 3.3.2.1-3.d | ≤ 10 (TS, TM) (Not Required in MODE 1) | | |
| 1C06 | Condensate Storage Tank Level | LI 5216A (1T-5A) | 1. SR 3.5.1.1 1. SR 3.5.3.1 2. SR 3.5.2.2.b | ♦ 1. ≥ 8 ft. (Note 2) (TS) | | |
| | | LI 5217A (1T-5B) | | 2. 1 CST: ≥ 11 ft. **OR** Both CST's: ≥ 7 ft. (Note 3) (TS) | | |

Note 1: Record Range Switch position as well as reading and compensate readings for differences in Range Switch position before dividing the highest by the lowest.

Note 2: With HPCI/RCIC aligned to the CST (See OI 150 and OI 152, HPCI/RCIC Discharge Piping, Special Precaution #12)

Note 3: Applicable in Mode 4 only. Only one required Core Spray Subsystem may take credit for this operation during OPDRVs. May be N/A'd if Suppression Pool level is ≥ 8 feet. May also be N/A'd if no Core Spray Subsystems are required to be operable.

Reference Only

| PANEL NUMBER | TASK | SHIFTS 2 | SHIFTS 3 |
|---|---|---|---|
| 1C23 | Calculate "*Total Well Water Flow*" by totaling values from flow recorders FR4414A/B/C/D. Record value in space to the right. (FR4414G may be used if one or more of previous recorders is OOC). | gpm | gpm |
| | Verify "*Total Well Water Flow*" recorded in previous step is less than or equal to (≤) 3000 gpm by initialing space to the right. (Note 1) | | |

| PANEL NUMBER | FUNCTION | INSTRUMENT NUMBER | TECH SPEC | ACCEPTANCE CRITERIA | SHIFTS 2 | SHIFTS 3 |
|---|---|---|---|---|---|---|
| 1C29 | ♦Drywell Pressure | PR 4384A Pen 1 (Red) | | | ♦ | ♦ |
| | | PR 4385A Pen 1 (Red) | | | ♦ | ♦ |
| | | Difference between PR 4384A and PR 4385A (High-Low) | TSR 3.3.6.1-3 | ≤ 2 psid (TM) | ♦ | ♦ |
| | ♦Torus Water Temperature | TR 4386A Pen 1 (Red) | | | ♦ | ♦ |
| | | TR 4386B Pen 1 (Red) | | | ♦ | ♦ |
| | | Average of TR 4386A Pen 1 (Red) and TR 4386B Pen 1 (Red) | SR 3.6.2.1.1 | ≤ 95°F (TS) (≤ 105°F during testing which adds heat to Torus) | ♦ | ♦ |
| | | Difference between TR 4386A and TR 4386B (High-Low) | TSR 3.3.6.1-5 | ≤ 6°F (TM) | ♦ | ♦ |
| | Torus Water Level | LR 4384C Pen 3 (Blue) | 1. SR 3.6.2.2.1 | ♦ 1. ≥ 10.11′ and ≤ 10.43′ (TS) | | |
| | | LR 4385B Pen 2 (Green) | 2. SR 3.5.2.1<br>3. SR 3.5.2.2.a | 2. ≥ 7 ft (TS) (Note 2)<br>3. ≥ 8 ft (TS) (Note 3) | | |
| | | Difference between LR 4384C and LR 4385B (High-Low) | TSR 3.3.6.1-6 | ≤ 0.05′ (TM) | | |

Note 1: Combined maximum flow for all four well water pumps may not exceed 3000 gpm, per DNR Well Water Permit

Note 2: Only applicable in Mode 4. Required LPCI Subsystem(s) only. May be N/A'd if no LPCI Subsystems are required to be operable.

Note 3: Only applicable in Mode 4. Required Core Spray Subsystem(s) only. May be N/A'd if no Core Spray Subsystems are required to be operable or may be N/A'd if only one Core Spray Subsystem is required and it is lined up to the CSTs.

Reference Only

| PANEL NUMBER | FUNCTION | INSTRUMENT NUMBER | TECH SPEC | ACCEPTANCE CRITERIA | SHIFTS 2 | SHIFTS 3 |
|---|---|---|---|---|---|---|
| 1C29 and Computer Console | ♦ Drywell Temperature | Comp. Pt. B095 | | | ♦ | ♦ |
| | | TR 4383A Pen 1 (Red) | | | ♦ | ♦ |
| | | Difference between B095 and TR 4383A Pen 1 (High-Low) | TSR 3.3.6.1-4 | ≤ 10°F (TM) | ♦ | ♦ |
| | | Comp. Pt. B093 | | | ♦ | ♦ |
| | | TR 4383A Pen 2 (Green) | | | ♦ | ♦ |
| | | Difference between B093 and TR 4383A Pen 2 (High-Low) | TSR 3.3.6.1-4 | ≤ 12°F (TM) | ♦ | ♦ |
| | | Comp. Pt. B091 | | | ♦ | ♦ |
| | | TR 4383A Pen 3 (Blue) | | | ♦ | ♦ |
| | | Difference between B091 and TR 4383A Pen 3 (High-Low) | TSR 3.3.6.1-4 | ≤ 10°F (TM) | ♦ | ♦ |
| | | Comp. PT. B094 | | | ♦ | ♦ |
| | | TR 4383B Pen 1 (Red) | | | ♦ | ♦ |
| | | Difference between B094 and TR 4383B Pen 1 (High-Low) | TSR 3.3.6.1-4 | ≤ 10°F (TM) | ♦ | ♦ |
| | | Comp. Pt. B092 | | | ♦ | ♦ |
| | | TR 4383B Pen 2 (Green) | | | ♦ | ♦ |
| | | Difference between B092 and TR 4383B Pen 2 (High-Low) | TSR 3.3.6.1-4 | ≤ 10°F (TM) | ♦ | ♦ |
| | | Comp. PT. B089 | | | ♦ | ♦ |
| | | TR 4383B Pen 3 (Blue) | | | ♦ | ♦ |
| | | Difference between B089 and TR 4383B Pen 3 (High-Low) | TSR 3.3.6.1-4 | ≤ 10°F (TM) | ♦ | ♦ |
| | | Comp. Pt. B090 | | | ♦ | ♦ |
| | | TR 4383C Pen 1 (Red) | | | ♦ | ♦ |
| | | Difference between B090 and TR 4383C Pen 1 (High-Low) | TSR 3.3.6.1-4 | ≤ 10°F (TM) | ♦ | ♦ |

Reference Only

| PANEL NUMBER | FUNCTION | INSTRUMENT NUMBER | TECH SPEC | ACCEPTANCE CRITERIA | SHIFTS 2 | SHIFTS 3 |
|---|---|---|---|---|---|---|
| 1C29 and Computer Console | ♦ Drywell Temperature | Comp. Pt. B096 | | | ♦ | ♦ |
| | | TR4383C Pen 2 (Green) | | | ♦ | ♦ |
| | | Difference between B096 and TR 4383C Pen 2 (High-Low) | TSR 3.3.6.1-4 | ≤ 10°F (TM) | ♦ | ♦ |
| 1C29 | ♦ Containment Air Sampling System | RR 4379A Particulate Pen 1 (Red) | SR 3.4.5.1 | Demonstrate ability to obtain reading (satisfies TS channel check requirement) | ♦ | ♦ |
| | | RR 4379A Gaseous Pen 2 (Green) | | | ♦ | ♦ |
| | | RR 4379A Iodine Pen 3 (Blue) | | | ♦ | ♦ |
| | | RR 4379B Particulate Pen 1 (Red) | | | ♦ | ♦ |
| | | RR 4379B Gaseous Pen 2 (Green) | | | ♦ | ♦ |
| | | RR 4379B Iodine Pen 3 (Blue) | | | ♦ | ♦ |
| 1C36 | ♦Main Steam Line Tunnel Radiation | RM 4448A | | Annunciator window 1C05B, D-2 not activated | ♦ | ♦ |
| | | RM 4448C | | | ♦ | ♦ |
| | | RM 4448B | | | ♦ | ♦ |
| | | RM 4448D | | | ♦ | ♦ |
| | | Calculate the deviation for the above 4 readings.<br>Deviation (%) = 100 x (Highest-Lowest) / Highest | SR 3.3.6.1.1-1.f<br>UFSAR 11.5.1.5 | ≤ 50% (TS) | ♦ | ♦ |
| 1C45 | ♦LLS & RPS Hi Press. Scram Monitors | DS 10B | NONE | Confirm light is on. | ♦ | ♦ |
| | | DS 11B | | | ♦ | ♦ |
| | | DS 12B | | | ♦ | ♦ |
| | | DS 13B | | | ♦ | ♦ |
| | | DS 10A | | | ♦ | ♦ |
| | | DS 11A | | | ♦ | ♦ |
| | | DS 12A | | | ♦ | ♦ |
| | | DS 13A | | | ♦ | ♦ |

Reference Only

| PANEL NUMBER | FUNCTION | INSTRUMENT NUMBER | TECH SPEC | ACCEPTANCE CRITERIA | SHIFTS 2 | SHIFTS 3 |
|---|---|---|---|---|---|---|
| 1C56 | ♦ Reactor Water Level | LITS 4539 | | | ♦ | ♦ |
| 1C55 | | LITS 4540 | | | ♦ | ♦ |
| | | Difference between LITS 4539 and LITS 4540 (High-Low) | SR 3.3.3.1.1-2.a | ≤ 15 inches (TS) | ♦ | ♦ |
| 1C56 | | LIS 4535 | SR 3.3.6.1.1-1.a | | ♦ | ♦ |
| | | LIS 4537 | | | ♦ | ♦ |
| 1C55 | | LIS 4536 | | | ♦ | ♦ |
| | | LIS 4538 | | | ♦ | ♦ |
| | | From the above 4 readings, subtract the Lowest from the Highest (Highest-Lowest) | 3.3.6.1.1-5.e<br>3.3.4.2.1<br>TSR 3.3.1.1.a | ≤ 37.5 inches (TS, TM) | ♦ | ♦ |
| 1C56 | Reactor Water Level | LIS 4531 | SR 3.3.5.1.1-1.a | | | |
| | | LIS 4533 | | | | |
| 1C55 | | LIS 4532 | 3.3.5.1.1-2.a | | | |
| | | LIS 4534 | 3.3.5.1.1-2.g | | | |
| | | From the above 4 readings, subtract the Lowest from the Highest (Highest-Lowest) | 3.3.5.1.1-3.a<br>3.3.5.1.1-4.a<br>3.3.5.1.1-5.a<br>3.3.5.2.1-1 | ≤ 37.5 inches (TS) | | |
| 1C56 | ♦ Reactor Water Level | LIS 4561 | | | ♦ | ♦ |
| 1C55 | | LIS 4562 | | | ♦ | ♦ |
| | | Difference between LIS 4561 and LIS 4562 (High-Low) | SR 3.3.5.1.1-4.c<br>3.3.5.1.1-5.c | ≤ 10 inches (TS) | ♦ | ♦ |
| 1C56A | Reactor Water Level | LIS 4592A | SR 3.3.5.2.1-2 | | | |
| | | LIS 4592B | 3.3.5.1.1-3.c | | | |
| 1C55A | | LIS 4592C | 3.3.1.1.1-4 | | | |
| | | LIS 4592D | 3.3.6.1.1-2.a | | | |
| | | From the above 4 readings, subtract the Lowest from the Highest (Highest-Lowest) | 3.3.6.1.1-6.b<br>3.3.6.2.1-1 | ≤ 10 inches (TS) | | |

Reference Only

| PANEL NUMBER | FUNCTION | INSTRUMENT NUMBER | TECH SPEC | ACCEPTANCE CRITERIA | SHIFTS 2 | SHIFTS 3 |
|---|---|---|---|---|---|---|
| 1C126A | ♦Main Steam Line Differential Flow | PDIS 4432A | | ≤ 70 psid | ♦ | ♦ |
| | | PDIS 4432B | | | ♦ | ♦ |
| 1C126B | | PDIS 4432C | | | ♦ | ♦ |
| | | PDIS 4432D | | | ♦ | ♦ |
| | | Difference between Highest and Lowest of above 4 readings (Highest-Lowest) | SR 3.3.6.1.1-1.c | ≤ 7 psid (TS) | ♦ | ♦ |
| 1C122B | | PDIS 4434A | | ≤ 70 psid | ♦ | ♦ |
| | | PDIS 4434B | | | ♦ | ♦ |
| 1C126B | | PDIS 4434C | | | ♦ | ♦ |
| | | PDIS 4434D | | | ♦ | ♦ |
| | | Difference between Highest and Lowest of above 4 readings (Highest-Lowest) | SR 3.3.6.1.1-1.c | ≤ 7 psid (TS) | ♦ | ♦ |
| 1C126A | | PDIS 4436A | | ≤ 70 psid | ♦ | ♦ |
| | | PDIS 4436B | | | ♦ | ♦ |
| 1C126B | | PDIS 4436C | | | ♦ | ♦ |
| | | PDIS 4436D | | | ♦ | ♦ |
| | | Difference between Highest and Lowest of above 4 readings (Highest-Lowest) | SR 3.3.6.1.1-1.c | ≤ 7 psid (TS) | ♦ | ♦ |
| 1C126A | | PDIS 4438A | | ≤ 70 psid | ♦ | ♦ |
| | | PDIS 4438B | | | ♦ | ♦ |
| 1C126B | | PDIS 4438C | | | ♦ | ♦ |
| | | PDIS 4438D | | | ♦ | ♦ |
| | | Difference between Highest and Lowest of above 4 readings (Highest-Lowest) | SR 3.3.6.1.1-1.c | ≤ 7 psid (TS) | ♦ | ♦ |

Reference Only

ATTACHMENT 3

REACTOR COOLANT LEAKAGE

(Note: Not required in Mode 4 ♦)

All readings are to be taken at 1C19, after completing the 0800 readings in Attachments 1 and 2.

1.0 Unidentified average leak rate calculation

a. FQ 3707 present day 0800 reading _____

b. FQ 3707 previous day 0800 reading _____

c. Total gallons pumped (a-b) _____

d. Time interval (a-b) _____ hours x 60 = _____ min.

e. Unidentified average leak rate = $\frac{\text{Total Gallons Pumped (c)}}{\text{Time Interval (minutes) (d)}}$ = _____ gpm

f. Confirm unidentified average leak rate (e) is ≤ 5 gpm _____
Operator's Initials

2.0 Total average leak rate calculation

a. FQ 3708 present day 0800 reading _____

b. FQ 3708 previous day 0800 reading _____

c. Total gallons pumped (a-b) _____

d. Time interval (a-b) _____ hours x 60 = _____ min.

e. Identified average leak rate = $\frac{\text{Total Gallons Pumped}}{\text{Time Interval (minutes) (d)}}$ = _____ gpm

f. Total average leak rate = 1.0.e + 2.0.e = _____

g. Confirm total average leak rate (f) is ≤ 25 gpm _____
Operator's Initials

**NOTE**

During reactor startup and ascension to normal operating pressure, the 2 gpm increase may possibly be exceeded. Under these conditions, leakage should be closely monitored until normal operating pressure is achieved and a baseline leakage rate established.

3.0 24 Hour Comparison

a. Record the Unidentified average leak rate for the previous day (Step 1.0.e from yesterday's logs).
Previous 0800 Unidentified calculation _____ gpm

b. Leakage change (1.e - 3.a) _____ gpm

c. Confirm the Leakage Change (Step 3.b) indicates less than a 2 gpm increase.

_____
Operator's Initials

Reference Only

ATTACHMENT 4

REACTOR COOLANT LEAKAGE
(Note: Not required in Mode 4 ♦)

All readings are to be taken at 1C19, after completing the 2000 readings in Attachment 1 and 2.

1.0 Unidentified average leak rate calculation

a. FQ 3707 present day 2000 reading _____

b. FQ 3707 previous day 2000 reading _____

c. Total gallons pumped (a-b) _____

d. Time interval (a-b) _____ hours x 60 = _____ min.

e. Unidentified average leak rate = $\frac{\text{Total Gallons Pumped (c)}}{\text{Time Interval (minutes) (d)}}$ = _____ gpm

f. Confirm unidentified average leak rate (e) is ≤ 5 gpm _____
Operator's Initials

2.0 Total average leak rate calculation

a. FQ 3708 present day 2000 reading _____

b. FQ 3708 previous day 2000 reading _____

c. Total gallons pumped (a-b) _____

d. Time interval (a-b) _____ hours x 60 = _____ min.

e. Identified average leak rate = $\frac{\text{Total Gallons Pumped}}{\text{Time Interval (minutes) (d)}}$ = _____ gpm

f. Total average leak rate = 1.0.e + 2.0.e = _____

g. Confirm total average leak rate (f) is ≤ 25 gpm _____
Operator's Initials

**NOTE**

**During reactor startup and ascension to normal operating pressure, the 2 gpm increase may possibly be exceeded. Under these conditions, leakage should be closely monitored until normal operating pressure is achieved and a baseline leakage rate established.**

3.0 24 Hour Comparison

a. Record the Unidentified average leak rate for the previous day (Step 1.0.e from yesterday's logs).
Previous 2000 Unidentified calculation _____ gpm

b. Leakage change (1.e - 3.a) _____ gpm

c. Confirm the Leakage Change (Step 3.b) indicates less than a 2 gpm increase.

_____
Operator's Initials

Reference Only

| PANEL NUMBER | FUNCTION | INSTRUMENT NUMBER | TECH SPEC | ACCEPTANCE CRITERIA | SHIFT 3 |
|---|---|---|---|---|---|
| N/A | Surveillance Frequency | N/A | SR 3.0.2 | Daily Instrument Checks shall be started after 1900 hours and shall be completed before 0100 hours. | Start Time _____<br>Completion Time _____<br>Operator's Initials _____ |
| N/A | Surveillance Frequency | N/A | | Daily Instrument Checks second reviews shall be completed before 0100 hours. | Time _____<br>Reviewer's Initials _____ |
| N/A | ♦Power Level | Computer Pt. C133 or Average of APRM Readings | N/A | Power Level should remain constant while Daily readings are being taken. If power changes or has to be changed, note this in Step 8.5. | ♦ |
| N/A | ♦ Feedwater Correction Factor | N/A | N/A | See Check Sheets (Attachment 6) Note 1 | ♦ |
| Computer Console | ♦Limiting Control Rod Pattern Determination RBM Operability (Note 2) | Most Limiting MCPR from Periodic Log (Note 3) | SR 3.2.2.1 | Within limits specified in the COLR. | ♦ |
| | | CORE POWER from Periodic Log | LCO 3.3.2.1 | | ♦ |
| | | Is Reactor operating on a limiting control rod pattern? (Yes/No) | | Determine if reactor is operating on a LCRP from the MCPR noted above. See Note 4 below | ♦ |
| | | RBM Operability | LCO 3.3.2.1 | See Note 5 below | ♦ |

Note 1: Should be performed daily when in Mode 1, but not required to be performed within the normal Tech Spec window. Attachment 6 should also be performed when directed by IPOI 3 or the OSS.

Note 2: N/A these checks if reactor power is < 25%. If the process computer is not available, contact the Reactor Engineer to obtain Thermal Limits.

Note 3: If the plant is in Single Loop Operation, obtain the Most Limiting MCPR from STP 3.4.1-02, Single Loop Operation Procedure.

Note 4: Per Tech Spec LCO 3.3.2.1 Bases, a LCRP exists for either of the following conditions:

30% ≤ Core Thermal Power < 90% and MCPR < 1.70 **OR** Core Thermal Power ≥ 90% and MCPR < 1.40

Note 5: When operating on a Limiting Control Rod Pattern, this blank shall be initialed to acknowledge the fact that RBM operability requirements of TECH SPEC 3.3.2.1 shall be met prior to control rod withdrawal (Otherwise N/A).

Reference Only

| PANEL NUMBER | FUNCTION | INSTRUMENT NUMBER | TECH SPEC | ACCEPTANCE CRITERIA | SHIFT 3 |
|---|---|---|---|---|---|
| N/A | ♦Single Loop Operation Required Surveillance | N/A | LCO 3.4.1 | If in Single Loop Operation, ensure STP 3.4.1-02 is being performed every 24 hours and initial here. If in Two Loop Operation, N/A this block. | ♦ |
| Computer Console | ♦Volume Weighted Drywell Avg Air Temp | Comp. Pt. SPDS006 or Attachment 8 | SR 3.6.1.4.1 | ≤ 135°F (TS) | ♦ |
| Computer Console or 1C102 | ♦ River Water Level | COMPUTER PT. M010 or LR 2901 | SR 3.7.2.1<br>TLCO 3.7.1 | Verify River Level is ≥ 725.2′ and ≤ 752′. (TS, TM) If river water level exceeds 752', prepare actions per TLCO 3.7.1 and TSR 3.7.1.1 | ♦ |
| N/A | ♦Core Thermal Limits and APRM Gain Adjustments | N/A | SR 3.2.1.1<br>3.3.1.1.2-2.b<br>3.3.1.1.2-2.c<br>TSR 3.2.1<br>3.3.6.2-7 | See Check Sheets (TS) (Attachment 9) | ♦Initials |
| N/A | Control Room Station Blackout Temperature Mon. | TI 5111 | N/A | < 85°F If temperature is ≥ 85°F, take action to lower temperature below 85°F. | |
| 1C35 | ♦CAD $N_2$ Volume | TI 4336B | SR 3.6.3.1.1 | < 135°F | ♦ |
| | | PI 4338A | | < 2450 psig | ♦ |
| | | Plot TI 4336B vs PI 4338A on Attach. 12 | | Confirm Volume above the 50,000 SCF line. (TS) | ♦Initials |
| | ♦ADS $N_2$ Volume | PI-4390 | SR 3.5.1.3 | ≥ 90 psig (TS) (Note: Calculation using latest check valve leakage data needed for operability of ADS accumulators if this SR is NOT met.) | ♦ |
| 1C03 | ECCS Systems Low Header Pressure Alarms | 1C03A, B-8 | SR 3.5.1.1<br>SR 3.5.2.3 | All alarms RESET | Initials |
| | | 1C03B, C-3 | | | |
| | | 1C03B, C-7 | | | |
| | | 1C03C, B-1 | | | |

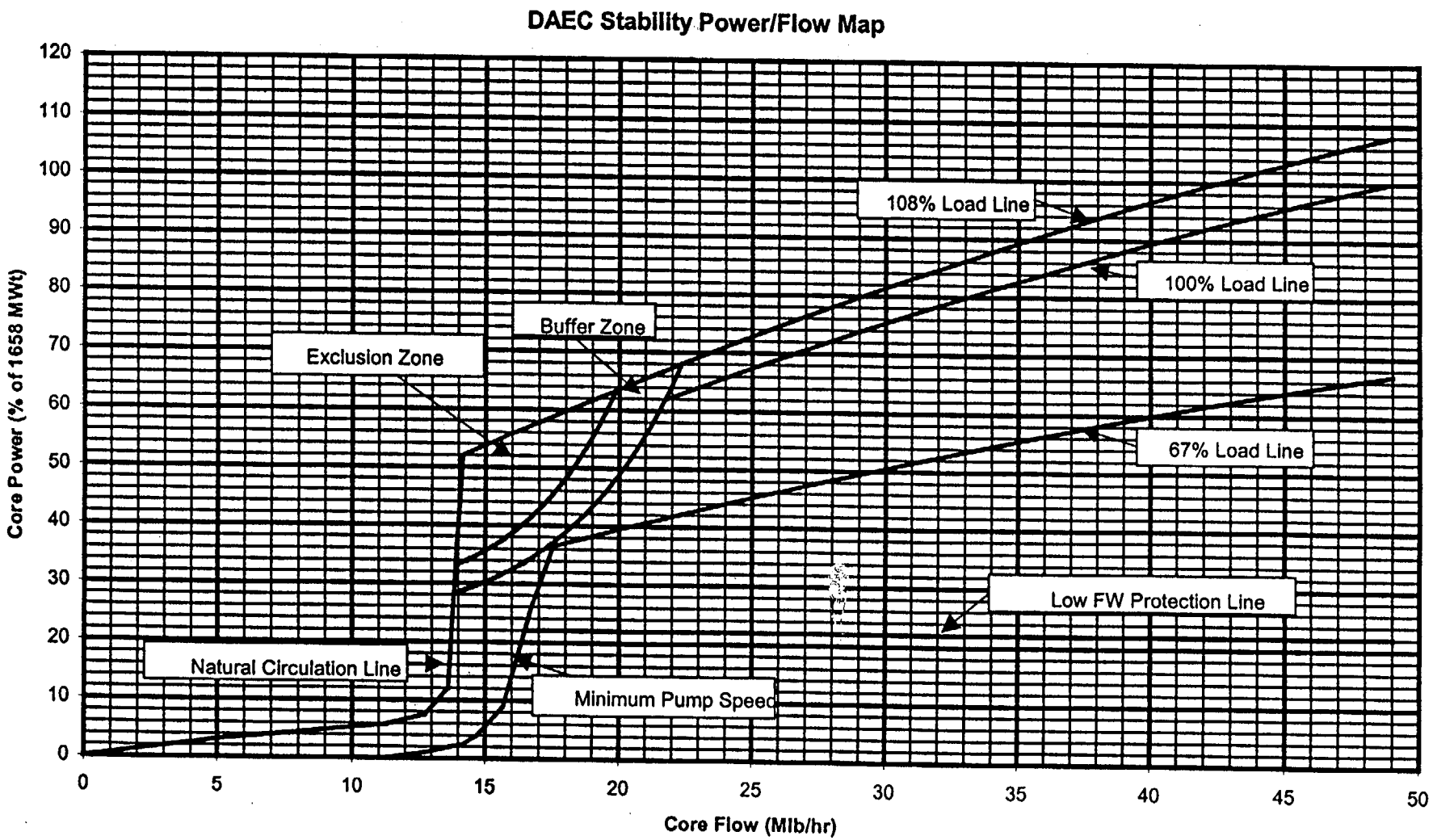
Reference Only

| PANEL NUMBER | FUNCTION | INSTRUMENT NUMBER | TECH SPEC | ACCEPTANCE CRITERIA | SHIFT 3 |
|---|---|---|---|---|---|
| Computer Console | ♦Control Rod Position Check | Rod Position Log | SR 3.1.3.1 | See Attachment 7 (TS) | ♦ |
| Computer Console | ♦Control Rod Position Check | Verify all Operable Control Rod positions comply with the approved Pull Sheet. | SR 3.1.6.1 | All rods in compliance. (N/A if > 10% RTP, or in MODE 3) | ♦ |
| Computer Console, 1C05, and 1C37 | ♦Power/Flow Stability Monitoring (Note 1) | Core Flow in Mlb/hr: Periodic Log or FR 4528 or Computer Point B012 | SR 3.4.1.2 | N/A | ♦ Mlb/hr |
| | | % Reactor Power: Periodic Log, Power and Flow Log, Heat Balance, or Average of all APRMs at 1C37 | | | ♦ |
| | | Plot the intersection of Core Flow and % Core Power on Attachment 5. | | (Note 1) | ♦ |
| | | Is the plot within the Exclusion Zone? (Yes/No) | | | ♦ |
| | | If the answer to the previous question is Yes, verify instability does not exist, inform the OSS and initiate actions to exit the Exclusion Zone and then initial this block. If the answer is No, N/A this block. | | | ♦ |
| | | Is the plot within the Buffer Zone? (Yes/No) | | | ♦ |
| | | If the answer to the previous question is Yes, verify instability does not exist, inform the OSS and evaluate the Solomon Stability Evaluation. If the Solomon Stability Evaluation is not available or indicates operation in the Reactor Instability Region, initiate action to exit the Buffer Zone. If the Solomon Stability Evaluation indicates operation in the Reduced Stability Margin Region, operation may continue with continued monitoring of Solomon cases to ensure a transition into the instability region does not occur. Then initial this block. If the answer is No, N/A this block. | | | ♦ |

Note 1: If the plant is in Single Loop Operation, N/A this section.

Reference Only

ATTACHMENT 5 (Note: Not required in Mode 4 ♦)




For Clarence Only

| PANEL NUMBER | FUNCTION | INSTRUMENT NUMBER | TECH SPEC | ACCEPTANCE CRITERIA | SHIFT 3 |
|---|---|---|---|---|---|
| 1C03 | ♦ Fuel Zone Level Indicators | LI 4565C | | (Should be upscale during power operation. May be on scale when Recirc is at minimum flow. Use 218 inches for upscale comparison checks. No AR required for operation in Single Loop or Shutdown Cooling injecting to one loop only) | ♦ |
| | | LR 4565A Pen 1 (Red) | | | ♦ |
| | | LR 4565A Pen 2 (Grn) | | | ♦ |
| | | LI 4565B | | | ♦ |
| | | LR 4565B Pen 1 (Red) | | | ♦ |
| | | LR 4565B Pen 2 (Grn) | | | ♦ |
| | | Difference between LI 4565B and LI 4565C | SR 3.3.3.1.1-2.b | ≤ 12.5 inches (TS) | ♦ |
| | | Difference between highest and lowest recorder indication | SR 3.3.5.1.1-2.d | ≤ 10 inches (TS) | ♦ |
| | ♦Reactor Steam Dome Pressure | PI-4599A | | | ♦ |
| | | PI-4599B | | | ♦ |
| | | Difference between PI 4599A and PI 4599B (High-Low) | SR 3.3.3.1.1-1 | ≤ 50 psig (TS) | ♦ |
| | ♦Torus-Drywell Vacuum Breakers | CV 4327A | SR 3.6.1.7.1 | CLOSED (TS) | ♦ |
| | | CV 4327B | | | ♦ |
| | | CV 4327C | | | ♦ |
| | | CV 4327D | | | ♦ |
| | | CV 4327F | | | ♦ |
| | | CV 4327G | | | ♦ |
| | | CV 4327H | | | ♦ |
| | ♦Torus – Reactor Bldg Vacuum Breaker Assembly Valves | ZS-4329 | SR 3.6.1.6.1 | CLOSED (TS) | ♦ |
| | | CV-4304 | | | ♦ |
| | | ZS-4330 | | | ♦ |
| | | CV-4305 | | | ♦ |
| | ♦Narrow Range Drywell Pressure | PI 4398A | | | ♦ |
| | | PI 4398B | | | ♦ |
| | | Difference between PI 4398A and PI 4398B (High-Low) | SR 3.3.3.1.1-4.a | ≤ 0.3 psig (TS) | ♦ |

Reference Only

| PANEL NUMBER | FUNCTION | INSTRUMENT NUMBER | TECH SPEC | ACCEPTANCE CRITERIA | SHIFT 3 |
|---|---|---|---|---|---|
| 1C03 | ♦ Wide Range Containment Level | LI 4396A | TSR 3.3.3.2-6 | | ♦ |
| | | LI 4396B | | | ♦ |
| | | Difference between LI 4396A and LI 4396B (High-Low) | | ≤ 3.4 ft (TM) | ♦ |
| | ♦ Wide Range Torus Level | LI 4397A | SR 3.3.3.1.1-3 | | ♦ |
| | | LI 4397B | | | ♦ |
| | | Difference between LI 4397A and LI 4397B (High-Low) | | ≤ 0.375 ft (TS) | ♦ |
| 1C03 | ♦ Reactor Steam Dome Pressure | PI-2207 | | | ♦ |
| 1C04 | | PI-2403 | | | ♦ |
| | | Difference between PI-2207 and PI-2403 | SR 3.3.3.1.1-1 | ≤ 40 psig (TS) | ♦ |
| 1C04 | ♦ Reactor Water Cleanup High Flow | FI 2747 (Inlet) | SR 3.3.6.1.2-5.a | | ♦ |
| | | FI 2725A (Dump) | | | ♦ |
| 1C19 | | FI 2748 (Return) | | | ♦ |
| | | FI 2749 (Delta Flow) | | ≤ 40 gpm | ♦ |
| | | Calculated Delta Flow (Inlet-Dump-Return) | | ≤ 40 gpm | ♦ |
| | | Difference between FI 2749 and Calculated Flow (High-Low) | | ≤ 7 gpm (TS) | ♦ |
| 1C04 | Fuel Pool Level | LI 3413 | SR 3.7.8.1 | ≥ 36 ft. (TS) | |
| 1C05 | SBLC Level | LI 2600A | UFSAR 9.3.4.5 | ≥ 78% and ≤ 91% | |

Reference Only

| PANEL NUMBER | FUNCTION | INSTRUMENT NUMBER | TECH SPEC | ACCEPTANCE CRITERIA | SHIFT 3 | |
|---|---|---|---|---|---|---|
| 1C06 | River Water Supply Flow | FI 4916 or FI 4917 (Circle indicator(s) used.) | IST Program | ≥ 6000 gpm (ASME) (Record flow for each operating pump in the applicable box.) | A | C |
| | | | | | B | D |
| 1C09 | ♦Narrow Range Drywell Pressure | PR 4398B Pen 1 (Red) | SR 3.3.3.1.1-4.a | | ♦ | |
| | | PR 4398A Pen 1 (Red) | | | ♦ | |
| | | Δ between PR 4398A and PR 4398B (High-Low) | | ≤ 0.2 psig (TS) | ♦ | |
| | ♦Wide Range Drywell Pressure | PR 4398B Pen 2 (Green) | SR 3.3.3.1.1-4.b | | ♦ | |
| | | PR 4398A Pen 2 (Green) | | | ♦ | |
| | | Δ between PR 4398A and PR 4398B (High-Low) | | ≤ 5 psig (TS) | ♦ | |
| | ♦ Reactor Steam Dome Pressure | PR-4599B | B 3.3.3.1 (LCO Funct. 1) | One Channel being Continuously recorded. (TS) | ♦ | |
| | | PR-4599A | | | ♦ | |
| | | Difference between PR 4599A and PR 4599B (High-Low) | SR 3.3.3.1.1-1 | ≤ 25 psig (TS) | ♦ | |
| | ♦Wide Range Torus Water Level | LR 4396B Pen 1 (Red) | SR 3.3.3.1.1-3 | | ♦ | |
| | | LR 4396A Pen 1 (Red) | | | ♦ | |
| | | Δ between LR 4396A and LR 4396B (High-Low) | | ≤ 0.29 ft. (TS) | ♦ | |
| | ♦Containment Water Level | LR 4396B Pen 2 (Green) | TSR 3.3.3.2-6 | | ♦ | |
| | | LR 4396A Pen 2 (Green) | | | ♦ | |
| | | Δ between LR 4396A and LR 4396B (High-Low) | | ≤ 2.72 ft. (TM) | ♦ | |

Reference Only

| PANEL NUMBER | FUNCTION | INSTRUMENT NUMBER | TECH SPEC | ACCEPTANCE CRITERIA | SHIFT 3 |
|---|---|---|---|---|---|
| 1C09 | ♦Torus Radiation (Recorders) | RR 9184B Pen 1 (Red) | SR 3.3.3.1.1-5.b | | ♦ |
| | | RR 9184A Pen 1 (Red) | | | ♦ |
| | | RR 9184A and RR 9184B Δ Calculation Δ (%) = 100 x (High - Low) / High | | ≤ 70 % (TS) (Note 1) | ♦ |
| | ♦Drywell Radiation (Recorders) | RR 9184B Pen 2 (Green) | SR 3.3.3.1.1-5.a | | ♦ |
| | | RR 9184A Pen 2 (Green) | | | ♦ |
| | | RR 9184A and RR 9184B Δ Calculation Δ (%) = 100 x (High-Low) / High | | ≤ 70 % (TS) (Note 1) | ♦ |
| | ♦Torus Radiation (Meters) | RIM 9185B | SR 3.3.3.1.1-5.b | | ♦ |
| | | RIM 9185A | | | ♦ |
| | | RIM 9185A and RIM 9185B Deviation Calculation Deviation (%) = 100 x (High - Low) / High | | ≤ 70 % (TS) (Note 1) | ♦ |
| | ♦Drywell Radiation (Meters) | RIM 9184B | SR 3.3.3.1.1-5.a | | ♦ |
| | | RIM 9184A | | | ♦ |
| | | RIM 9184A and RIM 9184B Deviation Calculation Deviation (%) = 100 x (High-Low) / High | | ≤ 70 % (TS) (Note 1) | ♦ |
| | ♦Torus and Drywell Radiation Monitor Lights | RIM 9185B | | SAFE/RESET (Green) ON<br>ALERT (Yellow) OFF<br>HIGH (Red) OFF | ♦Initials |
| | | RIM 9185A | | | ♦Initials |
| | | RIM 9184B | | | ♦Initials |
| | | RIM 9184A | | | ♦Initials |

Note 1: If a reading is downscale (<1), assume a reading of 1 when calculating the deviation

Reference Only

| PANEL NUMBER | FUNCTION | INSTRUMENT NUMBER | TECH SPEC | ACCEPTANCE CRITERIA | SHIFT 3 |
|---|---|---|---|---|---|
| 1C09 | ♦Drywell and Torus Oxygen Concentration (Note 1) (Note 3) | 'A' $H_2$-$O_2$ Monitor OR 'B' $H_2$-$O_2$ Monitor (circle monitor used) | | | ♦ Sample Point (x): ____ DW 1 ____ DW 2 ____ Torus |
| | | | | Span Ratio ≥ 0.8 and ≤ 1.2 (TS) {C001} (Note 2) | ♦SPAN GAS Concen. _____% _____ = _____ (Span Ratio) $0_2$ Reading in SPAN _____ % |
| | | | SR 3.6.3.2.1 | Corrected % $O_2$ < 4% (TS) (Note 2) | ♦ _____ (DW $O_2$ Reading) x _____ (Span Ratio) = _____ (Corrected DW $O_2$ Rdg.) |
| | | | | | ♦ _____ (Torus $O_2$ Reading) x _____ (Span Ratio) = _____ (Corrected Torus $O_2$ Rdg.) |
| 1C29 | Excess Flow Check Valves | N/A | ASME | All OPEN (Red) lights ON | Initials |

Note 1: N/A if containment not inerted.

Note 2: Allow readings to stabilize before recording.

Note 3: This surveillance shall only be performed on the monitor that is currently operating. Sample both Torus and Drywell $O_2$. After daily sampling is complete, align the monitor to one of the Drywell sample points.

Reference Only

| PANEL NUMBER | FUNCTION | INSTRUMENT NUMBER | TECH SPEC | ACCEPTANCE CRITERIA | SHIFT 3 |
|---|---|---|---|---|---|
| 1C34 | ♦Offgas Charcoal Adsorbers Valve Check | CV 4134B | ODAM 6.2.5.1 | CLOSED | ♦Initials |
| | | CV 4134A | | OPEN | ♦Initials |
| | | CV 4135C | | OPEN | ♦Initials |
| | | CV 4135B | | CLOSED | ♦Initials |
| | | CV 4135A | | OPEN | ♦Initials |
| 1C21 | ♦ HPCI Steam Line Break Temperature Detection | TS 2265 | | | ♦ |
| | | TSS 2745-9 | | | ♦ |
| | | Difference between TS 2265 and TS 2745-9 (High-Low) | | ≤ 15°F | ♦ |
| | | TS 2261A | SR 3.3.6.1.2-3.h | | ♦ |
| | | TSS 2745-10 | | | ♦ |
| | | Difference between TS 2261A and TSS 2745-10 (High-Low) | | ≤ 15°F (TS) | ♦ |
| | | TS 2261B | SR 3.3.6.1.2-3.h | | ♦ |
| | | TSS 2745-11 | | | ♦ |
| | | Difference between TS 2261B and TSS 2745-11 (High-Low) | | ≤ 15°F (TS) | ♦ |
| | | TS 2526C | SR 3.3.6.1.2-3.e | | ♦ |
| | | TSS 2745-17 | | | ♦ |
| | | Difference between TS 2526C and TSS 2745-17 (High-Low) | | ≤ 15°F (TS) | ♦ |
| | | TS 2526D | SR 3.3.6.1.2-3.e | | ♦ |
| | | TSS 2745-18 | | | ♦ |
| | | Difference between TS 2526D and TSS 2745-18 (High-Low) | | ≤ 15°F (TS) | ♦ |
| | | TDS 2260A | SR 3.3.6.1.2-3.i | | ♦ |
| | | TDSS 2746-9 | | | ♦ |
| | | Difference between TDS 2260A and TDSS 2746-9 (High-Low) | | ≤ 10°F (TS) | ♦ |

Reference Only

| PANEL NUMBER | FUNCTION | INSTRUMENT NUMBER | TECH SPEC | ACCEPTANCE CRITERIA | SHIFT 3 |
|---|---|---|---|---|---|
| 1C21 | ♦ HPCI Steam Line Break Temperature Detection | TDS 2260B | SR 3.3.6.1.2-3.i | | ♦ |
| | | TDSS 2746-10 | | | ♦ |
| | | Difference between TDS 2260B and TDSS 2746-10 (High-Low) | | ≤ 10°F (TS) | ♦ |
| | | TDS 2521C | SR 3.3.6.1.2-3.g | | ♦ |
| | | TDSS 2746-15 | | | ♦ |
| | | Difference between TDS 2521C and TDSS 2746-15 (High-Low) | | ≤ 10°F (TS) | ♦ |
| | | TDS 2521D | SR 3.3.6.1.2-3.g | | ♦ |
| | | TDSS 2746-16 | | | ♦ |
| | | Difference between TDS 2521D and TDDS 2746-16 (High-Low) | | ≤ 10°F (TS) | ♦ |
| | ♦ RCIC Steam Line Break Temperature Detection | TS 2453 | | | ♦ |
| | | TSS 2745-12 | | | ♦ |
| | | Difference between TS 2453 and TSS 2745-12(High-Low) | | ≤ 15°F | ♦ |
| | | TS 2450A | SR 3.3.6.1.2-4.h | | ♦ |
| | | TSS 2745-13 | | | ♦ |
| | | Difference between TS 2450A and TSS 2745-13 (High-Low) | | ≤ 15°F (TS) | ♦ |
| | | TS 2450B | SR 3.3.6.1.2-4.h | | ♦ |
| | | TSS 2745-14 | | | ♦ |
| | | Difference between TS 2450B and TSS 2745-14 (High-Low) | | ≤ 15°F (TS) | ♦ |
| | | TS 2526A | SR 3.3.6.1.2-4.h | | ♦ |
| | | TSS 2745-15 | | | ♦ |
| | | Difference between TS 2526A and TSS 2745-15 (High-Low) | | ≤ 15°F (TS) | ♦ |

Reference Only

| PANEL NUMBER | FUNCTION | INSTRUMENT NUMBER | TECH SPEC | ACCEPTANCE CRITERIA | SHIFT 3 |
|---|---|---|---|---|---|
| 1C21 | ♦ RCIC Steam Line Break Temperature Detection | TS 2526B | SR 3.3.6.1.2-4.e | | ♦ |
| | | TSS 2745-16 | | | ♦ |
| | | Difference between TS 2526B and TSS 2745-16 (High-Low) | | ≤ 15°F (TS) | ♦ |
| | | TDS 2445A | SR 3.3.6.1.2-4.i | | ♦ |
| | | TDSS 2746-11 | | | ♦ |
| | | Difference between TDS 2445A and TDSS 2746-11 (High-Low) | | ≤ 10°F (TS) | ♦ |
| | | TDS 2445B | SR 3.3.6.1.2-4.i | | ♦ |
| | | TDSS 2746-12 | | | ♦ |
| | | Difference between TDS 2445B and TDSS 2746-12 (High-Low) | | ≤ 10°F (TS) | ♦ |
| | | TDS 2521A | SR 3.3.6.1.2-4.g | | ♦ |
| | | TDSS 2746-13 | | | ♦ |
| | | Difference between TDS 2521A and TDSS 2746-13 (High-Low) | | ≤ 10°F (TS) | ♦ |
| | | TDS 2521B | SR 3.3.6.1.2-4.g | | ♦ |
| | | TDSS 2746-14 | | | ♦ |
| | | Difference between TDS 2521B and TDSS 2746-14 (High-Low) | | ≤ 10°F (TS) | ♦ |
| | ♦ RWCU Steam Line Break" Temperature Detection | TS 2742A | SR 3.3.6.1.2-5.b | | ♦ |
| | | TSS 2745-1 | | | ♦ |
| | | Difference between TS 2742A and TS 2745-1 (High-Low) | | ≤ 15°F (TS) | ♦ |
| | | TS 2742B | SR 3.3.6.1.2-5.b | | ♦ |
| | | TSS 2745-2 | | | ♦ |
| | | Difference between TS 2742B and TSS 2745-2 (High-Low) | | ≤ 15°F (TS) | ♦ |

Reference Only

| PANEL NUMBER | FUNCTION | INSTRUMENT NUMBER | TECH SPEC | ACCEPTANCE CRITERIA | SHIFT 3 |
|---|---|---|---|---|---|
| 1C21 | ♦RWCU Steam Line Break Temperature Detection | TS 2742C | SR 3.3.6.1.2-5. | | ♦ |
| | | TSS 2745-3 | | | ♦ |
| | | Difference between TS 2742C and TSS 2745-3 (High-Low) | | ≤ 15°F (TS) | ♦ |
| | | TS 2742D | SR 3.3.6.1.2-5.b | | ♦ |
| | | TSS 2745-4 | | | ♦ |
| | | Difference between TS 2742D and TSS 2745-4 (High-Low) | | ≤ 15°F (TS) | ♦ |
| | | TS 2742E | SR 3.3.6.1.2-5.b | | ♦ |
| | | TSS 2745-5 | | | ♦ |
| | | Difference between TS 2742E and TSS 2745-5 (High-Low) | | ≤ 15°F (TS) | ♦ |
| | | TS 2742F | SR 3.3.6.1.2-5.b | | ♦ |
| | | TSS 2745-6 | | | ♦ |
| | | Difference between TS 2742F and TSS 2745-6 (High-Low) | | ≤ 15°F (TS) | ♦ |
| | | TS 2742G | SR 3.3.6.1.2-5.f | | ♦ |
| | | TSS 2745A-1 | | | ♦ |
| | | Difference between TS 2742G and TSS 2745A-1 (High-Low) | | ≤ 15°F (TS) | ♦ |
| | | TS 2742H | SR 3.3.6.1.2-5.f | | ♦ |
| | | TSS 2745A-2 | | | ♦ |
| | | Difference between TS 2742H and TSS 2745A-2 (High-Low) | | ≤ 15°F (TS) | ♦ |
| | | TS 2742J | SR 3.3.6.1.2-5.f | | ♦ |
| | | TSS 2745A-3 | | | ♦ |
| | | Difference between TS 2742J and TSS 2745A-3 (High-Low) | | ≤ 15°F (TS) | ♦ |

Reference Only

| PANEL NUMBER | FUNCTION | INSTRUMENT NUMBER | TECH SPEC | ACCEPTANCE CRITERIA | SHIFT 3 |
|---|---|---|---|---|---|
| 1C21 | ♦ RWCU Steam Line Break Temperature Detection | TS 2742K | SR 3.3.6.1.2-5.f | | ♦ |
| | | TSS 2745A-4 | | | ♦ |
| | | Difference between TS 2742K and TSS 2745A-4 (High-Low) | | ≤ 15°F (TS) | ♦ |
| | | TDS 2743A | SR 3.3.6.1.2-5.c | | ♦ |
| | | TDSS 2746-1 | | | ♦ |
| | | Difference between TDS 2743A and TDSS 2746-1 (High-Low) | | ≤ 10°F (TS) | ♦ |
| | | TDS 2743B | SR 3.3.6.1.2-5.c | | ♦ |
| | | TDSS 2746-2 | | | ♦ |
| | | Difference between TDS 2743B and TDSS 2746-2 (High-Low) | | ≤ 10°F (TS) | ♦ |
| | | TDS 2743C | SR 3.3.6.1.2-5.c | | ♦ |
| | | TDSS 2746-3 | | | ♦ |
| | | Difference between TDS 2743C and TDSS 2746-3 (High-Low) | | ≤ 10°F (TS) | ♦ |
| | | TDS 2743D | SR 3.3.6.1.2-5.c | | ♦ |
| | | TDSS 2746-4 | | | ♦ |
| | | Difference between TDS 2743D and TDSS 2746-4 (High-Low) | | ≤ 10°F (TS) | ♦ |
| | | TDS 2743E | SR 3.3.6.1.2-5.c | | ♦ |
| | | TDSS 2746-5 | | | ♦ |
| | | Difference between TDS 2743E and TDSS 2746-5 (High-Low) | | ≤ 10°F (TS) | ♦ |
| | | TDS 2743F | SR 3.3.6.1.2-5.c | | ♦ |
| | | TDSS 2746-6 | | | ♦ |
| | | Difference between TDS 2743F and TDSS 2746-6 (High-Low) | | ≤ 10°F (TS) | ♦ |

Reference Only

| PANEL NUMBER | FUNCTION | INSTRUMENT NUMBER | TECH SPEC | ACCEPTANCE CRITERIA | SHIFT 3 |
|---|---|---|---|---|---|
| 1C21 | ♦Reactor Vessel Pressure Relief Valve Bellows Integrity Light | PSV 4400 | LCO 3.4.3 | White Light On (Bellows failure inops SRV) | ♦ |
| | | PSV 4401 | | | ♦ |
| | | PSV 4402 | | | ♦ |
| | | PSV 4405 | | | ♦ |
| | | PSV 4406 | | | ♦ |
| | | PSV 4407 | | | ♦ |
| | ♦Reactor Vessel Pressure Relief Valve Tailpipe Pressure Normal Light | PSV 4400 | TSR 3.3.3.2-1 | White Light On (TM) | ♦ |
| | | PSV 4401 | | | ♦ |
| | | PSV 4402 | | | ♦ |
| | | PSV 4405 | | | ♦ |
| | | PSV 4406 | | | ♦ |
| | | PSV 4407 | | | ♦ |
| | ♦Reactor Vessel Safety Valve Tailpipe Pressure Normal Light | PSV 4403 | TSR 3.3.3.2-1 | White Light On (TM) | ♦ |
| | | PSV 4404 | | | ♦ |
| | ♦Reactor Vessel Safety and Pressure Relief Valve Tailpipe Temperature | TR 4400A Pen 1 (Red) | TSR 3.3.3.2-2 | ≤ 215°F (No AR Required) | ♦ |
| | | TR 4400A Pen 2 (Blue) | | | ♦ |
| | | TR 4400B Pen 1 (Red) | | | ♦ |
| | | TR 4400B Pen 2 (Blue) | | ≤ 220°F (No AR Required) | ♦ |
| | | TR 4400C Pen 1 (Red) | | ≤ 215°F (No AR Required) | ♦ |
| | | TR 4400C Pen 2 (Blue) | | | ♦ |
| | | TR 4400D Pen 1 (Red) | | | ♦ |
| | | TR 4400D Pen 2 (Blue) | | | ♦ |
| | Fuel Pool Pumps A/B Inlet | TRS-1945, Point 7 (TE-3420) or computer point T209 | | ≥ 80°F and ≤ 110°F | |
| | RHR SECR Ambient Temperature | TS-2082A | N/A | N/A | |
| | RHR NWCR Ambient Temperature | TS-2082B | N/A | N/A | |

Reference Only

| PANEL NUMBER | FUNCTION | INSTRUMENT NUMBER | TECH SPEC | ACCEPTANCE CRITERIA | SHIFT 3 |
|---|---|---|---|---|---|
| 1C36 | Fuel Pool Exhaust Rad. Monitors | RIS 4131A | SR 3.3.6.1.2-2.e 3.3.6.2.2-4 | | |
| | | RIS 4131B | | | |
| | | RIS4131A and RIS4131B Deviation Calculation Deviation (%) = 100 x (High-Low) / High | | ≤ 60% (TS) | |
| Chemistry Status Board | SBLC Level, Temperature and Boron Concentration (Note 1) | Boron Concentration from most recent 3.1.7-03 as recorded on Chemistry Status Board | | | |
| | | Specific Gravity Correction Factor (K) from most recent STP 3.1.7-03 as recorded on Chemistry Status Board | | | |
| 1C69 | | LI 2600B | | | |
| | | Effective Tank Level in gallons = 39.64 [(LI2600B reading x K) - 3.18] | | | |
| | | Plot SBLC Effective Tank Level vs Boron Conc. on Attachment 10. | SR 3.1.7.1 | Confirm Point plotted is within the Acceptable area of Attachment 10. (TS) | SANSOE Init. |
| | | TIC 2602 (Tank Temp.) | | | |
| | | TI 2619 (Pipe Temp.) | | | |
| | | Plot SBLC Tank Temp. and Pipe Temp. vs. Boron Conc. on Attachment 11. | SR 3.1.7.2<br>SR 3.1.7.3 | Confirm Point plotted is within the Acceptable area of Attachment 11. (TS) (Note: Failure of either SR will require the performance of SR 3.1.7.5 and SR 3.1.7.8 WITHIN 24 Hours.) | SANSOE Init. |
| SBLC | SBLC Heat Trace Temp. Controller | N/A | N/A | Verify Blue light is on. | SANSOE Init. |

Note 1: SBLC is not required to be operable in Modes 3 and 4. However, to administratively maintain the system ready for Startup, these Surveillance Requirements will be maintained.

Reference On

| PANEL NUMBER | FUNCTION | INSTRUMENT NUMBER | TECH SPEC | ACCEPTANCE CRITERIA | SHIFT 3 |
|---|---|---|---|---|---|
| 1C193A | ♦ Main Steam Line Tunnel Temperature (Note 1) | TIS 4443 Ch.1 | SR 3.3.6.1.2-1.e | ≥ 70°F and ≤ 180°F | ♦ |
| | | TIS 4443 Ch.2 | | ≥ 70°F and ≤ 140°F | ♦ |
| | | TIS 4443 Ch.3 | | ≥ 70°F and ≤ 155°F | ♦ |
| | | TIS 4443 Ch.4 | | ≥ 70°F and ≤ 160°F | ♦ |
| 1C193C | | TIS 4445 Ch.1 | | ≥ 70°F and ≤ 180°F | ♦ |
| | | TIS 4445 Ch.2 | | ≥ 70°F and ≤ 165°F | ♦ |
| | | TIS 4445 Ch.3 | | ≥ 70°F and ≤ 165°F | ♦ |
| | | TIS 4445 Ch.4 | | ≥ 70°F and ≤ 170°F | ♦ |
| 1C193B | | TIS 4444 Ch.1 | | ≥ 70°F and ≤ 175°F | ♦ |
| | | TIS 4444 Ch.2 | | ≥ 70°F and ≤ 170°F | ♦ |
| | | TIS 4444 Ch.3 | | ≥ 70°F and ≤ 160°F | ♦ |
| | | TIS 4444 Ch.4 | | ≥ 70°F and ≤ 170°F | ♦ |
| 1C193D | | TIS 4446 Ch.1 | | ≥ 70°F and ≤ 180°F | ♦ |
| | | TIS 4446 Ch.2 | | ≥ 70°F and ≤ 155°F | ♦ |
| | | TIS 4446 Ch.3 | | ≥ 70°F and ≤ 155°F | ♦ |
| | | TIS 4446 Ch.4 | | ≥ 70°F and ≤ 170°F | ♦ |
| 1C194A | ♦ Turbine Building Main Steam Line Temperatures (Note 1) | TIS 4477 Ch. 1 | SR 3.3.6.1.2-1.g | ≥ 70°F and ≤ 175°F | ♦ |
| | | TIS 4477 Ch. 2 | | ≥ 70°F and ≤ 185°F | ♦ |
| 1C194B | | TIS 4478 Ch. 1 | | ≥ 70°F and ≤ 165°F | ♦ |
| | | TIS 4478 Ch. 2 | | ≥ 70°F and ≤ 185°F | ♦ |
| 1C194C | | TIS 4479 Ch. 1 | | ≥ 70°F and ≤ 170°F | ♦ |
| | | TIS 4479 Ch. 2 | | ≥ 70°F and ≤ 180°F | ♦ |
| 1C194D | | TIS 4480 Ch. 1 | | ≥ 70°F and ≤ 175°F | ♦ |
| | | TIS 4480 Ch. 2 | | ≥ 70°F and ≤ 185°F | ♦ |
| 1C122B | ♦ Recirc Riser ΔP | PDIS 4641 | SR 3.3.5.1.1-2.j | Should be Downscale or show detectable response | ♦ |
| | | PDIS 4643 | | | ♦ |
| 1C121B | | PDIS 4642 | | | ♦ |
| | | PDIS 4644 | | | ♦ |

Note 1: Circle any reading that does not meet the Acceptance Criteria and inform the OSS. An AR is not required.

Reference Only

| PANEL NUMBER | FUNCTION | INSTRUMENT NUMBER | TECH SPEC | ACCEPTANCE CRITERIA | SHIFT 3 |
|---|---|---|---|---|---|
| 1C54 | ♦ CRD Accumulator South Bank | N/A | SR 3.1.5.1 | Confirm each Control Rod Scram Accumulator pressure is ≥ 940 psig. (TS) | ♦ SANSOE Initials |
| 1C72 | ♦ CRD Accumulator North Bank | N/A | SR 3.1.5.1 | Confirm each Control Rod Scram Accumulator pressure is ≥ 940 psig. (TS) | ♦ SANSOE Initials |
| 1C58 | ♦Recirc Pump ΔP | PDIS 4626A | | | ♦ |
| | | PDIS 4626B | | | ♦ |
| | | PDIS 4626C | | | ♦ |
| | | PDIS 4626D | | | ♦ |
| | | Difference between the Highest and Lowest of above 4 readings | SR 3.3.5.1.1-2.i | ≤ 2.0 psid (TS) (Note 1) | ♦ |
| 1C57 | | PDIS 4625A | | | ♦ |
| | | PDIS 4625B | | | ♦ |
| | | PDIS 4625C | | | ♦ |
| | | PDIS 4625D | | | ♦ |
| | | Difference between the Highest and Lowest of above 4 readings | SR 3.3.5.1.1-2.i | ≤ 2.0 psid (TS) (Note 1) | ♦ |

Note 1: If a reading is upscale (> 10), assume a reading of 10 when calculating the difference.

Reference Only

| PANEL NUMBER | FUNCTION | INSTRUMENT NUMBER | TECH SPEC | ACCEPTANCE CRITERIA | SHIFT 3 |
|---|---|---|---|---|---|
| Local | ♦ CV 4304 Seal ΔP | PDI 4304 | 6.2.5.3 | ≤ 15″ W.G. | ♦ |
| Local | ♦ CV 4305 Seal ΔP | PDI 4305 | UFSAR | ≤ 15″ W.G. | ♦ |
| 1C208<br>1C388A<br>1C389<br>1C390<br>1C392 | Remote Shutdown Panel Doors | N/A | | Panel Cover Locked **{C001}** | SANSOE Initials |
| Cardox Tank | $CO_2$ Tank Level and Pressure | LIS 8505 | 12.2.D.1.a | ≥ 80% (FP) | |
| | | PI 8505 | Fire Plan | ≥ 275 psig (FP) | |
| 1C391 | Remote Shutdown Panel Door | N/A | | Panel Cover Locked **{C001}** | NSAO Initials |
| Local | Emergency Diesel Generator Diesel Fuel Level | LIS 3201 | SR 3.8.3.1 | ≥ 10′ 0-1/4″ (36,317 gals) (TS) | _____ft. _____in. |
| 1C93 | Emergency Diesel Generator Lube Oil Inventory | 1C93, B-1<br>1C93, B-2 | SR 3.8.3.2 | Annunciators Reset (TS) | NSAO Initials |
| 1C94 | Emergency Diesel Generator Lube Oil Inventory | 1C94, B-1<br>1C94, B-2 | SR 3.8.3.2 | Annunciators Reset (TS) | NSAO Initials |
| 1G31 | ♦ 1G31 Cooler ESW Supply | CV-2080 | SR 3.7.3.1 | CLOSED (TS) | ♦<br>NSAO Initials |
| 1G21 | ♦ 1G21 Cooler ESW Supply | CV-2081 | SR 3.7.3.1 | CLOSED (TS) | ♦<br>NSAO Initials |
| N/A | CAD $N_2$ Cylinder Outlet Isolation Valves | V-43-68, V-43-69<br>V-43-74, V-43-75<br>V-43-76, V-43-77<br>V-43-78, V-43-79<br>V-43-80, V-43-81 | SR 3.6.3.1.2 | All OPEN (TS) | NSAO Initials |
| N/A | Intake Structure Traveling Screen Trash Collection Basket Fish Count | N/A | Environ. Sampling Procedure 4.1.1.9 | | Number of fish for the day: _____ |

Reference Only

ATTACHMENT 6

FEEDWATER CORRECTION FACTOR
(Note: Required to be performed only in Mode 1 ♦)

1.0 FEEDWATER CORRECTION FACTOR

1.1 Determine the applicability of the feedwater correction factor as follows:

a) 3-hour average Core Thermal Power is above 95% (1575 MWTH) of rated (C202)? _____

Yes / No: _____

**NOTE**

Performing instrument calibrations may cause the Feedwater Correction Factor Automatic Alarm, however these alarms should not be considered valid and Step 1.1.b should be answered "Yes".

b) All conditions which cause a valid Feedwater Correction Factor Automatic Alarm (FWALM) to be ON are clear? _____

Yes / No: _____

c) Does the OSS desire the Feedwater Correction Factor to be inserted? _____

Yes / No: _____

1.2 Perform the following evaluation:

a) Were Steps 1.1.a, 1.1.b, and 1.1.c all answered "Yes", indicating that the feedwater correction factor is appropriate to use? _____

Yes / No: _____

b) If the answer to Step 1.2.a is "Yes", mark Step 1.2.c "N/A" and then proceed directly to Step 1.3. Otherwise, mark this step "N/A" and then continue with Step 1.2.c. _____

c) If the answer to Step 1.2.a is "No", mark Steps 1.3 through 1.9 "N/A" and then, if directed by the OSS, remove the feedwater correction factor in accordance with Step 1.10. _____

Reference Only

ATTACHMENT 6

FEEDWATER CORRECTION FACTOR ♦

1.3 On the Plant Process Computer (PPC), enter Option 11 (including appropriate password) and record the time that the Option 11 program was entered: _____

Time Option 11 entered: _____

**NOTE**

The end time of the 3-hour time period selected for feedwater flow and standard deviation data entered in Step 1.4 below should be within ± 5 minutes of the time that the Option 11 program was entered in Step 1.3 above. The minimum time period shall be two hours and fifty-five minutes.

**NOTE**

The Option 11 program's display screen provides the "A" and "B" feedwater flow "mean" and "standard deviation" values for the previous three hours as received by the PPC from the Ultrasonic Flowmeter (UFM) computer. This data is available for Operator review in the following steps. If the Option 11 display of UFM data is not available for use, the alternate manual method of retrieving data directly from the UFM computer per OI 831.4 may still be available.

1.4 Obtain the 3-hour average values of "A" and "B" feedwater flows and standard deviations from either the PPC Option 11 display screen or directly from the UFM computer. Once these values have been obtained, record the following: _____

Method of data collection (check one):

☐ ...PPC Option 11 or ☐ ...UFM Computer (per OI 831.4)

| | | Flow "A" (channel 1) | Flow "B" (channel 3) |
|---|---|---|---|
| a) | Start Time | _____ | _____ |
| b) | End Time | _____ | _____ |
| c) | Ultrasonic Mean (Klb/hr) | _____ | _____ |
| d) | Standard Deviation (%) | _____ | _____ |

e) Ultrasonic flow "A" (channel 1) and ultrasonic flow "B" (channel 3) total flow (sum of flow "A" and flow "B" values from Step 1.4.c): _____Klb/hr

Reference Only

ATTACHMENT 6

FEEDWATER CORRECTION FACTOR ♦

1.5 Is each "standard deviation" value that was recorded in Step 1.4.d less than 0.6%? _____

Yes / No: _____

1.6 Perform the following evaluation:

a) If the answer to Step 1.5 is "Yes", enter the following data into the PPC Option 11 program. Otherwise, if the answer to Step 1.5 is "No", mark this step "N/A" and then proceed directly to Step 1.6.b. _____

Input (or accept) FW Loop "A" Ultrasonic Feedwater Flow - **(Enter FWA)**

Input (or accept) FW Loop "B" Ultrasonic Feedwater Flow - **(Enter FWB)**

The total of FWA and FWB is x.xxxx Is this correct? (verify against Step 1.4.e value) **(Answer Y or N)**

Yes / No _____

If "Yes", mark Step 1.6.b "N/A" and then proceed directly to Step 1.7.
If "No", continue with Step 1.6.b.

b) Cancel out of the Option 11 program, mark Steps 1.7 through 1.9 "NA", and then as directed by the OSS either remove the correction factor in accordance with Step 1.10 or re-evaluate the data later in the shift. _____

1.7 Record the output of the program as follows:

**NOTE**

The PPC Program will only indicate if the values entered are outside the acceptance criteria set in the PPC Program. If the PPC Program does not indicate that the values are outside the acceptance criteria, Step 1.7.a should be answered "Yes".

a) Do the values meet the acceptance criteria set in the PPC Program? _____

Yes / No: _____

b) If the answer to step 1.7.a is "No", cancel out of the Option 11 program, mark Steps 1.7.c, 1.8, and 1.9 "N/A", and then as directed by the OSS either remove the correction factor in accordance with Step 1.10 or re-evaluate the data later in the shift. Otherwise, if the answer to Step 1.7.a is "Yes", mark this step "N/A" and then continue with Step 1.7.c. _____

Reference Only

ATTACHMENT 6

FEEDWATER CORRECTION FACTOR ♦

c) If the answer to step 1.7.a is "Yes", enter the following: _____

FWCFA: _____

FWCFB: _____

1.8 If the feedwater correction factor value to be inputted is greater than the previous value, reduce reactor power with recirculation flow as directed by the OSS by the amount suggested by the Plant Process Computer prior to implementation of the new factor. Otherwise, mark this step "N/A" and then continue with Step 1.9. _____

1.9 Implement the new correction factor by entering "Y". _____

1.10 If it is desired to remove the feedwater correction factor, request Option 12 in the Menu Account on the Plant Process Computer and proceed as follows: (Otherwise, mark this step "N/A" and then proceed directly to Step 1.11.)

a) Reduce reactor power by the amount corresponding to the current correction factor (e.g. if the FWCF was 0.98, reduce reactor power by 2%) if desired by the OSS. (If reactor power is less than 95%, reactor power does not have to be reduced.) _____

b) Do you want to set the Feedwater Correction Factor Flag (FWFLAG) to OFF? _____
**(Answer Y or Cancel Out of Program)**

1.11 Verify the Feedwater Correction Factor Flag (computer point FWFLAG) is OFF or ON as appropriate (e.g. PVD FWFLAG). _____

OFF / ON: _____

1.12 If necessary, perform APRM gain adjustments per OI 878.4. _____

Reference Only

ATTACHMENT 7

CONTROL ROD POSITION CHECK

1. Obtain a computer printout of Rod Position Log.

2. Review computer printout for any unknown rod positions (-99). If any are noted, obtain those positions from the 4 rod group display on Panel 1C05 and manually log them on the computer printout. If unable to determine rod position using 1C05 4 Rod Display, refer to TS Bases for SR 3.1.3.1 for other methods of determining position. Notify the OSS and Reactor Engineer as soon as practical if any previously unobserved unknown rod positions appear on the computer printout.

3. Verify the FULL-OUT and FULL-IN indicating lights from the full rod display on Panel 1C05 against the computer printout.

4. If computer is not available, obtain copy of the last computer printout and log positions of any rods that are moved until computer is returned to service.

5. Confirm that position for each control rod has been determined. TS

6. Retain the Rod Position Log and either attach it to this STP or place it in the STP folder.

Reference Only

ATTACHMENT 8

VOLUME WEIGHTED DRYWELL AVERAGE AIR TEMPERATURE ♦

**NOTE**

Attachment 8 is to be performed whenever Computer Point SPDS006 is unavailable or inaccurate. Four different options are available for obtaining alternate temperature readings for each Drywell location and all readings do not have to be from the same option. The 1C29 temperatures used in Step 2.1 and the computer points used in Step 2.2 are sensed from the same temperature elements which input to SPDS006 but the computer points used in Step 2.3 and the 1C142 readings used in Step 2.4 are sensed from different temperature elements. If readings are obtained per Step 2.3 or 2.4, the calculated value may be different than what SPDS006 indicates and the System Engineer should be notified for further evaluation if the change is significant or exceeds the Tech Spec limit of 135°F. Any one of the four options is acceptable to use, but the Step 2.1 or Step 2.2 options should be used if available for better accuracy. Assistance from an I&C Tech will be needed for using Step 2.4 option.

1. Determine which individual instruments are available, circle and initial the instrument chosen in each row.
2. Obtain the readings per the following as appropriate:
   - 2.1 At 1C29, record the recorder reading in the table.
   - 2.2 Using the Plant Process Computer, record the computer point reading in the table.
   - 2.3 Using the Plant Process Computer, record the computer point reading plus the correction in the table.
   - 2.4 At 1C142, select the ILRT position on switch HSS-4354 and use an L&N Temperature Calibrator to record the temperature reading plus the correction in the table. Refer to NG-96-1963 (Temperature Conversion Reference Tables) Tab 7 for converting resistance readings to temperatures.
3. Multiply each reading by its volume fraction and record the product in the table.
4. Determine the Volume Weighted Drywell Average Air Temperature by adding the eight products.

| INSTRUMENT (1.0) | | | | READING (2.0) | VOLUME FRACTION | PRODUCT (3.0) |
|---|---|---|---|---|---|---|
| 1C29 (2.1) | Comp. Pt. (2.2) | Comp. Pt. (2.3) | 1C142 (2.4) | | | |
| TR-4383A Pen 1 (R) | B147 | B095 + 4.0 | TE-4328L + 4.0 | | X 0.1067 | |
| TR-4383A Pen 2 (G) | B145 | B093 + 10.0 | TE-4328J + 10.0 | | X 0.1244 | |
| TR-4383A Pen 3 (B) | B143 | B091 + 4.0 | TE-4328G + 4.0 | | X 0.1737 | |
| TR-4383B Pen 1 (R) | B146 | B094 + 10.0 | TE-4328K + 10.0 | | X 0.1244 | |
| TR-4383B Pen 2 (G) | B144 | B092 + 4.0 | TE-4328H + 4.0 | | X 0.1737 | |
| TR-4383B Pen 3 (B) | B141 | B089 + 4.0 | TE-4328E + 4.0 | | X 0.1259 | |
| TR-4383C Pen 1 (R) | B142 | B090 + 4.0 | TE-4328F + 4.0 | | X 0.1259 | |
| TR-4383C Pen 2 (G) | B149 | B096 + 4.0 | TE-4328M + 4.0 | | X 0.0453 | |
| Volume Weighted Drywell Average Air Temperature (4.0) | | | | | | |

Reference Only

ATTACHMENT 9

CORE THERMAL LIMITS AND APRM GAIN ADJUSTMENT
(Note: Not required in Mode 4 ♦)

**NOTE**

If the reactor is operating in Single Loop (SLO), then "N/A" Attachment 9 and perform the Combined Single Loop Surveillance Procedure STP-3.4.1-02. APRM Gain Adjustment shall be accomplished once per day when in MODE 1 while ≥ 25% RTP and prior to 25% RTP on startup. Attachment 9 may be marked N/A if operating at < 25% RTP for an extended period of time.

1.0 APRM GAIN ADJUSTMENT (TWO LOOP OPERATION ONLY)

1.1 Record CORE POWER and indicate source below: _____
( ) From PERIODIC LOG
( ) From POWER and FLOW LOG
( ) From Computer Point C133
( ) From heat balance conducted by Reactor Engineer

CORE POWER = _____ % Power.

1.2 Determine desired APRM setting. APRM setting shall be ≥ CORE POWER minus 2% from Step 1.1 and ≤ CORE POWER plus 2%. _____

Desired APRM setting: ≥ _____% Power and ≤ _____% Power

| | | A | B | C | D | E | F | |
|---|---|---|---|---|---|---|---|---|
| 1.3 | Record as found indicated APRM power % @ 1C37 | _____ | _____ | _____ | _____ | _____ | _____ | _____ |
| 1.4 | If APRM requires adjustment, perform Steps "a" through "f", otherwise "N/A" Steps "a" through "f". | | | | | | | |
| a) | Bypass, and adjust desired APRM setting if necessary. | _____ | _____ | _____ | _____ | _____ | _____ | _____ |
| b) | Confirm bypass light on Panel 1C05 | _____ | _____ | _____ | _____ | _____ | _____ | _____ |
| c) | Confirm bypass light on Panel 1C37 | _____ | _____ | _____ | _____ | _____ | _____ | _____ |
| d) | Confirm computer alarm message | _____ A548 | _____ A549 | _____ A550 | _____ A551 | _____ A552 | _____ A553 | _____ |
| e) | Confirm all alarms are reset | _____ | _____ | _____ | _____ | _____ | _____ | _____ |
| f) | Record as left indicated APRM power, % @ 1C37 | _____ | _____ | _____ | _____ | _____ | _____ | _____ |

Reference Only

## ATTACHMENT 9

## CORE THERMAL LIMITS AND APRM GAIN ADJUSTMENT ♦

1.5 Confirm APRM Computer Points (B000-B005) values are approximately the same as the As-Left values on 1C37. If not, notify the Reactor Engineer and appropriate System Engineer. _____

2.0 CORE THERMAL LIMITS

2.1 If the process computer is not available, responsibility for Attachment 9 has been turned over to a Reactor Engineer. (N/A this step if process computer is available.) _____

2.2 Check the method or methods used to determine the core parameters. _____

Periodic Log: _____ Power and Flow Log: _____

Heat Balance by RE: _____

2.3 Record the following core parameters.

2.3.1 Core Megawatt Thermal (POWER MWT) _____ Mwt _____

2.3.2 Percent Reactor Pwr (CORE POWER) _____ % _____

2.3.3 Percent Load Line (LOAD LINE) _____% _____

2.3.4 Core flow (FLOW) _____ MLB/hr _____

2.3.5 Percent Core Flow (CORE FLOW) _____% _____

2.3.6 Most Limiting Maximum Fraction of Limiting Critical Power Ratio (MFLCPR) _____ _____

a) If Most Limiting MFLCPR is ≤ 0.98, N/A Steps 2.3.6.b and c and proceed to Step 2.3.7. _____

b) If Most Limiting MFLCPR is > 0.98 but ≤ 1.0, notify the OSS, N/A Step 2.3.6.c and proceed to Step 2.3.7. _____

c) If Most Limiting MFLCPR is > 1.0, observe General Instructions 4.3 through 4.5. _____

Reference Only

ATTACHMENT 9

CORE THERMAL LIMITS AND APRM GAIN ADJUSTMENT ♦

2.3.7 Most Limiting Max Fraction of Limiting Power Density (MFLPD) _____ _____

a) If Most Limiting MFLPD is ≤ 0.99, N/A Steps 2.3.7.b and c and proceed to Step 2.3.8. _____

b) If Most Limiting MFLPD is > 0.99 but ≤ 1.0, notify the OSS, N/A Step 2.3.7.c and proceed to Step 2.3.8. _____

c) If MFLPD is > 1.0, observe General Instructions 4.3 through 4.5. _____

2.3.8 Most Limiting Maximum Average Planar Linear Heat Generation Rate Ratio (MAPRAT) _____ _____

a) If the Most Limiting MAPRAT is ≤ 0.99, N/A Steps 2.3.8.b and c. _____

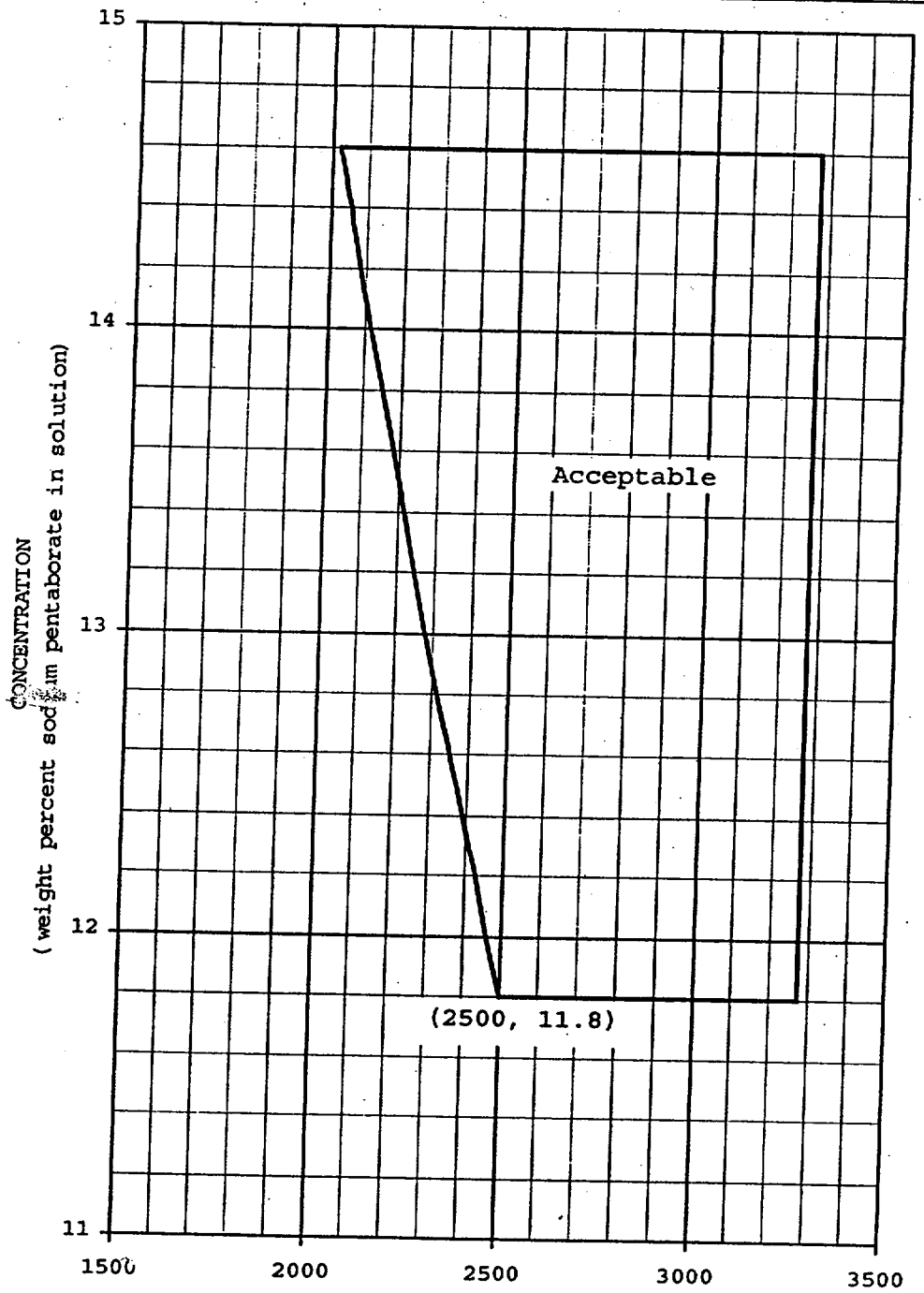
b) If Most Limiting MAPRAT is > 0.99 but ≤ 1.0, notify the OSS and N/A Step 2.3.8.c. _____

c) If Most Limiting MAPRAT is > 1.0, observe General Instructions 4.3 through 4.5. _____

Reference Only

ATTACHMENT 10

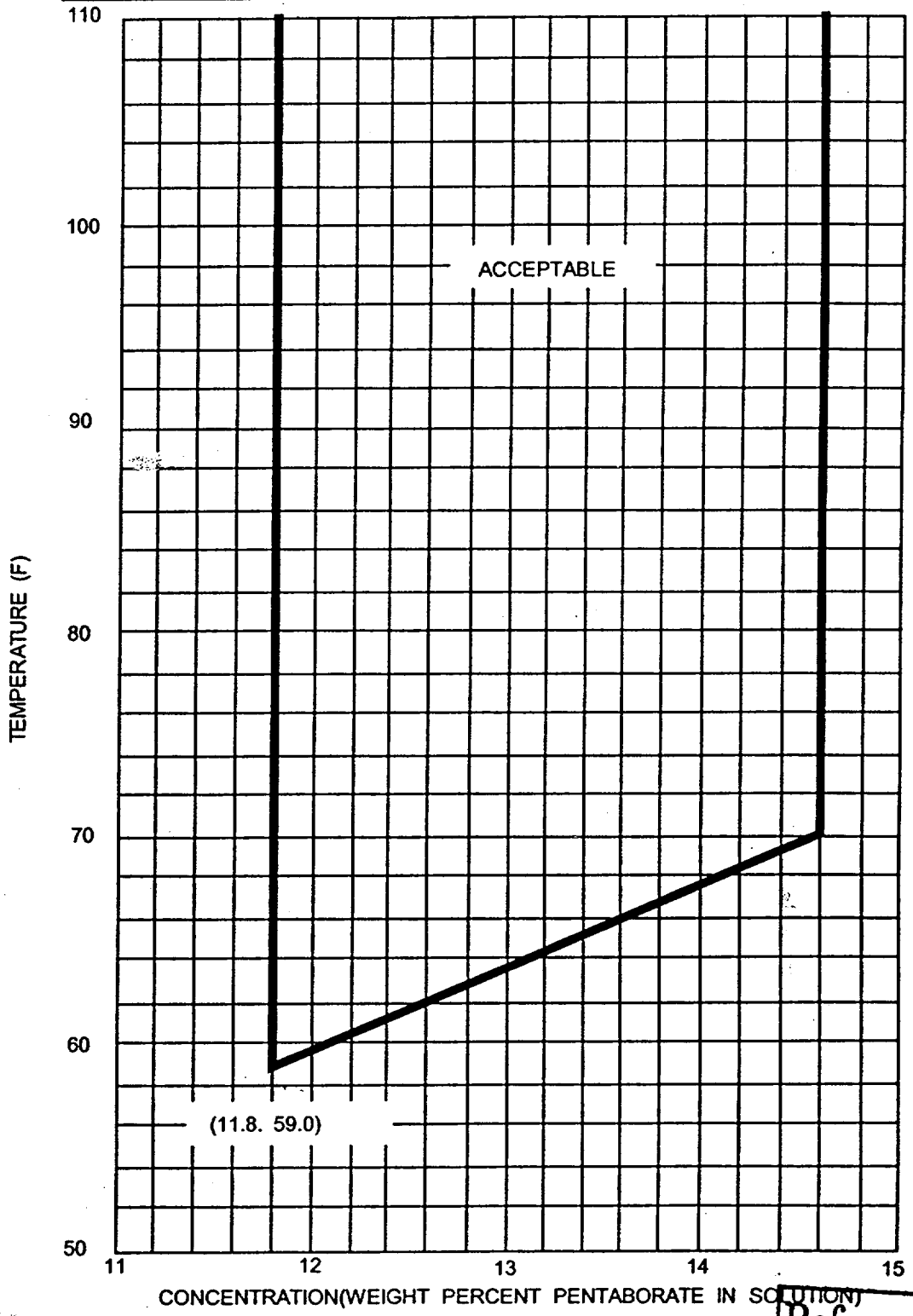
SODIUM PENTABORATE SOLUTION VOLUME CONCENTRATION




Reference Only

ATTACHMENT 11

MINIMUM TEMPERATURE OF SODIUM PENTABORATE SOLUTION

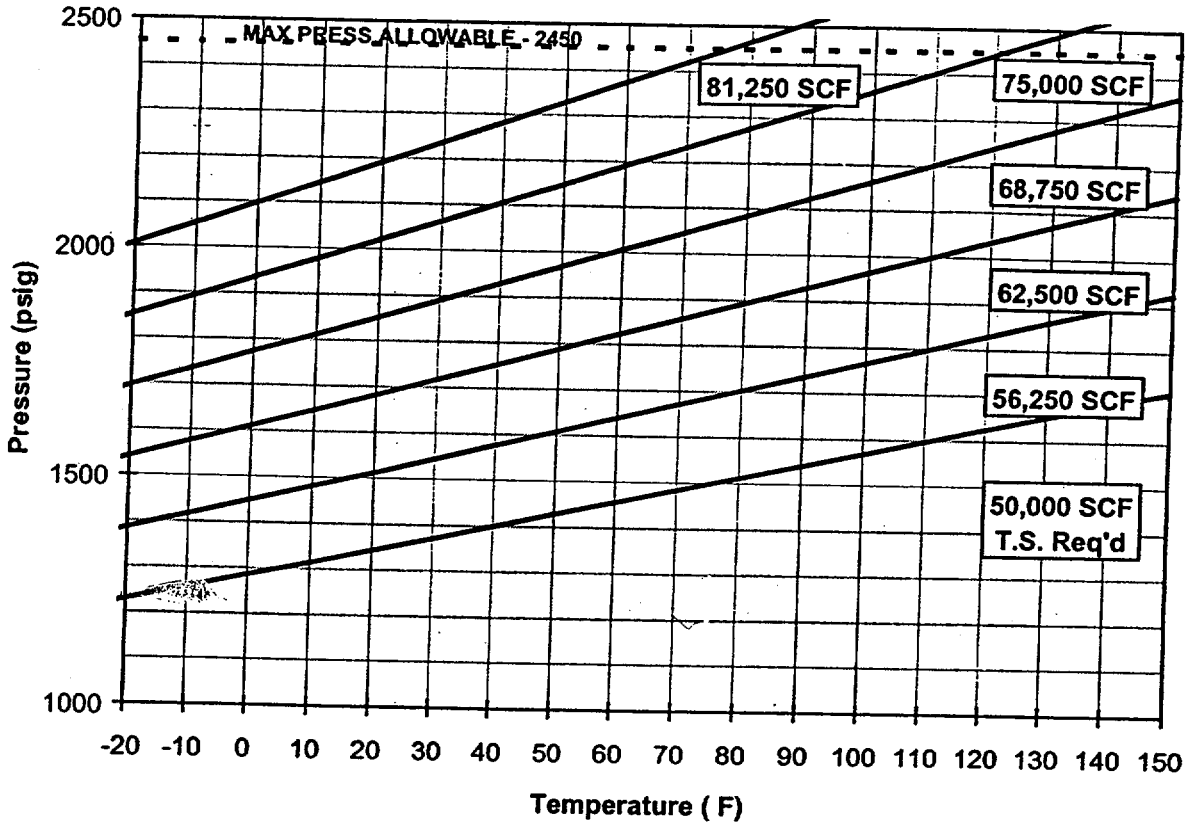



Reference Only

ATTACHMENT 12

(Note: Not required in Mode 4 ♦)

## CAD System Inventory Determination




**CAUTION**

During below Zero weather conditions, CAD temperature may drop below the range of TI-4336B (0 to 200 F). If this occurs, use Zero (F) to plot temperature VS pressure. This will result in a conservative volume calculation.

To comply with Technical Specification Requirements, the pressure and temperature locus has to lie above the "Constant 50,000 SCF Line Available".

Reference Only

## 8.0 ACCEPTANCE CRITERIA

8.1 If this STP is performed for any reason other than for satisfying the PURPOSE as stated in Section 1.0, indicate below (otherwise mark this step "N/A"):

_____

_____

_____

_____

8.2 If a DCF, Procedure Work Request (PWR), or Action Request (AR) was written due to problems encountered with the performance of this procedure, list the applicable number(s) below and attach a copy of each to this procedure. ("N/A" blocks as appropriate.)

DCF No. _____ PWR No. _____ AR No. _____

DCF No. _____ PWR No. _____ AR No. _____

8.3 All Technical-Specification-required items, as indicated by "TS", have been performed satisfactorily.

8.3.1 4 Hour and Shiftly Section ( ) YES ( ) NO ➡ OSS notified _____

8.3.2 Shiftly Section ( ) YES ( ) NO ➡ OSS notified _____

8.3.3 Daily Section ( ) YES ( ) NO ➡ OSS notified _____

8.4 All other items checked in this test have been performed satisfactorily.

8.4.1 4-Hour and Shiftly Section ( ) YES ( ) NO ➡ OSS notified _____

8.4.2 Shiftly Section ( ) YES ( ) NO ➡ OSS notified _____

8.4.3 Daily Section ( ) YES ( ) NO ➡ OSS notified _____

8.5 Indicate any relevant test comments below, otherwise mark this step "N/A":

_____

_____

_____

_____

_____

_____

Reference Only

8.6 All recorded data and calculations reviewed for accuracy and completeness, (including that the recorded data meets the acceptance criteria and only appropriate data blocks containing the diamond symbol or specific instructions are N/R'd during Mode 4) by a Second Licensed Operator.

8.6.1 Shift 1 Shiftly Instrument Checks _____

8.6.2 Shift 2 Shiftly Instrument Checks _____

8.6.3 Shift 3 Shiftly Instrument Checks _____

8.6.4 Daily Instrument Checks _____

8.7 All recorded data and calculations reviewed for accuracy and completeness, (including that the recorded data meets the acceptance criteria and only appropriate data blocks containing the diamond symbol or specific instructions are N/R'd during Mode 4) by an OSS/OSM.

8.7.1 Shift 1 Shiftly Instrument Checks _____

8.7.2 Shift 2 Shiftly Instrument Checks _____

8.7.3 Shift 3 Shiftly Instrument Checks _____

8.7.4 Daily Instrument Checks _____

_____ _____
Operations Date

_____ _____
Surveillance Coordinator Date

Reference Only

## 9.0 ATTACHMENTS

9.1 Attachment 1 - UNIDENTIFIED AVERAGE LEAK RATE CALCULATION

9.2 Attachment 2 - IDENTIFIED AVERAGE LEAK RATE CALCULATION

9.3 Attachment 3 - REACTOR COOLANT LEAKAGE

9.4 Attachment 4 - REACTOR COOLANT LEAKAGE

9.5 Attachment 5 - STABILITY POWER/FLOW MAP

9.6 Attachment 6 - FEEDWATER CORRECTION FACTOR

9.7 Attachment 7 - CONTROL ROD POSITION CHECK

9.8 Attachment 8 - VOLUME WEIGHTED DRYWELL AVERAGE AIR TEMPERATURE

9.9 Attachment 9 - CORE THERMAL LIMITS AND APRM GAIN ADJUSTMENT

9.10 Attachment 10 - SODIUM PENTABORATE SOLUTION VOLUME CONCENTRATION

9.11 Attachment 11 - MINIMUM TEMPERATURE OF SODIUM PENTABORATE SOLUTION

9.12 Attachment 12 - CAD SYSTEM INVENTORY DETERMINATION

Reference Only

A.1.a(S)

# *DUANE ARNOLD ENERGY CENTER*

## JOB PERFORMANCE MEASURE

**NUMBER: 2.1.33-04**

**TASK NUMBER: SRO 1.02**

**TITLE: Determine Rod Block Monitor Operability Requirements**

**Rev. 1**

| | | |
|---|---|---|
| DEVELOPED BY: | Michael Fisher<br>Instructor | 3/23/2001<br>Date |
| VALIDATED BY: | SME/Instructor | 3/30/01<br>Date |
| REVIEWED BY: | Paul D Hansen<br>Plant Reviewer | 3-30-2001<br>Date |
| APPROVED BY: | R R Cullen for<br>Training Supervisor-Operations | 4/2/01<br>Date |

# DUANE ARNOLD ENERGY CENTER

## JOB PERFORMANCE MEASURE

| | | |
|---|---|---|
| **JPM No.** 2.1.33-04 | **JPM Description:** Determine Rod Block Monitor Operability Requirements | |
| **Task No.** SRO 1.02 | **Task Description:** Determine Operability for Technical Specification Required Components | |
| **K/A Reference:** 2.1.33 | 3.4/4.0 | |
| APPLICABLE METHOD OF TESTING: SRO/RO | | |
| Simulate Performance | Actual Performance X | |
| Simulator X | In-Plant | Control Room |
| Time for Completion: 6 minutes | | |

# JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

| NOTE |
|---|
| All steps of this checklist should be performed upon initial validation. Prior to JPM usage, revalidate JPM using steps 7 through 10. |

JPM No. 2.1.33-04 JPM Title Determine Rod Block Monitor Operability Requirements

✓ 1. Task description and number, JPM description and number are identified

✓ 2. Task elements identified and K/A references are included

✓ 3. Performance location specified

   a. in-plant

   b. control room

   c. simulator

✓ 4. Initial conditions and cues identified

   a. setup, required materials, and procedure

   b. malfunctions and instructor actions

   c. initiating and terminating cues

✓ 5. Task standards identified and verified by SME review

✓ 6. Critical tasks/steps identified meet criteria and identified with a "C"

✓ 7. Verify JPM steps fit the most current procedures
Procedure Rev. 235 Date 01/26/01

✓ 8. Pilot test JPM T.S.

   a. verify cues both verbal and visual are free of conflict

   b. ensure performance time is accurate

9. If the JPM cannot be performed as written with proper responses, then revise the JPM

____ 10. When JPM is revalidated, SME/Instructor signs and dates JPM

SME/Instructor Date

SME/Instructor Date

SME/Instructor Date

## SIMULATOR SETUP:

- Set up to IC 20
- At the Vax terminal, insert MFLCPR value of 0.95.
- Go to RUN.
- Obtain an Official Case.
- Verify that a LCRP exists.
- Insert malfunction per table.
- If the PPC does not work, provide the student the attached Official 3D Case.
- Select an non-edge control rod.

## EVENT TRIGGERS

None

## MALFUNCTIONS:

| Time | Malfunction No. | Malfunction Title | ET | Delay | F. Sev. | Ramp | I. Sev. |
|---|---|---|---|---|---|---|---|
| | nm16a | RBM channel A fails INOP | N/A | N/A | 0 | N/A | N/A |

## OVERRIDES:

None

## REMOTE FUNCTIONS:

None

## INSTRUCTOR ACTIONS:

1. Read initial conditions and initiating cues to the operator.

## TASK STANDARDS:

1. Determine that "A" Rod Block Monitor is Inop. (only "A" is Inop, NOT both)
2. 3D Monicore Official Case obtained.
3. Determine that a Limiting Control Rod Pattern does exists.
4. Requirements of T.S. 3.3.2.1 identified.

## REQUIRED MATERIALS:

Technical Specifications

## GENERAL REFERENCES:

1C05B, B-6

1C05B, C-6

Technical Specifications

**Read to the operator the following information:**

**INITIAL CONDITIONS:**

1. Annunciators 1C05B, B-6 RBM UPSCALE OR INOP and 1C05B, C-6 RBM DOWNSCALE have just alarmed.

2. The simulator reflects current plant conditions.

**INITIATING CUES:**

1. As the OSS you are to evaluate these plant conditions and respond appropriately.

**This task is not time critical.**

**Inform the evaluator when you have completed the task.**

## PERFORMANCE INFORMATION

| NOTE: |
|---|
| Critical steps are denoted with a "C". Failure to meet the standard for this step constitutes failure. |

Time Start _____

| | |
|---|---|
| PERFORMANCE STEP:<br>Critical: **C** | At Panel 1C05, monitor RBM displays to determine the affected RBM channel. |
| STANDARD: | Determine that "A" Rod Block Monitor is Inop. |
| COMMENTS: | |

| | |
|---|---|
| PERFORMANCE STEP:<br>Critical: **C** | Obtain a 3D Monicore Official Case. |
| STANDARD: | 3D Monicore Official Case obtained. |
| COMMENTS:<br>Note: If Simulator and/or Simulator PPC are/is not available, a copy of the Official Case may be provided after candidate explains how one would be obtained. | |

| | |
|---|---|
| PERFORMANCE STEP:<br>Critical: **C** | Determine if the Rod Block Monitor System is required to be operable. |
| STANDARD: | Determine that a Limiting Control Rod Pattern does exists. |
| COMMENTS: | |

| | |
|---|---|
| PERFORMANCE STEP:<br>Critical: **C** | Determine the Technical Specification requirements for one RBM channel inoperable. |
| STANDARD: | Requirements of T.S. 3.3.2.1 identified. |
| COMMENTS: | |

Time Stop _____

**TERMINATING CUES:**

Operability requirements determined.

## VERIFICATION OF COMPLETION

JPM No.: 2.1.33-04 JPM Description: Determine Rod Block Monitor Operability Requirements

Operator: _____ Evaluator: _____

Licensee: ☐ RO ☐ SRO ☐ SRO Cert
☐ STA ☐ NSPEO

Result: ☐ SATISFACTORY ☐ UNSATISFACTORY

**COMMENTS/FEEDBACK:** (Note any trainee discrepancies or misperformed steps.)

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____ _____
Evaluator's Signature Date

>>>> SIMULATOR <<<<
3D MONICORE
PERIODIC LOG

SEQUENCE NO 12
11-FEB-2001 11:41 CALCULATED
11-FEB-2001 11:41 PRINTED
CASE ID FMLS1010211114147
RESTART FMLS1010211114147
LPRM ABSOLUTE - FULL CORE

| CORE PARAMETERS | | | CALC RESULTS | |
|---|---|---|---|---|
| POWER | MWT | 1653. | | |
| POWER | MWE | 561. | | |
| FLOW | MLB/HR | 44.775 | | |
| FPAPDR | | 1.053 | | |
| SUBC | BTU/LB | 21.82 | Keff | 1.0000 |
| PR | PSIa | 1022.1 | XE WORTH % | -2.41 |
| CORE | MWD/sT | 16353.6 | XE/RATED | 1.00 |
| CYCLE | MWD/sT | 4163.6 | | |
| MCPR | | 1.316 | | |

| LOAD LINE SUMMARY | |
|---|---|
| CORE POWER | 99.7% |
| CORE FLOW | 91.4% |
| LOAD LINE | 104.4% |

CORRECTION FACTOR: MFLCPR= 1.000 MFLPD= 1.000 MAPRAT= 1.000
OPTION: ARTS DUAL LOOP MANUAL FLOW MCPRLIM= 1.400

MOST LIMITING LOCATIONS (NON-SYMMETRIC)

| MFLCPR | LOC | MFLPD | LOC | MAPRAT | LOC | PCRAT | LOC |
|---|---|---|---|---|---|---|---|
| 0.950 | 37-28 | 0.883 | 7-28- 8 | 0.931 | 35-28- 8 | 0.907 | 7-18- 8 |
| 0.940 | 7-28 | 0.874 | 7-18- 8 | 0.923 | 35-18- 8 | 0.898 | 7-28- 8 |
| 0.930 | 7-18 | 0.865 | 37-28- 8 | 0.914 | 9-18- 8 | 0.889 | 9-30- 8 |
| 0.920 | 37-18 | 0.847 | 9-30- 8 | 0.905 | 9-28- 8 | 0.876 | 37-28- 8 |
| 0.886 | 9-30 | 0.838 | 35-16- 8 | 0.857 | 37-18- 8 | 0.848 | 9-16- 8 |
| 0.876 | 35-30 | 0.829 | 9-16- 8 | 0.848 | 7-28- 8 | 0.839 | 35-16- 8 |
| 0.866 | 9-16 | 0.821 | 35-30- 8 | 0.839 | 7-18- 8 | 0.830 | 37-16- 9 |
| 0.841 | 19-32 | 0.645 | 37-16- 9 | 0.830 | 37-28- 8 | 0.737 | 35-30- 8 |
| 0.831 | 25-32 | 0.636 | 7-30- 9 | 0.815 | 35-16- 8 | 0.726 | 37-30- 9 |
| 0.821 | 25-14 | 0.627 | 37-30- 9 | 0.806 | 35-30- 8 | 0.717 | 7-30- 9 |

SEQ. A-1 C=MFLCPR D=MFLPD M=MAPRAT P=PCRAT *=MULTIPLE

```
43
  L
39

35                36      36
  L
31

27      D 36      00      00      36MC
  L
23

19      P 36      00      00      36
  L
15

11                36      36
  L
07

03        L       L       L       L       L
   02  06  10  14  18  22  26  30  34  38  42
```

CORE AVE AXIAL

| NOTCH | REL PW | LOC |
|---|---|---|
| | 0.311 | 25 |
| 00 | 0.621 | 24 |
| 02 | 0.753 | 23 |
| 04 | 0.885 | 22 |
| 06 | 0.936 | 21 |
| 08 | 0.987 | 20 |
| 10 | 0.988 | 19 |
| 12 | 0.990 | 18 |
| 14 | 1.013 | 17 |
| 16 | 1.036 | 16 |
| 18 | 1.039 | 15 |
| 20 | 1.042 | 14 |
| 22 | 1.065 | 13 |
| 24 | 1.089 | 12 |
| 26 | 1.112 | 11 |
| 28 | 1.134 | 10 |
| 30 | 1.174 | 09 |
| 32 | 1.214 | 08 |
| 34 | 1.232 | 07 |
| 36 | 1.250 | 06 |
| 38 | 1.211 | 05 |
| 40 | 1.171 | 04 |
| 42 | 0.875 | 03 |
| 44 | 0.580 | 02 |
| 46 | 0.290 | 01 |

CORE AVERAGE RADIAL POWER DISTRIBUTION

| RING # | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| REL PW | 1.129 | 1.060 | 1.222 | 1.165 | 1.132 | 0.687 |

>>>> SIMULATOR <<<< INSTRUMENT READINGS/STATUS
CALIBRATED LPRM READINGS

SEQUENCE NO 12
11-FEB-2001 11:41 CALCULATED
11-FEB-2001 11:41 PRINTED
CASE ID FMLS1010211114147
LPRM ABSOLUTE - FULL CORE

| | | | | | |
|---|---|---|---|---|---|
| 41D | | 20.9 | 28.5 | | |
| C | | 24.9 | 33.9 | | |
| B | | 25.3 | 34.6 | | |
| A | | 28.3 | 38.7 | | |
| 33D | 28.5 | 33.3 | 35.3 | 32.8C | |
| C | 33.9 | 42.8 | 45.8 | 39.9 | |
| B | 34.6 | 45.3 | 48.9 | 41.8 | |
| A | 38.7D | 45.4 | 47.6 | 43.2M | |
| 25D | 31.2 | 34.8 | 34.3 | 35.3 | 0.0 |
| C | 39.9 | 42.6 | 41.5 | 45.8 | 33.9 |
| B | 41.8 | 45.0 | 43.4 | 48.9 | 34.6 |
| A | 43.2P | 41.1 | 36.9 | 47.6 | 38.7 |
| 17D | 29.2 | 35.1 | 34.8 | 33.3 | 20.9 |
| C | 36.9 | 43.0 | 42.6 | 42.8 | 24.9 |
| B | 38.2 | 45.8 | 45.0 | 45.3 | 25.3 |
| A | 40.9 | 43.2 | 41.1 | 45.4 | 28.3 |
| 09D | 20.9 | 29.2 | 31.3 | 28.5 | |
| C | 24.9 | 36.9 | 39.9 | 33.9 | |
| B | 25.3 | 38.2 | 41.8 | 34.6 | |
| A | 28.3 | 40.9 | 43.2 | 38.7 | |
| | 08 | 16 | 24 | 32 | 40 |

# OF TIPS REJECTED: 2

FAILED SENSORS:
LPRM ( SIGNAL FAILED)
LPRM ( 1 PANACEA REJECTED)
4025D
OTHER SENSORS ( 0 TOTAL)
SUB RODS
NONE

T = TIP RUN RECOMMENDED
C = MFLCPR LOCATION
M = MAPRAT LOCATION
D = MFLPD LOCATION
P = PCRAT LOCATION
* = MULTIPLE LIMIT

CORE SUMMARY

| | | | | | |
|---|---|---|---|---|---|
| CORE POWER | 99.7% | CALC SUB FLOW | 91.2% | DP MEAS PSI | 20.63 |
| CORE FLOW | 91.4% | OPER SUB FLOW | -2.0% | DP CALC PSI | 24.77 |
| LOAD LINE | 104.4% | FLOW BASIS | MEAS | FEEDWTR FLOW MLB/HR | 7.11 |

APRM CALIBRATION

| | A | B | C | D | E | F |
|---|---|---|---|---|---|---|
| READING | 100.8 | 100.0 | 100.5 | 100.4 | 99.4 | 100.3 |
| AGAF | 0.990 | 0.997 | 0.993 | 0.993 | 1.003 | 0.993 |
| APRM - %CTP | 1.1 | 0.3 | 0.8 | 0.7 | -0.2 | 0.7 |

TIP RUNS RECOMMENDED
STRINGS: NONE

A.1.B(R)

# *DUANE ARNOLD ENERGY CENTER*

## JOB PERFORMANCE MEASURE

**NUMBER: 2.1.7-04**

**TASK NUMBER: 1.01**

**TITLE: Perform Control Room Shiftly Checklist - Faulted**

**Rev. 1**

| | | |
|---|---|---|
| DEVELOPED BY: | Michael Fuhrer<br>Instructor | 3/22/2001<br>Date |
| VALIDATED BY: | [illegible]<br>SME/Instructor | 3/29/2001<br>Date |
| REVIEWED BY: | Paul D Hansen<br>Plant Reviewer | 3-30-2001<br>Date |
| APPROVED BY: | [illegible] for<br>Training Supervisor-Operations | 4/2/01<br>Date |

**DUANE ARNOLD ENERGY CENTER**

**JOB PERFORMANCE MEASURE**

| | | |
|---|---|---|
| **JPM No.** 2.1.7-04 | **JPM Description:** While performing STP 3.0.0-02, the Operator will find equipment out of its required position. | |
| **Task No.** 1.01 | **Task Description:** Perform Control Panel Line-ups | |
| **K/A Reference:** Generic 2.1.7 | 3.7/4.4 | |
| APPLICABLE METHOD OF TESTING: RO/SRO | | |
| Simulate Performance | Actual Performance X | |
| Simulator X | In-Plant | Control Room |
| Time for Completion: 40 min. | | |

# JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

**NOTE**

All steps of this checklist should be performed upon initial validation. Prior to JPM usage, revalidate JPM using steps 7 through 10.

JPM No. 2.1.7-04 JPM Title Perform control room shiftly checklist - faulted

✓ 1. Task description and number, JPM description and number are identified

✓ 2. Task elements identified and K/A references are included

✓ 3. Performance location specified

a. in-plant

b. control room

(c) simulator

✓ 4. Initial conditions and cues identified

a. setup, required materials, and procedure

b. malfunctions and instructor actions

c. initiating and terminating cues

✓ 5. Task standards identified and verified by SME review

✓ 6. Critical tasks/steps identified meet criteria and identified with a "C"

✓ 7. Verify JPM steps fit the most current procedures
Procedure Rev. 9 Date 23Feb2001

✓ 8. Pilot test JPM

a. verify cues both verbal and visual are free of conflict

b. ensure performance time is accurate

9. If the JPM cannot be performed as written with proper responses, then revise the JPM

_____ 10. When JPM is revalidated, SME/Instructor signs and dates JPM

| | |
|---|---|
| SME/Instructor | Date |
| SME/Instructor | Date |
| SME/Instructor | Date |

**SIMULATOR SETUP:**
Reset to any full power IC.

**EVENT TRIGGERS**

None

**MALFUNCTIONS:**

None

**OVERRIDES:**

| Time | Override No. | Override Title | ET | Delay | F. Sev. | Ramp | I. Sev. |
|---|---|---|---|---|---|---|---|
| T=0 | LO MS PCIS-BLPWR | CIMS B logic power available | N/A | N/A | OFF | N/A | N/A |

**REMOTE FUNCTIONS:**

None

**INSTRUCTOR ACTIONS:**

1. Set up the conditions as stated on the previous page.
2. Ensure that the HPCI and RCIC tape controllers are set, per STP 3.0.0-02.
3. Transfer HPCI pump suction from the CST to the Torus per OI-152.
4. Place HS-4640, Recirc OUTBD SAMPLE valve **CLOSED** position.
5. Place HS-6920B, "B" Chiller Chill Water Non-Essential Cooling Loop Control in the **OPEN** position.
6. Place HS-8100A and HS-8100B, Drywell Sample Isolation Valves in the **OVERRIDE** position.
7. Verify "A" RWS pump is running.
8. Insert Override **LO MS PCIS-BLPWR**
9. Read initial conditions and initiating cues to the operator.

**TASK STANDARDS:**

1. Determine that the HPCI pump suction is aligned to the Torus.

**REQUIRED MATERIALS:**

STP 3.0.0-02

**GENERAL REFERENCES:**

STP 3.0.0-02 Latest Revision

**Read to the operator the following information:**

**INITIAL CONDITIONS:**

1. The plant is operating at 100%; you are the on watch RO for Shift 1.
2. An EDG STP is scheduled to start in 45 minutes.
3. Another operator has completed some of STP 3.0.0-02, Control Room Panel Shiftly Checklist, and has been pulled off that job to respond to a quarterly fire drill.
4. You are the ANSOE.

**INITIATING CUES:**

The OSS directs that you perform the incomplete portions of STP 3.0.0-02.

**This task is not time critical.**

**Inform the evaluator when you have completed the task.**

## PERFORMANCE INFORMATION

| NOTE: |
|---|
| Critical steps are denoted with a "C". Failure to meet the standard for this step constitutes failure. |

NOTE:
The incomplete portions of this STP may be completed in any order.

Time Start _____

| | |
|---|---|
| PERFORMANCE STEP:<br>Critical: C | On 1C03, determine that the HPCI pump suction is aligned to the Torus. |
| STANDARD: | Determines that the HPCI pump suction is aligned to the Torus. |
| COMMENTS:<br>When the Operator notes that the HPCI pump suction is aligned to the Torus, role play as the OSS and acknowledge the mispositioned component and cue the operator to continue with the STP. | |

| | |
|---|---|
| PERFORMANCE STEP:<br>Critical: | On 1C04, determine that CV-4640, Recirc Loop Outboard Sample Isolation Valve is CLOSED. |
| STANDARD: | Determines that CV-4640 is CLOSED. |
| COMMENTS:<br>When the Operator notes that CV-4640 is closed, role play as the OSS and acknowledge the mispositioned component and cue the operator to continue with the STP. | |

| | |
|---|---|
| PERFORMANCE STEP:<br>Critical: | At 1C26, determine that HS-6920B, "B" Chiller Non-Essential Cooling Loop "B" is in the OPEN position with the "B" Chiller in service. |
| STANDARD: | Determines that HS-6920B is in the OPEN position with the "B" Chiller in service. |
| COMMENTS:<br>When the Operator notes that HS-6920B is in the OPEN position with the "B" Chiller in service, role play as the OSS and acknowledge the mispositioned component and cue the operator to continue with the STP. | |

| | |
|---|---|
| PERFORMANCE STEP:<br>Critical: | At 1C29, determine that handswitches HS-8100A and B Drywell Sample Isolation Valves, are positioned to OVERRIDE. |
| STANDARD: | Determines that HS-8100A and B are in the OVERRIDE position. |
| COMMENTS:<br>When the Operator notes that HS-8100A and B are in the OVERRIDE position, role play as the OSS and acknowledge the mispositioned component and cue the operator to continue with the STP. | |

| | |
|---|---|
| PERFORMANCE STEP:<br>Critical: | At 1C04, determines that the CIMS "B" logic Power Available WHITE light is de-energized. |
| STANDARD: | Determines that the CIMS "B" logic Power Available WHITE light is de-energized. |
| COMMENTS:<br>When the Operator notes that the CIMS "B" logic Power Available WHITE light is de-energized, inform the Operator that the JPM is finished. | |

Time Stop _____

**TERMINATING CUES:** 5 errors found

## VERIFICATION OF COMPLETION

JPM No. 2.1.7-04 JPM Description Perform control room shiftly checklist - faulted

Operator: _____ Evaluator: _____

Licensee: ☐ RO ☐ SRO ☐ SRO Cert
☐ STA ☐ NSPEO

Result: ☐ SATISFACTORY ☐ UNSATISFACTORY

**COMMENTS/FEEDBACK:** (Note any trainee discrepancies or misperformed steps.)

_____

_____

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_____

_____ _____
Evaluator's Signature Date

Effective Date: FEB 28 2001

Verified By: _____ Date: 2-14-01
Testing and Surveillance

Validated By: Thomas V. Robinson Date: 2-15-01
Operations

Verified By: _____ Date: 2-16-01
System Engineering

Approved By: _____ Date: 2/19/2001
Procedures

Reviewed By: _____ for Date: 2/21/2001
Operations Committee

Approved By: _____ Date: 2/21/01
Plant Manager, Nuclear

REFERENCE ONLY

## 1.0 PURPOSE

1.1 The purpose of this STP is to verify Safety Related and other important components located on Control Room panels are in the desired position or condition. This is accomplished by verifying the proper indicating lights are energized, handswitches are in the proper position, controllers are adjusted properly, and various annunciators are functioning properly. **{C001}**

1.2 This procedure, when performed in its entirety, FULLY SATISFIES the following DAEC Technical Specification surveillance requirements:

1.2.1 Verifies the continuity of the explosive charges associated with the Standby Liquid Control squib valves.

1.2.2 Post Accident Monitoring, Channel Check of PCIV indication.

1.2.3 Primary Containment Isolation Valves, verification of each 18-inch primary containment purge valve being closed.

1.2.4 Primary Containment Isolation Valves, verification of continuity of the traversing incore probe (TIP) shear isolation valve explosive charge.

1.2.5 Verifies each subsystem power operated and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position, for each of the following subsystems:

a. ECCS - Operating

b. ECCS - Shutdown

c. RCIC System

d. RHR Suppression Pool Cooling

e. CAD System

f. RHRSW System

g. RWS System

1.2.6 Verify each SDV vent and drain valve is open.

1.3 This procedure, when performed in its entirety, FULLY SATISFIES the DAEC Technical Requirements Manual surveillance requirement for verification of one Battery Exhaust Fan operating.

REFERENCE ONLY

## 2.0 BRIEFING INFORMATION

### 2.1 PERFORMANCE INFORMATION

2.1.1 The checks performed during this STP may be performed in any convenient order. The data sheets allow for the logging of two shiftly checks each day on a single STP. A third column may be used as component status changes or as desired. The 0700-1900 crew completes Shift 1 checks and the 1900-0700 crew completes Shift 2 checks.

2.1.2 The steps given in Section 7.0 are instructions for completing the checklists contained in Attachment 1 and therefore do not require initialing. However, the person(s) performing the checks shall sign as Performer at the end of this STP.

2.1.3 Appendix A contains a list of abbreviations to be used to complete the checklist (Attachment 1). These abbreviations are to be recorded in the appropriate Shift column to record the as found status of the component.

2.1.4 Personnel recommended to perform this procedure:

3 Operations

2.1.5 Special Test Equipment required:

None

### 2.2 GENERAL CAUTIONS

2.2.1 For Override handswitches and keylock switches, the actual position of the switch must be confirmed. DO NOT assume that the switch is in the Normal position just because the amber indicating light is deenergized.

### 2.3 SPECIAL PRECAUTIONS

2.3.1 None

## 3.0 REFERENCES

### 3.1 Commitment Items:

3.1.1 **C001** - Commitment Control #930459 (NG-93-3592, Control Room Panel Shiftly Checklist Human Factors Improvements)

REFERENCE ONLY

## 4.0 GENERAL INSTRUCTIONS

4.1 Data marked with a "TS" or "TM" in the Acceptance Criteria column are required by Technical Specifications or the Technical Requirements Manual. If the data does not meet its acceptance criteria or cannot be recorded, a NRC reportable condition may exist. The data shall be reported to the Operations Shift Supervisor (OSS) immediately.

4.2 An Action Request (AR) shall be completed for any problems encountered with a "TS" or "TM" during this STP.

4.3 The OSS shall be notified immediately and the appropriate Limiting Condition for Operation section of Technical Specifications or the Technical Requirements Manual referred to whenever problems are encountered during the performance of this STP.

4.4 If any equipment or components are observed to be in a state of disrepair during the performance of this STP, appropriate corrective maintenance shall be initiated.

## 5.0 APPENDICES

5.1 Appendix A - List Of Abbreviations

REFERENCE ONLY

| ABBREV. | INDICATION | COMPONENT STATUS |
|---|---|---|
| A or AUTO | Handswitch or keylock switch | AUTO or AUTOMATIC position |
| B | Both green and red indicating lights on | THROTTLED valves |
| BAL | | BAL or BALANCE position |
| CL | | CLOSED position |
| DE | Both green and red indicating lights off.<br>White light off | DEENERGIZED valves, Racked out breakers.<br>Running RWS Pump Permissive |
| G | Green indicating light on, red indicating light off<br><br><br>Green flag showing | CLOSED valves<br>SECURED Pumps, Fans, and other equipment<br>OPEN (deenergized) breakers<br>Breaker handswitch flag |
| N or NORM | | NORM or NORMAL position |
| MAN | | MAN or MANUAL position |
| OFF | | OFF position<br>Status Lights OFF |
| ON | Miscellaneous indicating lights on | Miscellaneous status |
| OP | | OPEN position |
| OVR | | OVERRIDE position |
| PTL | | PULL-TO-LOCK position |
| TC | HS-1937A Position | TORUS CLG, Torus Cooling Mode |
| TST or TEST | | TEST position |
| R | Red indicating light on, green indicating light off<br><br><br>Red flag showing | OPEN valves<br>OPERATING Pumps, Fans, and other equipment<br>SHUT (energized) breakers<br>Breaker handswitch flag |
| RST | | RESET position |
| S | Recirc Speed Control | S - Percent Speed Demand |
| SAT | Satisfactorily completed | Annunciator checks, lamp tests, computer display checks, Battery Fan checks |
| SB | | STANDBY position |
| SDC | HS-1937A Position | SHUTDN CLG, Shutdown Cooling Mode |
| START | | START position |
| STOP | | STOP position |
| UNSAT | Unsatisfactorily completed | |
| W | White indicating light on | Breaker closing springs CHARGED<br>Squib Valve Continuity<br>Power Available<br>Pump Permissive |

NOTES:
1. For controller tape settings or other components requiring a numerical value in the Desired column, record the actual setting in the appropriate Shift column.
2. For any positions or conditions not covered by the above abbreviations, record the actual position/condition in the appropriate Shift column and use the margin at the bottom of the sheet if more space is needed.

REFERENCE ONLY

## 6.0 PREREQUISITES

6.1 None

REFERENCE ONLY

## 7.0 PROCEDURE

### 7.1 CONTROL ROOM PANEL SHIFTLY CHECKLIST

7.1.1 Compare the as found position/condition recorded in the Shift column against the desired position/condition listed in the Desired column.

a. For any as found positions/conditions that do not agree with the desired position/condition, record the reason in the Remarks column. Some examples of reasons may be tagout number, STP in progress, certain evolution in progress, etc.

b. For any as found positions/conditions that do not agree with the desired position/condition and do not have a known or valid reason for not agreeing, inform the OSS immediately and take actions to correct the condition.

7.1.2 For the Safety Parameter Display System, check that the displays can be called up on the terminal.

7.1.3 For the Containment Information Monitoring System (CIMS), perform the following:

a. Check each CIMS system white power available light is on.

b. Confirm no Isolation signals are present.

c. Perform a light check on the CIMS system and confirm each light energizes.

d. Confirm each CIMS Alarm Printer has paper, printed out the light test result, and has not printed out any unexpected valve positions or conditions.

e. During the second half of the shift, confirm each CIMS Alarm Printer has not printed out any unexpected valve positions or conditions.

7.1.4 Perform an annunciator check on each of the Control Room Panels and confirm horns/sirens sound and annunciator windows illuminate/flash properly.

REFERENCE ONLY

7.1.5 Perform checks on all Control Room, SANSOE Tour Area, and NSAO Tour Area recorders. Checks shall include ensuring recorders are inking, paper advancing and, in general, functioning properly. Enter date and time on recorder charts.

| | | | |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| Performed by: | Date: | Time: | |

REFERENCE ONLY

## 8.0 ACCEPTANCE CRITERIA

8.1 If this STP is performed for any reason other than for satisfying the PURPOSE as stated in Section 1.0, indicate below (otherwise mark this step "N/A"):

_____

_____

_____

_____

8.2 If a DCF, Procedure Work Request (PWR) or Action Request (AR) was written due to problems encountered with the performance of this procedure, list the applicable number(s) below and attach a copy of each to this procedure. ("N/A" blocks as appropriate.)

DCF No. _____ PWR No. _____ AR No. _____

DCF No. _____ PWR No. _____ AR No. _____

8.3 All Technical-Specification-required items, as indicated by "TS", have been performed satisfactorily:

8.3.1 Attachment 1 Shift 1 ( ) YES ( ) NO ➡ OSS notified _____

8.3.2 Attachment 1 Shift 2 ( ) YES ( ) NO ➡ OSS notified _____

8.4 All other items checked in this test have been performed satisfactorily:

8.4.1 Attachment 1 Shift 1 ( ) YES ( ) NO ➡ OSS notified _____

8.4.2 Attachment 1 Shift 2 ( ) YES ( ) NO ➡ OSS notified _____

8.5 Indicate any relevant test comments below, otherwise mark this step "N/A":

_____

_____

_____

_____

REFERENCE ONLY

8.6 All checks reviewed for completeness by a second licensed operator:

8.6.1 Shift 1 Panel Checks _____

8.6.2 Shift 2 Panel Checks _____

8.7 All checks reviewed for completeness by an OSS:

8.7.1 Shift 1 Panel Checks _____

8.7.2 Shift 2 Panel Checks _____

_____ _____
Operations Date

_____ _____
Surveillance Coordinator Date

## 9.0 ATTACHMENTS

9.1 Attachment 1 - SHIFTLY PANEL CHECKS

REFERENCE ONLY

## NITROGEN CONTROL
## 1C35

| DESCRIPTION | EQUIP ID | FEATURE | DESIRED | SHIFT 1 | SHIFT 2 | | REMARKS |
|---|---|---|---|---|---|---|---|
| Suct Inboard Isol | CV-4378A | Ind Light | R | R | | | (TS) |
| Torus Discharge Isol | CV-4371C | Ind Light | R | R | | | (TS) |
| Suct Outboard Isol | CV-4378B | Ind Light | R | R | | | (TS) |
| Containment $N_2$ Supply | CV-4371A | Ind Light | R | R | | | (TS) |
| CV 4371A Group 3 Override | S583B | HS | N | N | | | |
| A CAD Inboard DW Upper | SV-4332A | Ind Light | G | G | | | (TS) |
| A CAD Inboard Torus North | SV-4334A | Ind Light | G | G | | | (TS) |
| A CAD Supply PCV Inlet | MO-4323A | Ind Light | G | G | | | (TS) |
| A CAD Supply PCV Outlet | MO-4320A | Ind Light | G | G | | | (TS) |
| A CAD Outboard DW Upper | SV-4332B | Ind Light | G | G | | | (TS) |
| A CAD Outboard Torus North | SV-4334B | Ind Light | G | G | | | (TS) |
| B CAD Inboard DW Lower | SV-4331A | Ind Light | G | G | | | (TS) |
| B CAD Inboard Torus West | SV-4333A | Ind Light | G | G | | | (TS) |
| B CAD Supply PCV Inlet | MO-4323B | Ind Light | G | G | | | (TS) |
| B CAD Supply PCV Outlet | MO-4320B | Ind Light | G | G | | | (TS) |
| B CAD Outboard DW Lower | SV-4331B | Ind Light | G | G | | | (TS) |
| B CAD Outboard Torus West | SV-4333B | Ind Light | G | G | | | (TS) |

REFERENCE ONLY

**HPCI**
**1C03**

| DESCRIPTION | EQUIP ID | FEATURE | DESIRED | SHIFT 1 | SHIFT 2 | | REMARKS |
|---|---|---|---|---|---|---|---|
| HPCI Inbd Steam Line Isol | MO-2238 | Ind Light | R | | | | (TS) |
| HPCI Outbd Steam Line Isol | MO-2239 | Ind Light | R | | | | (TS) |
| Turbine Steam Supply | MO-2202 | Ind Light | G | | | | (TS) |
| Turbine Stop Vlv | HV-2201 | Ind Light | G | | | | (TS) |
| Turbine Cont Vlv | HV-2200 | Ind Light | G | | | | (TS) |
| HPCI Steam Line Drain Isol | CV-2211 | Ind Light | R | | | | |
| | | HS | A | | | | |
| HPCI Steam Line Drain Isol | CV-2212 | Ind Light | R | | | | |
| | | HS | A | | | | |
| Inbd Torus Suction Isol | MO-2321 | Ind Light | G | | | | (TS) |
| Outbd Torus Suction Isol | MO-2322 | Ind Light | G | | | | (TS) |
| CST Suction | MO-2300 | Ind Light | R | | | | (TS) |
| Condensate Pump | 1P-219 | Ind Light | G | | | | |
| Closed Radwaste Disch Isol | CV-2234 | Ind Light | R | | | | |
| | | HS | A | | | | |
| Closed Radwaste Disch Isol | CV-2235 | Ind Light | G | | | | |
| | | HS | A | | | | |
| Lube Oil & Condenser Clg Supply | MO-2247 | Ind Light | G | | | | |
| Exhaust Drain Pot Drain | SV-2219 | HS | A | | | | |
| Vacuum Pump | 1P-233 | Ind Light | G | | | | |
| | | HS | A | | | | |
| Min Flow Bypass | MO-2318 | Ind Light | G | | | | (TS) |
| Emergency Torus Fill Permissive | HS-2318A | HS | N | | | | |
| HPCI/RCIC Turb Exhaust Vacuum Bkr | MO-2290B | Ind Light | R | | | | (TS) |
| HPCI/RCIC Turb Exhaust Vacuum Bkr | MO-2290A | Ind Light | R | | | | (TS) |
| Aux Oil Pump | 1P-218 | Ind Light | G | | | | |
| | | HS | A | | | | |

REFERENCE ONLY

**HPCI**
**1C03**
**(Continued)**

| DESCRIPTION | EQUIP ID | FEATURE | DESIRED | SHIFT 1 | SHIFT 2 | | REMARKS |
|---|---|---|---|---|---|---|---|
| Flow Control | FIC-2309 | Select Sw | A | | | | |
| | | Tape | ≥ 3100 | | | | |
| | | Output Meter | ≥ 100% | | | | |
| Pump Discharge | MO-2311 | Ind Light | R | | | | (TS) |
| HPCI Inject | MO-2312 | Ind Light | G | | | | (TS) |
| Test Bypass | CV-2315 | Ind Light | G | | | | (TS) |
| Redundant Shutoff | MO-2316 | Ind Light | G | | | | (TS) |
| Turbine Speed Test Select | HS-2257 | HS | N | | | | |
| AC Power to Turb Spd Test Ckt | HS-2258 | HS | Off | | | | |

**B CORE SPRAY**
**1C03**

| DESCRIPTION | EQUIP ID | FEATURE | DESIRED | SHIFT 1 | SHIFT 2 | | REMARKS |
|---|---|---|---|---|---|---|---|
| Inbd Torus Suct | MO-2146 | Ind Light | R | | | | (TS) |
| Outbd Torus Suct | MO-2120 | Ind Light | R | | | | (TS) |
| B Core Spray Pump | 1P-211B | Ind Light | G | | | | |
| | | Bkr Charged Light | W | | | | |
| | | Flag | G | | | | |
| Min Flow Bypass | MO-2124 | Ind Light | R | | | | (TS) |
| Test Bypass | MO-2132 | Ind Light | G | | | | (TS) |
| Outbd Inject | MO-2135 | Ind Light | R | | | | (TS) |
| Inbd Inject | MO-2137 | Ind Light | G | | | | (TS) |
| Manual Isolation | V-21-43 (ZS-2143) | Ind Light | R | | | | |

REFERENCE ONLY

**PASS**
**1C03**
**(Side A)**

| DESCRIPTION | EQUIP ID | FEATURE | DESIRED | SHIFT 1 | SHIFT 2 | | REMARKS |
|---|---|---|---|---|---|---|---|
| Outbd RHR Sample Iso Override | HS-2052A | HS | N | N | | | |
| Inbd RHR Sample Isol Override | HS-2051A | HS | N | N | | | |
| Inbd Liq Sample Return To Torus | SV-8772A | Ind Light | G | G | | | (TS) |
| Inbd Loop A Jet Pump Sample Isol | SV-4594A | Ind Light | G | G | | | (TS) |
| Outbd Loop A Jet Pump Sample Isol | SV-4595A | Ind Light | G | G | | | (TS) |

**PASS**
**1C03**
**(Side B)**

| DESCRIPTION | EQUIP ID | FEATURE | DESIRED | SHIFT 1 | SHIFT 2 | | REMARKS |
|---|---|---|---|---|---|---|---|
| Outbd RHR Sample Iso Override | HS-1973A | HS | N | N | | | |
| Inbd RHR Sample Isol Override | HS-1972A | HS | N | N | | | |
| Outbd Liq Sample Return To Torus Isol | SV-8772B | Ind Light | G | G | | | (TS) |
| Inbd Loop B Jet Pump Sample Isol | SV-4594B | Ind Light | G | G | | | (TS) |
| Outbd Loop B Jet Pump Sample Isol | SV-4595B | Ind Light | G | G | | | (TS) |

REFERENCE ONLY

**B RHR**
**1C03**

| DESCRIPTION | EQUIP ID | FEATURE | DESIRED | SHIFT 1 | SHIFT 2 | | REMARKS |
|---|---|---|---|---|---|---|---|
| Torus Suction | MO-1989 | Ind Light | R | R | | | (TS) |
| B Pump Torus Suction | MO-1913 | Ind Light | R | R | | | (TS) |
| B Pump Shutdown Clg Suction | MO-1912 | Ind Light | G | G | | | (TS) |
| D Pump Shutdown Clg Suction | MO-1920 | Ind Light | G | G | | | (TS) |
| D Pump Torus Suction | MO-1921 | Ind Light | R | R | | | (TS) |
| D RHR Pump | 1P-229D | Ind Light | G | G | | | |
| | | Bkr Charged Light | W | W | | | |
| | | Flag | G | G | | | |
| Min Flow Bypass | MO-1935 | Ind Light | G | G | | | (TS) |
| B RHR Pump | 1P-229B | Ind Light | G | G | | | |
| | | Bkr Charged Light | W | W | | | |
| | | Flag | G | G | | | |
| B HX Inlet | MO-1939 | Ind Light | R | R | | | (TS) |
| B Heat Exch Outlet | MO-1941 | Ind Light | R | R | | | (TS) |
| B Heat Exch Bypass | MO-1940 | Ind Light | R | R | | | (TS) |
| Inbd RHR Sample Isol | SV-1972 | Ind Light | G | G | | | |
| Outbd RHR Sample Isol | SV-1973 | Ind Light | G | G | | | |
| B RHR Hx Shell Outbd Vent | MO-1949A | Ind Light | G | G | | | (TS) |
| B RHR Hx Shell Inbd Vent | MO-1949B | Ind Light | G | G | | | (TS) |
| Outbd Torus Clg/Spray | MO-1932 | Ind Light | G | G | | | (TS) |
| | | HS | CL | CL | | | |
| Torus Cooling/Test | MO-1934 | Ind Light | G | G | | | (TS) |
| Torus Spray | MO-1933 | Ind Light | G | G | | | (TS) |
| Outbd Drywell Spray | MO-1903 | Ind Light | G | G | | | (TS) |
| Inbd Drywell Spray | MO-1902 | Ind Light | G | G | | | (TS) |
| | | HS | CL | CL | | | |
| Inbd RHR Drain To RW Isol | MO-1937 | Ind Light | G | G | | | (TS) |
| Shutdown Cooling 135# Interlock Enable | HS-1937A | HS | TC Note 1 | TC | | | |
| Outbd RHR Drain To RW Thrtl Isol | MO-1936 | Ind Light | G | G | | | (TS) |

Note 1: If RHR is in shutdown cooling mode, HS-1937A shall be in SHUTDN CLG (SDC) position. In all other RHR modes, HS-1937A shall be in TORUS CLG (TC) position.

REFERENCE ONLY

**B RHR (cont'd)**
**1C03**

| DESCRIPTION | EQUIP ID | FEATURE | DESIRED | SHIFT 1 | SHIFT 2 | | REMARKS |
|---|---|---|---|---|---|---|---|
| RHR Manual Xtie Valve | V-19-48 | Ind Light | R | R | | | |
| Outbd Inject | MO-1904 | Ind Light | R | R | | | (TS) |
| Inbd Inject Isol | MO-1905 | Ind Light | G | G | | | (TS) |
| Manual Isolation | V-19-147 (ZS-1907) | Ind Light | R | R | | | |
| Manual Isolation Shutdown Clg Isol | V-19-148 (ZS-1993) | Ind Light | R | R | | | |
| Inbd Shutdown Clg Isol | MO-1908 | Ind Light | G | G | | | (TS) |
| Outbd Shutdown Clg Isol | MO-1909 | Ind Light | G | G | | | (TS) |

**A RHR**
**1C03**

| DESCRIPTION | EQUIP ID | FEATURE | DESIRED | SHIFT 1 | SHIFT 2 | | REMARKS |
|---|---|---|---|---|---|---|---|
| Torus Suction | MO-2069 | Ind Light | R | R | | | (TS) |
| A Pump Torus Suction | MO-2012 | Ind Light | R | R | | | (TS) |
| A Pump Shutdown Clg Suction | MO-2011 | Ind Light | G | G | | | (TS |
| C Pump Shutdown Clg Suction | MO-2016 | Ind Light | G | G | | | (TS) |
| C Pump Torus Suction | MO-2015 | Ind Light | R | R | | | (TS) |
| C RHR Pump | 1P-229C | Ind Light | G | G | | | |
| | | Bkr Charged Light | W | W | | | |
| | | Flag | G | G | | | |
| Min Flow Bypass | MO-2009 | Ind Light | G | G | | | (TS) |
| A RHR Pump | 1P-229A | Ind Light | G | G | | | |
| | | Bkr Charged Light | W | W | | | |
| | | Flag | G | G | | | |
| A HX Inlet | MO-2029 | Ind Light | R | R | | | (TS) |
| A Heat Exch Outlet | MO-2031 | Ind Light | R | R | | | (TS) |
| A Heat Exch Bypass | MO-2030 | Ind Light | R | R | | | (TS) |
| Inbd RHR Sample Isol | SV-2051 | Ind Light | G | G | | | |
| Outbd RHR Sample Isol | SV-2052 | Ind Light | G | G | | | |
| A RHR HX Shell Outbd Vent | MO-2044A | Ind Light | G | G | | | (TS) |
| A RHR HX Shell Inbd Vent | MO-2044B | Ind Light | G | G | | | (TS) |
| Outbd Torus Clg/Spray | MO-2005 | Ind Light | G | G | | | (TS) |
| | | HS | CL | CL | | | |

REFERENCE ONLY

**A RHR (cont'd)**
**1C03**

| DESCRIPTION | EQUIP ID | FEATURE | DESIRED | SHIFT 1 | SHIFT 2 | | REMARKS |
|---|---|---|---|---|---|---|---|
| Torus Cooling/Test | MO-2007 | Ind Light | G | G | | | (TS) |
| Torus Spray | MO-2006 | Ind Light | G | G | | | (TS) |
| Outbd Drywell Spray | MO-2001 | Ind Light | G | G | | | (TS) |
| Inbd Drywell Spray | MO-2000 | Ind Light | G | G | | | (TS) |
| | | HS | CL | CL | | | |
| RHR Crosstie | MO-2010 | Ind Light | R | R | | | (TS) |
| Outbd Inject | MO-2004 | Ind Light | R | R | | | (TS) |
| Inbd Inject Isol | MO-2003 | Ind Light | G | G | | | (TS) |
| Manual Isolation | V-20-81 (ZS-2008) | Ind Light | R | R | | | |

**A RHRSW**
**1C03**

| DESCRIPTION | EQUIP ID | FEATURE | DESIRED | SHIFT 1 | SHIFT 2 | | REMARKS |
|---|---|---|---|---|---|---|---|
| A RHRSW Pump | 1P-22A | Ind Light | G | G | | | |
| | | Bkr Charged Light | W | W | | | |
| | | Flag | G | G | | | |
| C RHRSW Pump | 1P-22C | Ind Light | G | G | | | |
| | | Bkr Charged Light | W | W | | | |
| | | Flag | G | G | | | |
| RHRSW to RHR ΔP MO-2046 Control | PDIC-2046 | Select Sw | A | A | | | (TS) |
| | | Tape | ≥ 20 | 18 | | | (TS) |
| MO-2046 Pump Run Intlk Override | HS-2046 | HS | N | N | | | |
| A & C RHRSW Pumps LOCA Trip Override | HS-2059 | HS | A | A | | | |

**RHRSW (Common)**
**1C03**

| DESCRIPTION | EQUIP ID | FEATURE | DESIRED | SHIFT 1 | SHIFT 2 | | REMARKS |
|---|---|---|---|---|---|---|---|
| RHRSW to RHR Crosstie | MO-1942 | Ind Light | G | G | | | (TS) |
| RHRSW Pumps A & C Crosstie | MO-1943A | Ind Light | G | G | | | (TS) |
| RHRSW Pumps B & D Crosstie | MO-1943B | Ind Light | G | G | | | (TS) |

REFERENCE ONLY

**B RHRSW**
**1C03**

| DESCRIPTION | EQUIP ID | FEATURE | DESIRED | SHIFT 1 | SHIFT 2 | | REMARKS |
|---|---|---|---|---|---|---|---|
| B RHRSW Pump | 1P-22B | Ind Light | G | G | | | |
| | | Bkr Charged Light | W | W | | | |
| | | Flag | G | G | | | |
| D RHRSW Pump | 1P-22D | Ind Light | G | G | | | |
| | | Bkr Charged Light | W | W | | | |
| | | Flag | G | G | | | |
| RHRSW to RHR ΔP MO-1947 Control | PDIC-1947 | Select Sw | A | A | | | (TS) |
| | | Tape | ≥ 20 | 19 | | | (TS) |
| MO-1947 Pump Run Intlk Override | HS-1947B | HS | N | N | | | |
| B & D RHRSW Pumps LOCA Trip Override | HS-1959 | HS | A | A | | | |

**A CORE SPRAY**
**1C03**

| DESCRIPTION | EQUIP ID | FEATURE | DESIRED | SHIFT 1 | SHIFT 2 | | REMARKS |
|---|---|---|---|---|---|---|---|
| Inbd Torus Suction | MO-2147 | Ind Light | R | R | | | (TS) |
| Outbd Torus Suction | MO-2100 | Ind Light | R | R | | | (TS) |
| A Core Spray Pump | 1P-211A | Ind Light | G | G | | | |
| | | Bkr Charged Light | W | W | | | |
| | | Flag | G | G | | | |
| Min Flow Bypass | MO-2104 | Ind Light | R | R | | | (TS) |
| Test Bypass | MO-2112 | Ind Light | G | G | | | (TS) |
| Outbd Inject | MO-2115 | Ind Light | R | R | | | (TS) |
| Inbd Inject | MO-2117 | Ind Light | G | G | | | (TS) |
| Manual Isolation | V-21-42 (ZS-2142) | Ind Light | R | R | | | |

REFERENCE ONLY

**ADS**
**1C03**

| DESCRIPTION | EQUIP ID | FEATURE | DESIRED | SHIFT 1 | SHIFT 2 | | REMARKS |
|---|---|---|---|---|---|---|---|
| A Logic ADS Timer Reset | HS-4461 | HS | RST | RST | | | |
| B Logic ADS Timer Reset | HS-4462 | HS | RST | RST | | | |
| ADS PSV-4400 | PSV-4400 | Ind Light | G | G | | | |
| ADS PSV-4402 | PSV-4402 | Ind Light | G | G | | | |
| ADS PSV-4405 | PSV-4405 | Ind Light | G | G | | | |
| ADS PSV-4406 | PSV-4406 | Ind Light | G | G | | | |
| LLS PSV-4401 | PSV-4401 | Ind Light | G | G | | | |
| LLS PSV-4407 | PSV-4407 | Ind Light | G | G | | | |

**PCIS**
**1C03**

| DESCRIPTION | EQUIP ID | FEATURE | DESIRED | SHIFT 1 | SHIFT 2 | | REMARKS |
|---|---|---|---|---|---|---|---|
| Containment Vent Path Select (1C-05) | A71B-S34 | HS | N | N | | | |
| Inbd Torus Vent Isol | CV-4300 | Ind Light | G | G | | | (TS) |
| | | HS | CL | CL | | | |
| Outbd Torus Vent Isol | CV-4301 | Ind Light | G | G | | | (TS) |
| | | HS | CL | CL | | | |
| Inbd Torus Vent Bypass Isol | CV-4309 | Ind Light | G | G | | | (TS) |
| | | HS | CL | CL | | | |
| Inbd Drywell Vent Isol | CV-4302 | Ind Light | G | G | | | (TS) |
| | | HS | CL | CL | | | |
| Outbd Drywell Vent Isol | CV-4303 | Ind Light | G | G | | | (TS) |
| | | HS | CL | CL | | | |
| Inbd DW Vent Bypass Isol | CV-4310 | Ind Light | G | G | | | (TS) |
| | | HS | CL | CL | | | |
| Outbd Cont Purge Supply Isol | CV-4306 | Ind Light | G | G | | | (TS) |
| | | HS | CL | CL | | | |
| Inbd DW Purge Inlet Isol | CV-4307 | Ind Light | G | G | | | (TS) |
| | | HS | CL | CL | | | |
| Inbd Torus Purge Inlet Isol | CV-4308 | Ind Light | G | G | | | (TS) |
| | | HS | CL | CL | | | |
| Cont $N_2$ Make-up Supply Isol | CV-4311 | Ind Light | R | R | | | (TS) |
| | | HS | A-OP | A-OP | | | |
| DW Make-up Inlet Isol | CV-4312 | Ind Light | G or R | G | | | (TS) |
| | | HS | A-OP | A-OP | | | |
| Torus $N_2$ Make-up Inlet Isol | CV-4313 | Ind Light | G or R | G | | | (TS) |
| | | HS | A-OP | A-OP | | | |

REFERENCE ONLY

**PCIS (cont'd)**
**1C03**

| DESCRIPTION | EQUIP ID | FEATURE | DESIRED | SHIFT 1 | SHIFT 2 | | REMARKS |
|---|---|---|---|---|---|---|---|
| Inbd Torus Vent | MO-4309A | Ind Light | R | R | | | |
| Inbd Drywell Vent | MO-4310A | Ind Light | R | R | | | |
| Hard Pipe Vent | CV-4357 | Ind Light | G | G | | | |
| SBGT Inlet Relief Discharge (PCIS Mimic) | 1V-AD-0110 | Ind Light | G | G | | | |

**RB TO TORUS VACUUM BKRS**
**1C03**

| DESCRIPTION | EQUIP ID | FEATURE | DESIRED | SHIFT 1 | SHIFT 2 | | REMARKS |
|---|---|---|---|---|---|---|---|
| External Vacuum Bkr Isol | CV-4304 | Ind Light (above HS) | G | G | | | (TS) |
| Vacuum Bkr (PCIS Mimic) | ZS-4329 | Ind Light | G | G | | | |
| External Vacuum Bkr Isol | CV-4305 | Ind Light (above HS) | G | G | | | (TS) |
| Vacuum Bkr (PCIS Mimic) | ZS-4330 | Ind Light | G | G | | | |

**INBOARD MSIVs & MSL DRN**
**1C03**

| DESCRIPTION | EQUIP ID | FEATURE | DESIRED | SHIFT 1 | SHIFT 2 | | REMARKS |
|---|---|---|---|---|---|---|---|
| Inbd Main Steam Line Drain | MO-4423 | Ind Light | G | G | | | (TS) |
| A Inbd MSIV Control | CV-4412 | Ind Light | R | R | | | (TS) |
| B Inbd MSIV Control | CV-4415 | Ind Light | R | R | | | (TS) |
| C Inbd MSIV Control | CV-4418 | Ind Light | R | R | | | (TS) |
| D Inbd MSIV Control | CV-4420 | Ind Light | R | R | | | (TS) |

**OUTBOARD MSIVs & MSL DRN**
**1C04**

| DESCRIPTION | EQUIP ID | FEATURE | DESIRED | SHIFT 1 | SHIFT 2 | | REMARKS |
|---|---|---|---|---|---|---|---|
| Outbd Main Steam Line Drain | MO-4424 | Ind Light | G | G | | | (TS) |
| A Outbd MSIV Control | CV-4413 | Ind Light | R | R | | | (TS) |
| B Outbd MSIV Control | CV-4416 | Ind Light | R | R | | | (TS) |
| C Outbd MSIV Control | CV-4419 | Ind Light | R | R | | | (TS) |
| D Outbd MSIV Control | CV-4421 | Ind Light | R | R | | | (TS) |

REFERENCE ONLY

**RCIC**
**1C04**

| DESCRIPTION | EQUIP ID | FEATURE | DESIRED | SHIFT 1 | SHIFT 2 | | REMARKS |
|---|---|---|---|---|---|---|---|
| RCIC Inbd Steam Line Isol | MO-2400 | Ind Light | R | R | | | (TS) |
| RCIC Outbd Steam Line Isol | MO-2401 | Ind Light | R | R | | | (TS) |
| Turbine Steam Supply | MO-2404 | Ind Light | G | G | | | (TS) |
| Turbine Stop Valve | MO-2405 | Ind Light | R | R | | | (TS) |
| Turbine Stop Valve Motor Control | MO-2405 | Ind Light | R | R | | | (TS) |
| Turbine Control Valve | HV-2406 | Ind Light | R | R | | | (TS) |
| RCIC Steam Line Drain Isol | CV-2410 | Ind Light | R | R | | | |
| | | HS | A | A | | | |
| RCIC Steam Line Drain Isol | CV-2411 | Ind Light | R | R | | | |
| | | HS | A | A | | | |
| Inbd Torus Suction | MO-2516 | Ind Light | G | G | | | (TS) |
| Outbd Torus Suction | MO-2517 | Ind Light | G | G | | | (TS) |
| CST Suction | MO-2500 | Ind Light | R | R | | | (TS) |
| Condensate Pump | 1P-228 | Ind light | G | G | | | |
| Closed Radwaste Disch Isol | CV-2435 | Ind Light | G | G | | | |
| | | HS | A | A | | | |
| Closed Radwaste Disch Isol | CV-2436 | Ind Light | R | R | | | |
| | | HS | A | A | | | |
| Lube Oil Cooler Supply | MO-2426 | Ind Light | G | G | | | |
| Vacuum Pump | 1P-227 | Ind Light | G | G | | | |
| | | HS | A | A | | | |
| Min Flow Bypass | MO-2510 | Ind Light | G | G | | | (TS) |
| Turbine Speed Test Select | HS-2462C | HS | N | N | | | |
| AC Power to Turbine Speed Test Ckt | HS-2462B | HS | Off | OFF | | | |
| Flow Control | FIC-2509 | Select Sw | A | A | | | |
| | | Tape | ≥ 415 | 415 | | | |
| | | Output Meter | ≥ 100% | 100 | | | |
| Pump Discharge | MO-2511 | Ind Light | R | R | | | (TS) |
| RCIC Inject | MO-2512 | Ind Light | G | G | | | (TS) |
| Test Bypass | MO-2515 | Ind Light | G | G | | | (TS) |

REFERENCE ONLY

## DRYWELL SUMPS
## 1C04

| DESCRIPTION | EQUIP ID | FEATURE | DESIRED | SHIFT 1 | SHIFT 2 | | REMARKS |
|---|---|---|---|---|---|---|---|
| Inbd DW Equip Drain Isol | CV-3728 | Ind Light | R | | | | (TS) |
| | | HS | OP | | | | |
| Outbd DW Equip Drain Isol | CV-3729 | Ind Light | R | | | | (TS) |
| | | HS | OP | | | | |
| Inbd DW Floor Drain Isol | CV-3704 | Ind Light | R | | | | (TS) |
| | | HS | OP | | | | |
| Outbd DW Floor Drain Isol | CV-3705 | Ind Light | R | | | | (TS) |
| | | HS | OP | | | | |

## RWCU
## 1C04

| DESCRIPTION | EQUIP ID | FEATURE | DESIRED | SHIFT 1 | SHIFT 2 | | REMARKS |
|---|---|---|---|---|---|---|---|
| Inbd Cleanup Suct Isol | MO-2700 | Ind Light | R | | | | (TS) |
| Outbd Cleanup Suct Isol | MO-2701 | Ind Light | R | | | | (TS) |
| Cleanup Outbd Return Isol | MO-2740 | Ind Light | R | | | | (TS) |
| Cleanup Drain to Main Condenser | MO-2731 | Ind Light | G | | | | |
| Cleanup Drain to Radwaste | MO-2732 | Ind Light | G | | | | |

## RX HEAD VENT AND RECIRC
## 1C04

| DESCRIPTION | EQUIP ID | FEATURE | DESIRED | SHIFT 1 | SHIFT 2 | | REMARKS |
|---|---|---|---|---|---|---|---|
| Outbd RX Head Vent | CV-4429 | Ind Light | G | | | | |
| Inbd RX Head Vent | CV-4428 | Ind Light | G | | | | |
| A Pump Mini Purge Isol | CV-1804A | Ind Light | R | | | | (TS) |
| B Pump Mini Purge Isol | CV-1804B | Ind Light | R | | | | (TS) |
| Outbd Loop Sample Isol | CV-4640 | Ind Light | R | | | | (TS) |
| | | HS | A-OP | | | | |
| Inbd Loop Sample Isol | CV-4639 | Ind Light | R | | | | (TS) |
| | | HS | A-OP | | | | |
| CV-4640 Gp 1 Isol Override | HS-4640A | HS | N | | | | |
| CV-4639 Gp 1 Isol Override | HS-4639A | HS | N | | | | |
| A MG SET SPEED CONTROL | SIC-9245A | AUTO/MAN Ind Light | G | | | | |
| | | Display Ind Light | S | | | | |
| B MG SET SPEED CONTROL | SIC-9245B | AUTO/MAN Ind Light | G | | | | |
| | | Display Ind Light | S | | | | |

REFERENCE ONLY

## SCRAM DISCHARGE VOLUME
## 1C05

| DESCRIPTION | EQUIP ID | FEATURE | DESIRED | SHIFT 1 | SHIFT 2 | | REMARKS |
|---|---|---|---|---|---|---|---|
| SDV Vent | CV-1859B | Ind Light | R | R | | | (TS) |
| SDV Vent | CV-1859A | Ind Light | R | R | | | (TS) |
| SDV Drain | CV-1867B | Ind Light | R | R | | | (TS) |
| SDV Drain | CV-1867A | Ind Light | R | R | | | (TS) |
| Vent & Drain Valve Control | HS-1870 | HS | N | N | | | |
| High Water Level Bypass | C71A-S4 | HS | N | N | | | |

## SBLC
## 1C05

| DESCRIPTION | EQUIP ID | FEATURE | DESIRED | SHIFT 1 | SHIFT 2 | | REMARKS |
|---|---|---|---|---|---|---|---|
| Manual Isolation | V-26-32 (ZS-2615) | Ind Light | R | R | | | |
| Squib Valve Ready | XS2618A | Continuity Light | W | W | | | (TS) |
| Squib Valve Ready | XS2618B | Continuity Light | W | W | | | (TS) |
| A SBLC Pump | 1P-230A | Ind Light | G | G | | | |
| B SBLC Pump | 1P-230B | Ind Light | G | G | | | |
| Pump & Squib Valve Control | HS-2613 | HS | Stop | STOP | | | |

## RBCCW
## 1C06

| DESCRIPTION | EQUIP ID | FEATURE | DESIRED | SHIFT 1 | SHIFT 2 | | REMARKS |
|---|---|---|---|---|---|---|---|
| RBCCW Drywell Inlet | MO-4841B | Ind Light | R | R | | | (TS) |
| RBCCW Drywell Outlet | MO-4841A | Ind Light | R | R | | | (TS) |

## WELL WATER TO CHILLER
## 1C06

| DESCRIPTION | EQUIP ID | FEATURE | DESIRED | SHIFT 1 | SHIFT 2 | | REMARKS |
|---|---|---|---|---|---|---|---|
| Well Water From B Chiller | MO-2078 | Ind Light | R | R | | | |
| Well Water To B Chiller | MO-2039B | Ind Light | R | R | | | |
| B ESW/RHRSW Discharge To Clg Towers | MO-1998B | Ind Light | R | R | | | (TS) |
| Well Water From A Chiller | MO-2077 | Ind Light | R | R | | | |
| Well Water To A Chiller | MO-2039A | Ind Light | R | R | | | |
| A ESW/RHRSW Discharge To Clg Towers | MO-1998A | Ind Light | R | R | | | (TS) |

REFERENCE ONLY

**RWS**
**1C06**

| DESCRIPTION | EQUIP ID | FEATURE | DESIRED | SHIFT 1 | SHIFT 2 | | REMARKS |
|---|---|---|---|---|---|---|---|
| A RWS Pump Note 2 | 1P-117A | Ind Light | R or G | R | | | |
| | | HS | A | A | | | |
| C RWS Pump Note 2 | 1P-117C | Ind Light | R or G | G | | | |
| | | HS | A | A | | | |
| Load Shed Auto Start RWS Pump Select | HSS-2911A Note 3 | HS | Pump A or C | C | | | |
| Start Permissive | 1P-117A | Start Permissive Light | W or DE | DE | | | |
| Start Permissive | 1P-117C | Start Permissive Light | W or DE | W | | | |
| B RWS Pump ~~Note 2~~ | 1P-117B | Ind Light | R or G | G | | | |
| | | HS | A | A | | | |
| D RWS Pump Note 2 | 1P-117D | Ind Light | R or G | G | | | |
| | | HS | A | A | | | |
| Load Shed Auto Start RWS Pump Select | HSS-2911B Note 3 | HS | Pump B or D | D | | | |
| Start Permissive | 1P-117B | Start Permissive Light | W or DE | W | | | |
| Start Permissive | 1P-117D | Start Permissive Light | W or DE | W | | | |
| A RWS to RW Dilution | CV-4910A | Ind Light | R | R | | | (TS) |
| B RWS to RW Dilution | CV-4910B | Ind Light | R | R | | | (TS) |
| A RWS Make-up | CV-4915 | Ind Light | G, R or B | G | | | (TS) |
| | | HS | A | A | | | (TS) |
| B RWS Make-up | CV-4914 | Ind Light | G, R or B | R | | | (TS) |
| | | HS | A | A | | | (TS) |
| Radwaste Dilution Flow | CV-4909 | Ind Light | G or R | G | | | (TS) |

Note 2: At least one RWS pump should be running when plant is operating. All RWS pumps may be secured as required when plant is shut down.

Note 3: Should be selected to an operable non-running pump, if available.

REFERENCE ONLY

## ESW
## 1C06

| DESCRIPTION | EQUIP ID | FEATURE | DESIRED | SHIFT 1 | SHIFT 2 | | REMARKS |
|---|---|---|---|---|---|---|---|
| A ESW Pump | 1P-99A | Ind Light | G | G | | | |
| B ESW Pump | 1P-99B | Ind Light | G | G | | | |

## ELECTRICAL DISTRIBUTION
## 1C08

| DESCRIPTION | EQUIP ID | FEATURE | DESIRED | SHIFT 1 | SHIFT 2 | | REMARKS |
|---|---|---|---|---|---|---|---|
| A Diesel Generator 1G-31 Stop Relay Reset | 1G-31 | Ind Light | W | W | | | |
| A Diesel Generator 1G-31 Control | HS-3231A | HS | A | A | | | |
| A Diesel Oil Transfer Pump 1P-44A | HS-3201 | HS | A | A | | | |
| B Diesel Generator 1G-21 Stop Relay Reset | 1G-21 | Ind Light | W | W | | | |
| B Diesel Generator 1G-21 Control | HS-3231B | HS | A | A | | | |
| B Diesel Oil Transfer Pump 1P-44B | HS-3202 | HS | A | A | | | |
| A Diesel Generator 1G-31 Bkr | 1A311 | Ind Light | G | G | | | |
| | | Bkr Charged Light | W | W | | | |
| | | Flag | G | G | | | |
| B Diesel Generator 1G-21 Bkr | 1A411 | Ind Light | G | G | | | |
| | | Bkr Charged Light | W | W | | | |
| | | Flag | G | G | | | |

## 4160 BUS TRANSFER
## 1C08

| DESCRIPTION | EQUIP ID | FEATURE | DESIRED | SHIFT 1 | SHIFT 2 | | REMARKS |
|---|---|---|---|---|---|---|---|
| Bus 1A1 Transfer | | HS | A | A | | | |
| Bus 1A3 Transfer | | HS | A | A | | | |
| Bus 1A4 Transfer | | HS | A | A | | | |
| Bus 1A2 Transfer | | HS | A | A | | | |

REFERENCE ONLY

## CONTROL BLDG HVAC
## 1C26

| DESCRIPTION | EQUIP ID | FEATURE | DESIRED | SHIFT 1 | SHIFT 2 | | REMARKS |
|---|---|---|---|---|---|---|---|
| Battery Exhaust Fan Note 4 | 1V-EF-30A | Ind Light | R | | | | |
| | | HS | On-A | | | | |
| Battery Exhaust Fan Note 4 | 1V-EF-30C | Ind Light | G or R | | | | |
| | | HS | Off-A or On-A | | | | |
| Battery Exhaust Fan Note 4 | 1V-EF-30B | Ind Light | G or R | | | | |
| | | HS | Off-A or On-A | | | | |
| Battery Exhaust Fans Note 4 | 1V-EF-30A, B, or C | At least one fan operating | SAT | | | | (TM) |
| Intake Isolation Damper | 1V-AD-30A | Ind Light | R | | | | |
| Intake Isolation Damper | 1V-AD-30B | Ind Light | R | | | | |
| A Control Room Supply Fan | 1V-AC-30A | Ind Light | G or R | | | | |
| B Control Room Supply Fan | 1V-AC-30B | Ind Light | G or R | | | | |
| A Control Room Return Fan | 1V-RF-30A | Ind Light | G or R | | | | |
| B Control Room Return Fan | 1V-RF-30B | Ind Light | G or R | | | | |
| Recirc & Exhaust Isol Damper | 1V-AD-31A | Ind Light | G, R or B | | | | |
| Exhaust Isolation Damper | 1V-AD-31B | Ind Light | R | | | | |

Note 4: Per OI 730, after an isolation only 1V-EF-30B or C shall be running. If flow from the battery rooms is not limited to 100 CFM following an isolation, the control room SFU may not be able to maintain the control room at a positive pressure. Therefore, to maintain positive pressure during a Control Building Isolation, only one Battery Exhaust Fan 1V-EF-30B or 1V-EF-30C shall be running.

## A SFU
## 1C26

| DESCRIPTION | EQUIP ID | FEATURE | DESIRED | SHIFT 1 | SHIFT 2 | | REMARKS |
|---|---|---|---|---|---|---|---|
| A SFU Mode Select | HS-7316A | HS | A | | | | |
| A SFU Lockout Relay | L/R-7315A | HS | RST | | | | |
| A SFU Flow Control AV-7318A | FIC-7320A | Select Sw | A | | | | |
| | | Tape | 1000 ± 100 | | | | |
| | | Output Meter | ≥ 98% | | | | |
| A SFU Fan | 1V-SF-30A | Ind Light | G | | | | |
| Discharge Valve | AV-7318A | Ind Light | G | | | | |
| Filter Exhaust Fan | 1V-EF-36A | Ind Light | G | | | | |
| Electric Heater | EC-7304A | Ind Light | G | | | | |
| Intake Viv | AV-7301A | Ind Light | G | | | | |
| A SFU Total Run Time | SFU Run Time Log | Total Run Time | < 720 hours | | | | Only required if A SFU is in operation, otherwise N/A |

REFERENCE ONLY

## B SFU
## 1C26

| DESCRIPTION | EQUIP ID | FEATURE | DESIRED | SHIFT 1 | SHIFT 2 | | REMARKS |
|---|---|---|---|---|---|---|---|
| B SFU Mode Sel | HS-7316B | HS | A | | | | |
| B SFU Lockout Relay | L/R 7315B | HS | RST | | | | |
| B SFU Flow Control AV-7318B | FIC-7320B | Select Sw | A | | | | |
| | | Tape | 1000 ± 100 | | | | |
| | | Output Meter | ≥ 98% | | | | |
| B SFU Fan | 1V-SF-30B | Ind Light | G | | | | |
| Discharge Valve | AV-7318B | Ind Light | G | | | | |
| Filter Exhaust Fan | 1V-EF-36B | Ind Light | G | | | | |
| Electric Heater | EC-7304B | Ind Light | G | | | | |
| Intake Viv | AV-7301B | Ind Light | G | | | | |
| B SFU Total Run Time | SFU Run Time Log | Total Run Time | < 720 hours | | | | Only required if B SFU is in operation, otherwise N/A |

## CONTROL BLDG COOLING
## 1C26

| DESCRIPTION | EQUIP ID | FEATURE | DESIRED | SHIFT 1 | SHIFT 2 | | REMARKS |
|---|---|---|---|---|---|---|---|
| Non-Essential Cooling Loop Control 'A' | HS-6920A | HS | CL or A | | | | |
| A Control Bldg Chiller Note 5 | 1V-CH-1A | Ind Light | G or R | | | | |
| | | HS | PTL or A | | | | |
| Chilled Water Pump | 1V-CP-30A | Ind Light | G or R | | | | |
| B Control Bldg Chiller Note 5 | 1V-CH-1B | Ind Light | G or R | | | | |
| | | HS | PTL or A | | | | |
| Chilled Water Pump | 1V-CP-30B | Ind Light | G or R | | | | |
| Non-Essential Cooling Loop Control 'B' | HS-6920B | HS | CL or A | | | | |

Note 5: One Control Bldg Chiller and its associated Chilled Water Pump should always be running. AUTO HS position is not labeled.

REFERENCE ONLY

## SECONDARY CONTAINMENT ISOLATION DAMPERS

1C23

| DESCRIPTION | EQUIP ID | FEATURE | DESIRED | SHIFT 1 | SHIFT 2 | | REMARKS |
|---|---|---|---|---|---|---|---|
| RW Bldg To Torus Area Isol Damper | 1V-AD-42A | Ind Light | R | R | | | |
| RW Bldg To Torus Area Isol Damper | 1V-AD-42B | Ind Light | R | R | | | |
| RW Bldg To Mach Shop Isol Damper | 1V-AD-52A | Ind Light | R | R | | | |
| RW Bldg To Mach Shop Isol Damper | 1V-AD-52B | Ind Light | R | R | | | |
| Mach Shop To Torus Area Isol Damper | 1V-AD-51A | Ind Light | R | R | | | |
| Mach Shop To Torus Area Isol Damper | 1V-AD-51B | Ind Light | R | R | | | |
| Supply Air To Rx Bldg Isol Damper | 1V-AD-17A3 | Ind Light | R | R | | | |
| Supply Air To Rx Bldg Isol Damper | 1V-AD-17B3 | Ind Light | R | R | | | |
| Supply Air To Rx Bldg Isol Damper | 1V-AD-17A2 | Ind Light | R | R | | | |
| Supply Air To Rx Bldg Isol Damper | 1V-AD-17B2 | Ind Light | R | R | | | |
| Supply Air To Rx Bldg Isol Damper | 1V-AD-17A1 | Ind Light | R | R | | | |
| Supply Air To Rx Bldg Isol Damper | 1V-AD-17B1 | Ind Light | R | R | | | |
| 1V-EF-13A/B Disch To OG Stack Isol Damper | 1V-AD-15A | Ind Light | R | R | | | |
| 1V-EF-13A/B Disch To OG Stack Isol Damper | 1V-AD-15B | Ind Light | R | R | | | |
| Retention Bldg To Rx Bldg Isol Damper | 1V-AD-19A | Ind Light | R | R | | | |
| Retention Bldg To Rx Bldg Isol Damper | 1V-AD-19B | Ind Light | R | R | | | |
| Outside Air To RW Bldg Isol Damper | 1V-AD-44A | Ind Light | R | R | | | |
| Outside Air To RW Bldg Isol Damper | 1V-AD-44B | Ind Light | R | R | | | |
| Rx Bldg Exh Fan Inlet Isol Damper | 1V-AD-13A | Ind Light | R | R | | | |
| Rx Bldg Exh Fan Inlet Isol Damper | 1V-AD-13B | Ind Light | R | R | | | |

REFERENCE ONLY

## SECONDARY CONTAINMENT ISOLATION DAMPERS
## 1C23
## (Continued)

| DESCRIPTION | EQUIP ID | FEATURE | DESIRED | SHIFT 1 | SHIFT 2 | | REMARKS |
|---|---|---|---|---|---|---|---|
| Rx Bldg to SBGT Inlet Vlv | AV-7602A | Ind Light | G | G | | | |
| Rx Bldg to SBGT Inlet Vlv | AV-7602B | Ind Light | G | G | | | |
| Refuel Pool to Vent Shaft Inlet Vlv | AV-7604V | Ind Light | G | G | | | |
| Refuel Pool to SBGT Inlet Vlv | AV-7604U | Ind Light | G | G | | | |
| OG Retention Bldg to SBGT Isol Vlv | AV-7605A | Ind Light | R | R | | | |
| OG Retention Bldg to SBGT Isol Vlv | AV-7605B | Ind Light | R | R | | | |
| Refuel Pool Exh Fan Inlet Isol Damper | 1V-AD-14A | Ind Light | R | R | | | |
| Refuel Pool Exh Fan Inlet Isol Damper | 1V-AD-14B | Ind Light | R | R | | | |

REFERENCE ONLY

## SAFETY SYSTEMS HVAC
## 1C23

| DESCRIPTION | EQUIP ID | FEATURE | DESIRED | SHIFT 1 | SHIFT 2 | | REMARKS |
|---|---|---|---|---|---|---|---|
| A RHR/CS Rm Clg Unit | 1V-AC-12 | Ind Light | G or R | R | | | |
| | | HS | A or Start | A | | | |
| HPCI Room Clg Unit | 1V-AC-14A | Ind Light | G or R | R | | | |
| | | HS | A or Start | A | | | |
| RCIC Room Clg Unit | 1V-AC-15A | Ind Light | G or R | R | | | |
| | | HS | A or Start | A | | | |
| A Diesel Gen 1G-31 Rm Outside Air Intake Damper | ZS-7000A1 | Ind Light | G | G | | | |
| A Diesel Gen 1G-31 Rm Exhaust Air Louvers | ZS-7002A1/A3 | Ind Light | G | G | | | |
| A Diesel Gen 1G-31 Rm Supply Fan | 1V-SF-20 | Ind Light | G | G | | | |
| B RHR/CS Rm Clg Unit | 1V-AC-11 | Ind Light | G or R | R | | | |
| | | HS | A or Start | A | | | |
| HPCI Room Clg Unit | 1V-AC-14B | Ind Light | G or R | R | | | |
| | | HS | A or Start | A | | | |
| RCIC Room Clg Unit | 1V-AC-15B | Ind Light | G or R | R | | | |
| | | HS | A or Start | A | | | |
| B Diesel Gen 1G-21 Rm Outside Air Intake Damper | ZS-7000B1 | Ind Light | G | G | | | |
| B Diesel Gen 1G-21 Rm Exhaust Air Louvers | ZS-7002B1/B3 | Ind Light | G | G | | | |
| B Diesel Gen 1G-21 Rm Supply Fan | 1V-SF-21 | Ind Light | G | G | | | |

## DRYWELL COOLING
## 1C25

| DESCRIPTION | EQUIP ID | FEATURE | DESIRED | SHIFT 1 | SHIFT 2 | | REMARKS |
|---|---|---|---|---|---|---|---|
| Loop A Supply | CV-5718A | Ind Light | R | R | | | (TS) |
| Loop A Return | CV-5704A | Ind Light | R | R | | | (TS) |
| Loop A Mode Select | HS-5718A | HS | Start | START | | | |
| Group 7 Channel A DW Cooling And Fan Speed Override | HS-4321A | HS | N | N | | | |
| Loop B Supply | CV-5718B | Ind Light | R | R | | | (TS) |
| Loop B Return | CV-5704B | Ind Light | R | R | | | (TS) |
| Loop B Mode Select | HS-5718B | HS | Start | START | | | |
| Group 7 Channel B DW Cooling And Fan Speed Override | HS-4321B | HS | N | N | | | |

REFERENCE ONLY

## A STANDBY GAS TREATMENT
## 1C24

| DESCRIPTION | EQUIP ID | FEATURE | DESIRED | SHIFT 1 | SHIFT 2 | | REMARKS |
|---|---|---|---|---|---|---|---|
| A SBGT Mode Select | HS-5814A | HS | A | A | | | |
| Inboard Isolation Lockout Relay | L/R-5830A | Lockout Relay | RST | RST | | | |
| Cooldown/Outside Air Vlv | AV-5801A | Ind Light | G | G | | | |
| Intake Valve | AV-5825A | Ind Light | R | R | | | |
| Constant Heater | EC-5805A | Ind Light | G | G | | | |
| | HS-5805A | HS | On | ON | | | |
| Fan Inlet Valve | AV-5815A | Ind Light | R | R | | | |
| Exhaust Fan | 1V-EF-15A | Ind Light | G | G | | | |
| Discharge Valve | AV-5817A | Ind Light | R | R | | | |
| Variable Heater ΔT Controller | DTIC-5805A | Ind Light | G | G | | | |
| | | Select Sw | A | A | | | |
| | | Tape | 16° | 16° | | | |
| | | Output Meter | ≥ 100% | 100 | | | |
| Inlet Air Flow Controller | FIC-5828A | Select Sw | A | A | | | |
| | | Tape | 3800 ± 20 | 3800 | | | |
| | | Output Meter | ≥ 100% | 100 | | | |
| OG Stack Exh fan | 1V-EF-18A | Ind Light | G or R | R | | | |
| A SBGT Total Run Time | SBGT Run Time Log | Total Run Time | < 720 hours | NA | | | Only required if A SBGT is in operation, otherwise N/A |

## B STANDBY GAS TREATMENT
## 1C24

| DESCRIPTION | EQUIP ID | FEATURE | DESIRED | SHIFT 1 | SHIFT 2 | | REMARKS |
|---|---|---|---|---|---|---|---|
| B SBGT Mode Select | HS-5814B | HS | A | A | | | |
| Outboard Isolation Lockout Relay | L/R-5830B | Lockout Relay | RST | RST | | | |
| Cooldown/Outside Air Vlv | AV-5801B | Ind Light | G | G | | | |
| Intake Valve | AV-5825B | Ind Light | R | R | | | |
| Constant Heater | EC-5805B | Ind Light | G | G | | | |
| | HS-5805B | HS | On | ON | | | |
| Fan Inlet Valve | AV-5815B | Ind Light | R | R | | | |
| Exhaust Fan | 1V-EF-15B | Ind Light | G | G | | | |
| Discharge Valve | AV-5817B | Ind Light | R | R | | | |
| Variable Heater ΔT Controller | DTIC-5805B | Ind Light | G | G | | | |
| | | Select Sw | A | A | | | |
| | | Tape | 16° | 16° | | | |
| | | Output Meter | ≥ 100% | 100 | | | |
| Inlet Air Flow Controller | FIC-5828B | Select Sw | A | A | | | |
| | | Tape | 3800 ± 20 | 3800 | | | |
| | | Output Meter | ≥ 100% | 100 | | | |
| OG Stack Exh Fan | 1V-EF-18B | Ind Light | G or R | G | | | |
| B SBGT Total Run Time | SBGT Run Time Log | Total Run Time | < 720 hours | NA | | | Only required if B SBGT is in operation, otherwise N/A |

REFERENCE ONLY

## PASS VALVES
## 1C24

| DESCRIPTION | EQUIP ID | FEATURE | DESIRED | SHIFT 1 | SHIFT 2 | | REMARKS |
|---|---|---|---|---|---|---|---|
| PASS Sample Station Exh Isol Valve | AV-8773A | Ind Light | R | R | | | |
| PASS Sample Station Exh Isolation Override | HS-8773A | HS | N | N | | | |
| PASS Sample Station Exh Isol Valve | AV-8773B | Ind Light | R | R | | | |
| PASS Sample Station Exh Isolation Override | HS-8773B | HS | N | N | | | |

## CONTAINMENT MONITORING
## 1C29

| DESCRIPTION | EQUIP ID | FEATURE | DESIRED | SHIFT 1 | SHIFT 2 | | REMARKS |
|---|---|---|---|---|---|---|---|
| Inbd Loop A Jet Pump Sample Isol | SV-4594A | Ind Light | G | | | | (TS) |
| | | HS | RST | | | | |
| Outbd Loop A Jet Pump Sample Isol | SV-4595A | Ind Light | G | | | | (TS) |
| | | HS | RST | | | | |
| Inbd Liq Sample Return To Torus Isol | SV-8772A | Ind Light | G | | | | (TS) |
| | | HS | RST | | | | |
| DW Torus Rad Monitor 1C219A (One Sample Point Selected) | Torus | Ind Light | On/Off | | | | |
| | Drywell #1 | Ind Light | On/Off | | | | |
| | Drywell #2 | Ind Light | On/Off | | | | |
| Sample Flow Trouble | | Ind Light | Off | | | | |
| Outboard Sample Isolation Valves | HS-8101A | HS | A | | | | |
| Inboard Sample Isolation Valves | HS-8100A | HS | A | | | | |
| Inbd Loop B Jet Pump Sample Isol | SV-4594B | Ind Light | G | | | | (TS) |
| | | HS | RST | | | | |
| Outbd Loop B Jet Pump Sample Isol | SV-4595B | Ind Light | G | | | | (TS) |
| | | HS | RST | | | | |
| Outbd Liq Sample Return To Torus Isol | SV-8772B | Ind Light | G | | | | (TS) |
| | | HS | RST | | | | |
| DW Torus Rad Monitor 1C219B (One Sample Point Selected) | Torus | Ind Light | On/Off | | | | |
| | Drywell #1 | Ind Light | On/Off | | | | |
| | Drywell #2 | Ind Light | On/Off | | | | |
| Sample Flow Trouble | | Ind Light | Off | | | | |
| Inboard Sample Isolation Valves | HS-8100B | HS | A | | | | |
| Outboard Sample Isolation Valves | HS-8101B | HS | A | | | | |

REFERENCE ONLY

## OFFGAS
## 1C34

| DESCRIPTION | EQUIP ID | FEATURE | DESIRED | SHIFT 1 | SHIFT 2 | | REMARKS |
|---|---|---|---|---|---|---|---|
| Offgas System Bypass Switch | HS-1378A | HS | N | N | | | |

## SBLC SQUIB VALVES
## 1C05(back of panel, right side of center section)

| DESCRIPTION | EQUIP ID | FEATURE | DESIRED | SHIFT 1 | SHIFT 2 | | REMARKS |
|---|---|---|---|---|---|---|---|
| Squib Continuity Meter | KY-2611 | Meter | ≥ 2 ma | 1.5 | | | (TS) |
| Squib Continuity Meter | KY-2612 | Meter | ≥ 2 ma | 1.5 | | | (TS) |

## OVERRIDES
## 1C04

| DESCRIPTION | EQUIP ID | FEATURE | DESIRED | SHIFT 1 | SHIFT 2 | | REMARKS |
|---|---|---|---|---|---|---|---|
| RHR Logic Bypass Switch | HS-4690B | HS | N | N | | | |
| RHR Logic Bypass Switch | HS-4690A | HS | N | N | | | |

## TIP SQUIB VALVES
## 1C13

| DESCRIPTION | EQUIP ID | FEATURE | DESIRED | SHIFT 1 | SHIFT 2 | | REMARKS |
|---|---|---|---|---|---|---|---|
| Channel A Valve Control | Squib Monitor | Amber Light | OFF | OFF | | | (TS) |
| | Ball Valve | Ind Light | G | G | | | (TS) |
| Channel B Valve Control | Squib Monitor | Amber Light | OFF | OFF | | | (TS) |
| | Ball Valve | Ind Light | G | G | | | (TS) |
| Channel C Valve Control | Squib Monitor | Amber Light | OFF | OFF | | | (TS) |
| | Ball Valve | Ind Light | G | G | | | (TS) |

## STEAM LEAK DETECTION OVERRIDES
## 1C21

| DESCRIPTION | EQUIP ID | FEATURE | DESIRED | SHIFT 1 | SHIFT 2 | | REMARKS |
|---|---|---|---|---|---|---|---|
| A RCIC Temp Isol Override/Test | B21B-S5A | HS | N | N | | | |
| A HPCI Temp Isol Override/Test | B21B-S6A | HS | N | N | | | |
| B RCIC Temp Isol Override/Test | B21B-S5B | HS | N | N | | | |
| B HPCI Temp Isol Override/Test | B21B-S6B | HS | N | N | | | |

REFERENCE ONLY

## OVERRIDES
## 1C18

| DESCRIPTION | EQUIP ID | FEATURE | DESIRED | SHIFT 1 | SHIFT 2 | | REMARKS |
|---|---|---|---|---|---|---|---|
| RWCU Hi Diff Flow Isol Override | HS-2749B | HS | N | N | | | |
| RWCU Ambient Temps Isol Override | HS-2764 | HS | N | N | | | |
| RFP Hi RPV Water Level Override | HS-1632 | HS | N | N | | | |

## OVERRIDES
## 1C15

| DESCRIPTION | EQUIP ID | FEATURE | DESIRED | SHIFT 1 | SHIFT 2 | | REMARKS |
|---|---|---|---|---|---|---|---|
| Group 1 Channel A1 All Signals Override | HS-4427A | HS | N | N | | | |
| RPS Channel A1 Override | C71A-S15A | HS | N | N | | | |
| Group 3 Channel A Hi DW And RX Lo Level Override | HS-4315A | HS | N | N | | | |
| Group 3 Channel A All Signals Override | HS-4356A | HS | N | N | | | |
| RPS Alternate Power Transfer C71B-S1A | A-MG | In Light | W | W | | | |
| | ALT XFMR | In Light | W | W | | | |
| Group 1 Channel A1 Reactor Lo-Lo-Lo Level Override | HS-4535 | HS | N | N | | | |
| Group 1 Channel A2 Reactor Lo-Lo-Lo Level Override | HS-4536 | HS | N | N | | | |
| RPS Channel A2 Override | C71A-S15C | HS | N | N | | | |
| Group 1 Channel A2 All Signals Override | HS-4427C | HS | N | N | | | |
| Bypass Switch, Channel A2 | HS-4463B | HS | N | N | | | |
| Bypass Switch, Channel A1 | HS-4463A | HS | N | N | | | |
| Bypass Switch, Channel A1 | HS-4566A | HS | N | N | | | |
| Bypass Switch, Channel A2 | HS-4566B | HS | N | N | | | |

REFERENCE ONLY

## OVERRIDES
## 1C17

| DESCRIPTION | EQUIP ID | FEATURE | DESIRED | SHIFT 1 | SHIFT 2 | | REMARKS |
|---|---|---|---|---|---|---|---|
| Group 1 Channel B1 All Signals Override | HS-4427B | HS | N | N | | | |
| RPS Channel B1 Override | C71A-S15B | HS | N | N | | | |
| Group 3 Channel B Hi DW And RX Lo Level Override | HS-4315B | HS | N | N | | | |
| Group 3 Channel B All Signals Override | HS-4356B | HS | N | N | | | |
| RPS Alternate Power Transfer C71B-S1B | B-MG | In Light | W | W | | | |
| | ALT XFMR | In Light | W | W | | | |
| Group 1 Channel B1 Reactor Lo-Lo-Lo Level Override | HS-4537 | HS | N | N | | | |
| Group 1 Channel B2 Reactor Lo-Lo-Lo Level Override | HS-4538 | HS | N | N | | | |
| RPS Channel B2 Override | C71A-S15D | HS | N | N | | | |
| Group 1 Channel B2 All Signals Override | HS-4427D | HS | N | N | | | |
| Bypass Switch, Channel B2 | HS-4463D | HS | N | N | | | |
| Bypass Switch, Channel B1 | HS-4463C | HS | N | N | | | |
| Bypass Switch, Channel B1 | HS-4566C | HS | N | N | | | |
| Bypass Switch, Channel B2 | HS-4566D | HS | N | N | | | |

## OVERRIDES
## 1C19

| DESCRIPTION | EQUIP ID | FEATURE | DESIRED | SHIFT 1 | SHIFT 2 | | REMARKS |
|---|---|---|---|---|---|---|---|
| RWCU Hi Diff Flow Isol Override | HS-2749A | HS | N | N | | | |
| RWCU Ambient Temps Isol Override | HS-2765 | HS | N | N | | | |

REFERENCE ONLY

## OVERRIDES
## 1C30

| DESCRIPTION | EQUIP ID | FEATURE | DESIRED | SHIFT 1 | SHIFT 2 | | REMARKS |
|---|---|---|---|---|---|---|---|
| Lo Stm Press Isol Override | E51A-SA | HS | N | N | | | |
| MO2401 Auto Open Signal and RPV Hi Level Override | HS-2437 | HS | N | N | | | |

## OVERRIDES
## 1C39

| DESCRIPTION | EQUIP ID | FEATURE | DESIRED | SHIFT 1 | SHIFT 2 | | REMARKS |
|---|---|---|---|---|---|---|---|
| HPCI Torus Hi Level Suction Transfer | HS-2319 | HS | N | N | | | |
| HPCI Logic B Lo Stm Line Press, Hi Wtr Lvl & MO2239 Auto Open Override | HS-2229B | HS | N | N | | | |
| CST Lo Level Bypass Switch | HS-5249A | HS | N | N | | | |

## OVERRIDES
## 1C33

| DESCRIPTION | EQUIP ID | FEATURE | DESIRED | SHIFT 1 | SHIFT 2 | | REMARKS |
|---|---|---|---|---|---|---|---|
| RCIC Lo Stm Press Isol Override | E51A-SB | HS | N | N | | | |
| Group 5 Outboard Isolation Override | HS-2710B | HS | N | N | | | |
| Group 2 MO1937 Isolation Override | HS-1937B | HS | N | N | | | |
| MO2400 Auto Open Signal Override | HS-2400A | HS | N | N | | | |

REFERENCE ONLY

## OVERRIDES
## 1C32

| DESCRIPTION | EQUIP ID | FEATURE | DESIRED | SHIFT 1 | SHIFT 2 | | REMARKS |
|---|---|---|---|---|---|---|---|
| Group 5 Inboard Isolation Override | HS-2710A | HS | N | N | | | |
| Group 2 MO1936 Isolation Override | HS-1936A | HS | N | N | | | |
| CV4300 Hard Pipe Vent Alt Pwr/PCIS Override | HS-4300A | HS | N | N | | | |
| HPCI Logic A Lo Stm Line Press & MO2238 Auto Open Override | HS-2229A | HS | N | N | | | |

## SAFETY PARAMETER
## 1C407A

| DESCRIPTION | EQUIP ID | FEATURE | DESIRED | SHIFT 1 | SHIFT 2 | | REMARKS |
|---|---|---|---|---|---|---|---|
| SPDS Video Display Check - all displays viewed | Top Level | Computer Displays | SAT | | | | |
| | Second Level | Computer Displays | SAT | | | | |
| | Third Level | Computer Displays | SAT | | | | |

## PCIS STATUS BOARD
## 1C04

| DESCRIPTION | EQUIP ID | FEATURE | DESIRED | SHIFT 1 | SHIFT 2 | | REMARKS |
|---|---|---|---|---|---|---|---|
| CIMS A Logic Power Available | | Ind Light | W | | | | |
| CIMS B Logic Power Available | | Ind Light | W | | | | |
| CIMS Panel | | Check | No Isol | No Isol | | | |
| CIMS Lamp Test | | Test | SAT | SAT | | | |
| A Logic PCIS Status Board Alarming Typer | 1st | Check | SAT | SAT | | | |
| | 2nd | Check | SAT | SAT | | | |
| B Logic PCIS Status Board Alarming Typer | 1st | Check | SAT | SAT | | | |
| | 2nd | Check | SAT | SAT | | | |

REFERENCE ONLY

## ANNUNCIATORS

| DESCRIPTION | EQUIP ID | FEATURE | DESIRED | SHIFT 1 | SHIFT 2 | | REMARKS |
|---|---|---|---|---|---|---|---|
| Annunciators | 1C40A | Check | SAT | SAT | | | |
| | 1C40 | Check | SAT | SAT | | | |
| | 1C14 | Check | SAT | SAT | | | |
| | 1C35A | Check | SAT | SAT | | | |
| | 1C35B | Check | SAT | SAT | | | |
| | Seismic Alm | Check | SAT | SAT | | | |
| | 1C03 | Check | SAT | SAT | | | |
| | 1C04 | Check | SAT | SAT | | | |
| | 1C05 | Check | SAT | SAT | | | |
| | 1C06 | Check | SAT | SAT | | | |
| | 1C07 | Check | SAT | SAT | | | |
| | 1C08 | Check | SAT | SAT | | | |
| | 1C09B | Check | SAT | SAT | | | |
| | 1C09A | Check | SAT | SAT | | | |
| | 1C26A | Check | SAT | SAT | | | |
| | 1C26B | Check | SAT | SAT | | | |
| | 1C22 | Check | SAT | SAT | | | |
| | 1C23A | Check | SAT | SAT | | | |
| | 1C23B | Check | SAT | SAT | | | |
| | 1C23C | Check | SAT | SAT | | | |
| | 1C25A | Check | SAT | SAT | | | |
| | 1C25B | Check | SAT | SAT | | | |
| | 1C24A | Check | SAT | SAT | | | |
| | 1C24B | Check | SAT | SAT | | | |
| | 1C34 | Check | SAT | SAT | | | |

## RECORDERS

| DESCRIPTION | EQUIP ID | FEATURE | DESIRED | SHIFT 1 | SHIFT 2 | | REMARKS |
|---|---|---|---|---|---|---|---|
| Recorders | Control Room | Check | SAT | SAT | | | |
| | SANSAO Tour Area | Check | SAT | SAT | | | |
| | NSAO Tour Area | Check | SAT | SAT | | | |

REFERENCE ONLY

A.1.b.(S)

# *DUANE ARNOLD ENERGY CENTER*

## JOB PERFORMANCE MEASURE

**NUMBER: 2.1.7-03 (G2.1.7)**

**TASK NUMBER: SRO 1.02**

**TITLE: Actions to Return MOV to Operable Status**

**Rev. 2**

| | | |
|---|---|---|
| DEVELOPED BY: | Michael Fisher<br>Instructor | 3/23/2001<br>Date |
| VALIDATED BY: | [signature]<br>SME/Instructor | 3/29/01<br>Date |
| REVIEWED BY: | Paul D Hansen<br>Plant Reviewer | 3-30-2001<br>Date |
| APPROVED BY: | [signature] for<br>Training Supervisor-Operations | 4/2/01<br>Date |

# DUANE ARNOLD ENERGY CENTER

## JOB PERFORMANCE MEASURE

| | | |
|---|---|---|
| **JPM No.** 2.1.7-03 | **JPM Description:** Actions to return MOV to operable status | |
| **Task No.** 1.02 | **Task Description:** Determine operability for technical specification required components | |
| **K/A Reference:** PWG | 2.1.7 (4.4) | |
| APPLICABLE METHOD OF TESTING: SRO | | |
| Simulate Performance | Actual Performance X | |
| Simulator X | In-Plant | Control Room |
| Time for Completion: 10 minutes | | |

# JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

**NOTE**

All steps of this checklist should be performed upon initial validation. Prior to JPM usage, revalidate JPM using steps 7 through 10.

JPM No. 2.1.7-03 JPM Title Actions to return MOV to operable status

✓ 1. Task description and number, JPM description and number are identified

✓ 2. Task elements identified and K/A references are included

✓ 3. Performance location specified

a. in-plant

b. control room

c. simulator

✓ 4. Initial conditions and cues identified

a. setup, required materials, and procedure

b. malfunctions and instructor actions

c. initiating and terminating cues

✓ 5. Task standards identified and verified by SME review

✓ 6. Critical tasks/steps identified meet criteria and identified with a "C"

✓ 7. Verify JPM steps fit the most current procedures
Procedure Rev. 63 Date 2/8/01

✓ 8. Pilot test JPM

a. verify cues both verbal and visual are free of conflict

b. ensure performance time is accurate

9. If the JPM cannot be performed as written with proper responses, then revise the JPM

____ 10. When JPM is revalidated, SME/Instructor signs and dates JPM

SME/Instructor Date

SME/Instructor Date

SME/Instructor Date

**SIMULATOR SETUP:**

IC: None

**EVENT TRIGGERS:**

None

**MALFUNCTIONS:**

None

**OVERRIDES:**

None

**REMOTE FUNCTIONS:**

None

**INSTRUCTOR ACTIONS:**

1. Obtain a copy of OI 151 Attachment 6, fill out and add the additional information from Step 2 in the margin, sign the Completed By and Reviewed By signature blocks.

2. Add the following statement handwritten in the margin beside MO-2115: MO-2115 was declutched and opened an additional 1/8 of a turn in order to receive the OPEN light.

**TASK STANDARDS:**

1. Applicant does not sign the Ready For S/U block.

2. Seven Day LCO time clock started.

3. IPOI 7, Section 7.2 reviewed and corrective action commenced

**REQUIRED MATERIALS:**

OI-151, Attachment 6 completed and signed off UP TO the Ready for S/U OSS signature block.

**GENERAL REFERENCES:**

IPOI 7, 7.2, Manually Backseating A Motor Operated Valve

DAEC, Technical Specifications, 3.5, page 3.5-1

**Read to the operator the following information:**

**INITIAL CONDITIONS:**

1. You are on shift as the OSS and IPOI 1, Startup Checklist, is in progress.

2. The plant is in Mode 3.

**INITIATING CUES:**

As the Shift Manager, I am directing you to complete the review of this Core Spray System Control Panel Lineup and sign the Ready for S/U block when your review is complete.

**This task is not time critical.**

**Inform the evaluator when you have completed the task.**

## PERFORMANCE INFORMATION

| NOTE: |
|---|
| Critical steps are denoted with a "C". Failure to meet the standard for this step constitutes failure. |

Time Start _____

| | |
|---|---|
| PERFORMANCE STEP:<br>Critical: C | Core Spray System Control Panel Lineup, OI-151A6 (Attachment 6 of OI-151), is reviewed and the information in the margin beside MO-2115 is found. |
| STANDARD: | Applicant reviews the Core Spray Control Panel Lineup, ATT. 6 of OI 151, discovers the information in the margin beside MO-2115 and does not sign the Ready for S/U signature block. |
| COMMENTS:<br><br>CUE: When the Applicant communicates this to you, as the Shift Manager, direct him/her to carry out any additional requirements. | |

| | |
|---|---|
| PERFORMANCE STEP:<br>Critical: C | IPOI 7, Section 2.0 (3) the valve must be declared INOP. This INOP status also includes one loop of Core Spray. |
| STANDARD: | Applicant declares MO-2115 INOP. |
| COMMENTS: | |

CUE: If the Applicant wants to initiate an Action Request (AR), inform him/her that the AR will be completed by the STA when all determinations have been made.

| | |
|---|---|
| PERFORMANCE STEP:<br>Critical: C | Core Spray is required in Modes 1, 2, & 3. TS 3.5.1.B states that with one loop of CS inoperable, all low pressure ECCS must be operable. As an initial condition, all ECCS systems were operable. Restore to operable within 7 days. |
| STANDARD: | Applicant declares "A" Core Spray Subsystem inoperable and states there is a 7 day completion time (LCO). |
| COMMENTS: | |

| | |
|---|---|
| PERFORMANCE STEP:<br>Critical: C | Return valve M0-2115 to an operable status IAW IPOI 7, Section 7.2, Manually Backseating a Motor Operated Valve, 7.1, Manually Seating a Motor Operated Valve, step (9). |
| STANDARD: | Applicant directs MO-2115 be cycled electrically and timed OR has an operability determination commenced. |
| COMMENTS:<br><br>Evaluator Cue: Inform applicant his/her stated actions are being performed. | |

Time Stop _____

**TERMINATING CUES:**

1. Seven Day LCO time clock started.

2. IPOI 7, Section 7.2 reviewed and corrective action commenced.

## VERIFICATION OF COMPLETION

JPM No.: 2.1.7-03 JPM Description: Actions to return MOV to operable status

Operator: _____ Evaluator: _____

Licensee: ☐ RO ☐ SRO ☐ SRO Cert
☐ STA ☐ NSPEO

Result: ☐ SATISFACTORY ☐ UNSATISFACTORY

**COMMENTS/FEEDBACK:** (Note any trainee discrepancies or misperformed steps.)

_____

_____

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_____

_____ _____
Evaluator's Signature Date

# OI 151 ATTACHMENT 6
# CORE SPRAY SYSTEM
# CONTROL PANEL LINEUP

**NOTE**
This page is to be kept in the Control Room with the Startup Package

I have read and understand the instructions for performance of System Control Panel Lineups.

Signature

Discrepancies:

| Clearance Number | Control Device | Control Panel | Wvd./Rstr. |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

| | | Date | Time |
|---|---|---|---|
| Completed by: | | 2/24/00 | 0930 |
| Reviewed by: | Wayne Rendler<br>Senior Licensed Operator | 2/24/00 | 1040 |
| Ready for S/U: | Operations Shift Supervisor | | |

# OI 151 ATTACHMENT 6

## CORE SPRAY SYSTEM

## CONTROL PANEL LINEUP

| Device Number | Panel | Description | Discrep. | Wvd./ Rstr. | Init. | Req'd. Pos. |
|---|---|---|---|---|---|---|
| MO-2147 | 1C03 | INBD TORUS SUCTION MO-2147 HS-2147 | | | | OP/OP |
| MO-2100 | 1C03 | OUTBD TORUS SUCTION MO-2100 HS-2100 | | | | OP/OP |
| HS-2103 | 1C03 | A CORE SPRAY PUMP 1P-211A | | | | AUTO |
| MO-2104 | 1C03 | MIN FLOW BYPASS MO-2104 | | | | AUTO/ OPEN |
| MO-2112 | 1C03 | TEST BYPASS MO-2112 | | | | AUTO/ CLOSED |
| * MO-2115 | 1C03 | OUTBD INJECT MO-2115 | | | | AUTO/ OPEN |
| MO-2117 | 1C03 | INBD INJECT MO-2117 | | | | AUTO/ CLOSED |
| ZS-2142 | 1C03 | MANUAL ISOLATION V-21-42 | | | | OP |
| MO-2146 | 1C03 | INBD TORUS SUCTION MO-2146 HS-2146 | | | | OP/OP |
| MO-2120 | 1C03 | OUTBD TORUS SUCTION MO-2120 HS-2120 | | | | OP/OP |
| HS-2123 | 1C03 | B CORE SPRAY PUMP 1P-211B | | | | AUTO |

* MO2115 was declutched and opened an additional 1/8 turn in order to receive the open indication.

# OI 151 ATTACHMENT 6

## CORE SPRAY SYSTEM

## CONTROL PANEL LINEUP

| Device Number | Panel | Description | Discrep. | Wvd./ Rstr. | Init. | Req'd. Pos. |
|---|---|---|---|---|---|---|
| MO-2124 | 1C03 | MIN FLOW BYPASS MO-2124 HS-2124 | | | | AUTO/ OPEN |
| MO-2132 | 1C03 | TEST BYPASS MO-2132 HS-2132 | | | | AUTO/ CLOSED |
| MO-2135 | 1C03 | OUTBD INJECT MO-2135 HS-2135 | | | | AUTO/ OPEN |
| MO-2137 | 1C03 | INBD INJECT MO-2137 HS-2137 | | | | AUTO/ CLOSED |
| ZS-2143 | 1C03 | MANUAL ISOLATION V-21-43 | | | | OP |
| E21A-S11A | 1C43 | Essential Bus 1A3 Undervoltage Test (E21A-S11A) | | | | NORM |
| E21A-S12A | 1C43 | Essential Bus 1A3 Undervoltage Test (E21A-S12A) | | | | NORM |
| E21A-S14A | 1C43 | A SBDG Start Test (E21A-S14A) | | | | NORM |
| E21A-S16A (HS-2103A) | 1C43 | 1P-211A SUCTION PATH INTERLOCK (E21A-S16A) | | | | NORM |
| E21A-S11B | 1C44 | Essential Bus 1A4 Undervoltage Test (E21A-S11B) | | | | NORM |
| E21A-S12B | 1C44 | Essential Bus 1A4 Undervoltage Test (E21A-S11B) | | | | NORM |
| E21A-S14B | 1C44 | B SBDG Start Test (E21A-S14B) | | | | NORM |
| E21A-S16B (HS-2123C) | 1C44 | 1P-211B SUCTION PATH INTERLOCK (E21A-S16B) | | | | NORM |

# *DUANE ARNOLD ENERGY CENTER*

## JOB PERFORMANCE MEASURE

**NUMBER: 272000-02**

**TASK NUMBER: 1.07**

**TITLE: Perform Main Steam Line Radiation Monitor Channel Functional Test.**

**Rev. 1**

| | | |
|---|---|---|
| DEVELOPED BY: | Michael Fisher<br>Instructor | 3/23/2001<br>Date |
| VALIDATED BY: | [signature]<br>SME/Instructor | 3/29/01<br>Date |
| REVIEWED BY: | Paul D Hansen<br>Plant Reviewer | 3-30-2001<br>Date |
| APPROVED BY: | [signature] for<br>Training Supervisor-Operations | 4/2/01<br>Date |

# DUANE ARNOLD ENERGY CENTER

## JOB PERFORMANCE MEASURE

| | | | |
|---|---|---|---|
| **JPM No.** 272000-02 | **JPM Description:** Perform Main Steam Line Radiation Monitor Channel Functional Test | | |
| **Task No.** 1.07 | **Task Description:** Perform Surveillance Testing | | |
| **K/A Reference: 272000** | A1.02 (2.9/2.9) 2.2.12 3.0/3.4 | | |
| APPLICABLE METHOD OF TESTING: RO/SRO | | | |
| Simulate Performance | | Actual Performance X | |
| Simulator X | In-Plant | Control Room | |
| Time for Completion: | | | |

# JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

**NOTE**

All steps of this checklist should be performed upon initial validation. Prior to JPM usage, revalidate JPM using steps 7 through 10.

JPM No. 272000-02 JPM Title Perform Main Steam Line Radiation Monitor Channel Functional Test

✓ 1. Task description and number, JPM description and number are identified

✓ 2. Task elements identified and K/A references are included

✓ 3. Performance location specified

   a. in-plant

   b. control room

   c. simulator

✓ 4. Initial conditions and cues identified

   a. setup, required materials, and procedure

   b. malfunctions and instructor actions

   c. initiating and terminating cues

✓ 5. Task standards identified and verified by SME review

✓ 6. Critical tasks/steps identified meet criteria and identified with a "C"

✓ 7. Verify JPM steps fit the most current procedures
Procedure Rev. 2 Date 3/10/99

✓ 8. Pilot test JPM

   a. verify cues both verbal and visual are free of conflict

   b. ensure performance time is accurate

9. If the JPM cannot be performed as written with proper responses, then revise the JPM

____ 10. When JPM is revalidated, SME/Instructor signs and dates JPM

SME/Instructor Date

SME/Instructor Date

SME/Instructor Date

**SIMULATOR SETUP:**

**EVENT TRIGGERS**

None

**MALFUNCTIONS:**

None

**OVERRIDES:**

None

**REMOTE FUNCTIONS:**

None

**INSTRUCTOR ACTIONS:**

1. Read initial conditions and initiating cues to the operator.

**TASK STANDARDS:**

1. MSL RR-4448 RED PEN CHANNEL SELECT RSS-4448A placed to MON A. Step 7.1.3
2. Mode switch placed to ZERO. Step 7.1.5
3. Drawer slid out. Step 7.1.10
4. Mode switch taken to TRIP TEST. Step 7.1.11
5. TRIP ADJUST (R50) adjusted for a reading of 10 on the meter. Step 7.1.12
6. TRIP RESET switch operated. Step 7.1.14
7. INOP INH push-button depressed and held. Step 7.1.16
8. TRIP ADJUST (R50) slowly adjusted clockwise until the UPSCALE HI-HI indicating light is on. Step 7.1.19
9. INOP INH pushbutton released. Step 7.1.22
10. TRIP ADJUST (R50) adjusted counterclockwise for a reading of 10 on the meter. Step 7.1.23
11. Drawer slid into the panel and secured. Step 7.1.24
12. Mode switch placed in OPERATE. Step 7.1.25
13. TRIP RESET switch operated. Step 7.1.26
14. Acceptance Criteria Section completed with no problems noted. Section 8.0
15. STP signed and dated as completed.
16. STP forwarded to OSS for operability determination for RM-4448A.

**REQUIRED MATERIALS:**

STP 3.3.6.1-35

**GENERAL REFERENCES:**

STP 3.3.6.1-35

**Read to the operator the following information:**

**INITIAL CONDITIONS:**

1. Maintenance has been performed on RM-4448A.
2. STP 3.3.6.1-35, Main Steam Line Radiation Monitor Channel Functional Test is to be performed as post maintenance testing for RM-4448A.
3. I will be acting as a second operator assisting you and will only confirm or verify the actions that you direct me to confirm or verify.
4. You are the ANSOE.

**INITIATING CUES:**

As the OSS, I direct you to perform STP 3.3.6.1-35 for RM-4448A.

**This task is not time critical.**

**Inform the evaluator when you have completed the task.**

## PERFORMANCE INFORMATION

| NOTE: |
|---|
| Critical steps are denoted with a "C". Failure to meet the standard for this step constitutes failure. |

Time Start _____

NOTE: **All steps performed must be initialed for successful completion of the JPM.**

| | |
|---|---|
| PERFORMANCE STEP:<br>Critical: | Inform the OSS to record the AOT start time and record start time on STP. |
| STANDARD: | OSS informed to record AOT start time and STP start time recorded. |
| COMMENTS: This step would be N/A due to RM-4448A being Inoperable. | |

| | |
|---|---|
| PERFORMANCE STEP:<br>Critical: | Record meter indication. |
| STANDARD: | Meter indication recorded. |
| COMMENTS: | |

| | |
|---|---|
| PERFORMANCE STEP:<br>Critical: C | At 1C02, place MSL RR-4448 RED PEN CHANNEL SELECT RSS-4448A to MON A. |
| STANDARD: | MSL RR-4448 RED PEN CHANNEL SELECT RSS-4448A placed to MON A. |
| COMMENTS: | |

| | |
|---|---|
| PERFORMANCE STEP:<br>Critical: | Record MAIN STEAM LINE RAD MONITOR RR-4448 red pen reading. |
| STANDARD: | MAIN STEAM LINE RAD MONITOR RR-4448 red pen reading recorded. |
| COMMENTS: | |

| | |
|---|---|
| PERFORMANCE STEP:<br>Critical: C | Place the mode switch to ZERO. |
| STANDARD: | Mode switch placed to ZERO. |
| COMMENTS: | |

| | |
|---|---|
| PERFORMANCE STEP:<br>Critical: | At 1C05, confirm the following annunciators activated:<br>1. MAIN STEAM LINE HI HI RAD/INOP TRIP (1C05B, C-2)<br>2. MAIN STEAM LINE RAD MONITOR DOWNSCALE (1C05B, E-2) |
| STANDARD: | Annunciators are confirmed to be activated. |
| COMMENTS: | |

| | |
|---|---|
| PERFORMANCE STEP:<br>Critical: | Confirm computer point D524, MSL HI HI RAD/INOP TRIP CH A1 TRIP typed out. |
| STANDARD: | Computer point D524, MSL HI HI RAD/INOP TRIP CH A1 TRIP confirmed to be typed out. |
| COMMENTS: If alarm printer is not functioning correctly, inform the operator that alarm point D524 is printed out. | |

| | |
|---|---|
| PERFORMANCE STEP:<br>Critical: | At 1C15, visually confirm relay A71B-K44A PCIS TRIP CHANNEL A1 MAIN STEAM LINE HI RAD de-energized. |
| STANDARD: | A71B-K44A PCIS TRIP CHANNEL A1 MAIN STEAM LINE HI RAD relay visually confirmed to be de-energized. |
| COMMENTS: Cue: The relay fingers are toward us, or the relay fingers are forward. | |

| | |
|---|---|
| PERFORMANCE STEP:<br>Critical: | Confirm the following lights on:<br>1. INOP<br>2. DOWNSCALE |
| STANDARD: | INOP and DOWNSCALE lights are confirmed on. |
| COMMENTS: | |

| | |
|---|---|
| PERFORMANCE STEP:<br>Critical: C | Slide the drawer out for access to the internals. |
| STANDARD: | Drawer slid out. |
| COMMENTS: | |

| | |
|---|---|
| PERFORMANCE STEP:<br>Critical: C | Place the mode switch to TRIP TEST. |
| STANDARD: | Mode switch taken to TRIP TEST. |
| COMMENTS: | |

| | |
|---|---|
| PERFORMANCE STEP:<br>Critical: C | Adjust TRIP ADJUST (R50) for a reading of 10 on the meter. |
| STANDARD: | TRIP ADJUST (R50) adjusted for a reading of 10 on the meter. |
| COMMENTS: | |

| | |
|---|---|
| PERFORMANCE STEP:<br>Critical: | At 1C05, verify MAIN STEAM LINE RAD MONITOR DOWNSCALE annunciator (1C05B, E-2) reset. |
| STANDARD: | MAIN STEAM LINE RAD MONITOR DOWNSCALE annunciator (1C05B, E-2) verified to be reset. |
| COMMENTS: | |

| | |
|---|---|
| PERFORMANCE STEP:<br>Critical: C | Operate the TRIP RESET switch. |
| STANDARD: | TRIP RESET switch operated. |
| COMMENTS: | |

| | |
|---|---|
| PERFORMANCE STEP:<br>Critical: | Confirm the following indicating lights off:<br>1. DOWNSCALE<br>2. UPSCALE HI<br>3. UPSCALE HI HI |
| STANDARD: | DOWNSCALE, UPSCALE HI, UPSCALE HI HI lights are confirmed off. |
| COMMENTS: | |

| | |
|---|---|
| PERFORMANCE STEP:<br>Critical: C | Depress and hold the INOP INH push-button. (until Step 7.1.22) |
| STANDARD: | INOP INH push-button depressed and held. |
| COMMENTS: This is Step 7.1.16. | |

| | |
|---|---|
| PERFORMANCE STEP:<br>Critical: | At 1C05, verify MAIN STEAM LINE HI HI RAD/INOP TRIP annunciator (1C05B, C-2) reset. |
| STANDARD: | MAIN STEAM LINE HI HI RAD/INOP TRIP annunciator (1C05B, C-2) verified reset. |
| COMMENTS: This will have to be done by the evaluator acting as a second operator. | |

| | |
|---|---|
| PERFORMANCE STEP:<br>Critical: | Confirm computer point D524, MSL HI HI RAD/INOP TRIP CH A1 RSET typed out. |
| STANDARD: | Computer point D524, MSL HI HI RAD/INOP TRIP CH A1 RSET confirmed typed out. |
| COMMENTS: This will have to be done by the evaluator acting as a second operator. If alarm printer is not functioning correctly, inform the operator that alarm point D524 is printed out. | |

| | |
|---|---|
| PERFORMANCE STEP:<br>Critical: C | Slowly adjust TRIP ADJUST (R50) clockwise until the UPSCALE HI-HI indicating light is on. |
| STANDARD: | TRIP ADJUST (R50) slowly adjusted clockwise until the UPSCALE HI-HI indicating light is on. |
| COMMENTS: | |

| | |
|---|---|
| PERFORMANCE STEP:<br>Critical: | At 1C05, confirm the following annunciators activated:<br>1. MAIN STEAM LINE HI HI RAD/INOP TRIP (1C05B, C-2)<br>2. MAIN STEAM LINE HI RAD (1C05B, D-2) |
| STANDARD: | Annunciators are confirmed to be activated. |
| COMMENTS: | |

| | |
|---|---|
| PERFORMANCE STEP:<br>Critical: | Confirm the UPSCALE HI indicating light on. |
| STANDARD: | UPSCALE HI indicating light confirmed on. |
| COMMENTS: | |

| | |
|---|---|
| PERFORMANCE STEP:<br>Critical: C | Release the INOP INH pushbutton. |
| STANDARD: | INOP INH pushbutton released. |
| COMMENTS: This is Step 7.1.22. | |

| | |
|---|---|
| PERFORMANCE STEP:<br>Critical: C | Adjust TRIP ADJUST (R50) counterclockwise for a reading of 10 on the meter. |
| STANDARD: | TRIP ADJUST (R50) adjusted counterclockwise for a reading of 10 on the meter. |
| COMMENTS: | |

| | |
|---|---|
| PERFORMANCE STEP:<br>Critical: C | Slide the drawer into the panel and secure. |
| STANDARD: | Drawer slid into the panel and secured. |
| COMMENTS:<br>Note: The simulator Panel can not be secured. | |

| | |
|---|---|
| PERFORMANCE STEP:<br>Critical: C | Place the mode switch in OPERATE. |
| STANDARD: | Mode switch placed in OPERATE. |
| COMMENTS: | |

| | |
|---|---|
| PERFORMANCE STEP:<br>Critical: C | Operate the TRIP RESET switch. |
| STANDARD: | TRIP RESET switch operated. |
| COMMENTS: | |

| | |
|---|---|
| PERFORMANCE STEP:<br>Critical: | Verify all indicating lights off. |
| STANDARD: | All indicating lights verified off. |
| COMMENTS: | |

| | |
|---|---|
| PERFORMANCE STEP:<br>Critical: | At 1C05, verify the following annunciators reset:<br>1. MAIN STEAM LINE HI HI RAD/INOP TRIP (1C05B, C-2)<br>2. MAIN STEAM LINE HI RAD (1C05B, D-2) |
| STANDARD: | Annunciators verified reset. |
| COMMENTS: | |

| | |
|---|---|
| PERFORMANCE STEP:<br>Critical: | At 1C15, visually confirm relay A71B-K44A PCIS TRIP CHANNEL A1 MAIN STEAM LINE HI RAD energized. |
| STANDARD: | A71B-K44A PCIS TRIP CHANNEL A1 MAIN STEAM LINE HI RAD relay confirmed energized. |
| COMMENTS: Cue The relay fingers are back, or the relay fingers are in contact with the contacts. | |

| | |
|---|---|
| PERFORMANCE STEP:<br>Critical: | Confirm RM-4448A meter indicates an acceptable value compared to Step 7.1.2 considering current plant conditions. |
| STANDARD: | RM-4448A meter confirmed to indicate an acceptable value. |
| COMMENTS: | |

| | |
|---|---|
| PERFORMANCE STEP:<br>Critical: | At 1C02, confirm MAIN STEAM LINE RAD MONITOR RR-4448 red pen indicates an acceptable value compared to Step 7.1.4 considering current plant conditions. |
| STANDARD: | MAIN STEAM LINE RAD MONITOR RR-4448 red pen confirmed to indicate an acceptable value. |
| COMMENTS: | |

| | |
|---|---|
| PERFORMANCE STEP:<br>Critical: | Inform the OSS to record the AOT stop time and record stop time. |
| STANDARD: | OSS informed to record the AOT stop time and stop time recorded. |
| COMMENTS: AOT was determined to be N/A in Step 7.1.1. | |

| | |
|---|---|
| PERFORMANCE STEP:<br>Critical: C | Complete the Acceptance Criteria Section of the STP. |
| STANDARD: | Acceptance Criteria Section completed with no problems noted. |
| COMMENTS: | |

| | |
|---|---|
| PERFORMANCE STEP:<br>Critical: C | Sign and date the STP as completed. |
| STANDARD: | STP signed and dated as completed. |
| COMMENTS: | |

| | |
|---|---|
| PERFORMANCE STEP:<br>Critical: C | Forward the STP to the OSS. |
| STANDARD: | STP forwarded to OSS for operability determination for RM-4448A. |
| COMMENTS: | |

Time Stop _____

**TERMINATING CUES:** When the OSS has been given the completed STP.

## VERIFICATION OF COMPLETION

JPM No.: 272000-02 JPM Description: Perform Main Steam Line Radiation Monitor Channel Functional Test

Operator: _____ Evaluator: _____

Licensee: ☐ RO ☐ SRO ☐ SRO Cert
☐ STA ☐ NSPEO

Result: ☐ SATISFACTORY ☐ UNSATISFACTORY

**COMMENTS/FEEDBACK:** (Note any trainee discrepancies or misperformed steps.)

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Evaluator's Signature _____ Date _____

| DAEC<br>DUANE ARNOLD ENERGY CENTER | SURVEILLANCE TEST PROCEDURE<br>TITLE: MAIN STEAM LINE RADIATION MONITOR CHANNEL FUNCTIONAL TEST | STP 3.3.6.1-35<br>Page 1 of 18<br>Rev. 2 |
|---|---|---|

Effective Date: MAR 10 1999

Verified By: _____ Date: 1/27/99
Testing and Surveillance

Validated By: _____ Date: 1-28-99
Operations

Verified By: _____ Date: 2-4-99
System Engineering

Approved By: _____ Date: 2/16/99
Procedures

Reviewed By: _____ for Date: 2/16/99
Operations Committee

Approved By: _____ Date: 2/19/99
Plant Manager, Nuclear

Reference Only

## 1.0 PURPOSE

1.1 The purpose of the Main Steam Line Radiation Monitor Functional Test is to demonstrate operability in accordance with the surveillance requirements of the DAEC Technical Specifications.

1.2 This STP FULLY SATISFIES the requirements in DAEC Technical Specifications, for Main Steam Line Isolation, Main Steam Line Radiation Monitor Channel Functional Test.

## 2.0 SPECIAL PRECAUTIONS

2.1 The performance of this STP will result in 1 of the required 2 signals for the Main Steam Line Drain and Recirculation Loop Sample Valves and Mechanical Vacuum Pump trip in the trip system under test. All instrument channels in the other trip system must be untripped to preclude an unwarranted ISOLATION or Mechanical Vacuum Pump trip.

## 3.0 REFERENCES

3.1 Applicable drawings:

3.1.1 APED A71-003(1)(5)(6)(7)(8)(9)

3.1.2 APED C71-004(4)(6)(7)(14)(15)

3.1.3 APED D11-002(2)(2A)(3)

3.1.4 BECH-E108 (13)

3.1.5 BECH-E122 (2)(5A)

3.1.6 GEK-34654D (G082 LRM)

## 4.0 GENERAL INSTRUCTIONS

4.1 There are four (4) "MSL Radiation Monitors" to be functionally tested within this procedure. Testing is organized as follows:

| Trip System / Instrument | STP Section | AOT |
|---|---|---|
| A1 / RM-4448A | 7.1 | 6 hr. |
| A2 / RM-4448C | 7.2 | 6 hr. |
| B1 / RM-4448B | 7.3 | 6 hr. |
| B2 / RM-4448D | 7.4 | 6 hr. |

Testing/calibration of instrument channels may be performed in any convenient order provided only one channel is tested at a time. While any one of these channels is being tested, all similar channels monitoring the same parameter shall be operable and untripped to preclude an unwarranted trip or system actuation. All steps pertaining to a particular channel are to be performed in sequence and the steps carried through to completion, unless stated otherwise.

Reference Only

4.2 Steps marked with a "TS" immediately to the right of the initial line are required by Technical Specifications. If these steps do not meet their acceptance criteria, or can not be performed, an NRC reportable condition may exist, and must be reported to the Operations Shift Supervisor (OSS) immediately.

4.3 The OSS must be notified immediately and the appropriate Limiting Condition for Operation section of Technical Specifications referred to whenever problems are encountered during the performance of this STP.

4.4 An Action Request (AR) should be completed for any problems encountered with "TS" marked steps during the test.

4.5 If any equipment or components are observed to be in a state of disrepair during the performance of this STP, appropriate corrective maintenance shall be initiated.

4.6 The following personnel are recommended to perform this STP:

2 Operations

5.0 APPENDICES

5.1 None

Reference Only

## 6.0 PREREQUISITES

6.1.1 MAIN STEAM LINE HI HI RAD / INOP TRIP annunciator (1C05B, C-2) reset. _____ (OSS)

6.1.2 No other testing or maintenance is being performed on the PCIS Group 1 Isolation Logic. _____ (OSS)

Reference Only

## 7.0 PROCEDURE

### 7.1 RM-4448A A MAIN STEAM LINE RADIATION MONITOR FUNCTIONAL TEST

7.1.1 Inform the OSS to record the AOT start time and record time below: _____

AOT Start: _____

**NOTE**

The following steps are performed at Panel 1C36 RM-4448A A MAIN STEAM LINE RADIATION MONITOR unless otherwise stated.

7.1.2 Record meter indication: _____ mR/hr _____

7.1.3 At 1C02, place MSL RR-4448 RED PEN CHANNEL SELECT RSS-4448A to MON A. _____

7.1.4 Record MAIN STEAM LINE RAD MONITOR RR-4448 red pen reading. _____

RR-4448 (red pen): _____ mR/hr

**CAUTION**

The following step will result in 1 of the required 2 signals for DIV 1 for the Inboard Main Steam Line Drain Valve, Inboard Recirculation Loop Sample Valve, and Mechanical Vacuum Pump Trip.

7.1.5 Place the mode switch to ZERO. _____

7.1.6 At 1C05, confirm the following annunciators activated:

a. MAIN STEAM LINE HI HI RAD / INOP TRIP (1C05B, C-2). _____ TS

b. MAIN STEAM LINE RAD MONITOR DOWNSCALE (1C05B, E-2) (already activated if plant is shutdown). _____

7.1.7 Confirm computer point D524 MSL HI HI RAD / INOP TRIP CH A1 TRIP typed out. _____

7.1.8 At 1C15, visually confirm relay A71B-K44A PCIS TRIP CHANNEL A1 MAIN STEAM LINE HI RAD deenergized. _____ TS

Reference Only

7.1.9 Confirm the following indicating lights on:

a. INOP _____

b. DOWNSCALE _____

7.1.10 Slide the drawer out for access to the internals. _____

7.1.11 Place the mode switch to TRIP TEST. _____

7.1.12 Adjust TRIP ADJUST (R50) for a reading of 10 on the meter. _____

7.1.13 At 1C05, verify MAIN STEAM LINE RAD MONITOR DOWNSCALE annunciator (1C05B, E-2) reset. (N/A if plant is shutdown.) _____

7.1.14 Operate the TRIP RESET switch. _____

7.1.15 Confirm the following indicating lights off:

a. DOWNSCALE _____

b. UPSCALE HI _____

c. UPSCALE HI-HI _____

7.1.16 Depress and hold the INOP INH push-button (until Step 7.1.22). _____

7.1.17 At 1C05, verify MAIN STEAM LINE HI HI RAD / INOP TRIP annunciator (1C05B, C-2) reset. _____

7.1.18 Confirm computer point D524 MSL HI HI RAD / INOP TRIP CH A1 RSET typed out. _____

**CAUTION**

The following step will result in 1 of the required 2 signals for DIV 1 for the Inboard Main Steam Line Drain Valve, Inboard Recirculation Loop Sample Valve, and Mechanical Vacuum Pump Trip.

7.1.19 Slowly adjust TRIP ADJUST (R50) clockwise until the UPSCALE HI-HI indicating light is on. _____

Reference Only

7.1.20 At 1C05, confirm the following annunciators activated:

a. MAIN STEAM LINE HI HI RAD / INOP TRIP (1C05B, C-2) _____ TS

b. MAIN STEAM LINE HI RAD (1C05B, D-2) _____

7.1.21 Confirm the UPSCALE HI indicating light on. _____

7.1.22 Release the INOP INH push-button. _____

7.1.23 Adjust TRIP ADJUST (R50) counterclockwise for a reading of 10 on the meter. _____

7.1.24 Slide the drawer into the panel and secure. _____

7.1.25 Place the mode switch in OPERATE. _____

7.1.26 Operate the TRIP RESET switch. _____

7.1.27 Verify all indicating lights off. (DOWNSCALE light will remain on if the plant is shutdown.) _____

7.1.28 At 1C05, verify the following annunciators reset:

a. MAIN STEAM LINE HI HI RAD / INOP TRIP (1C05B, C-2) _____

b. MAIN STEAM LINE HI RAD (1C05B, D-2) _____

7.1.29 At 1C15, visually confirm relay A71B-K44A PCIS TRIP CHANNEL A1 MAIN STEAM LINE HI RAD energized. _____

7.1.30 Confirm RM-4448A meter indicates an acceptable value compared to Step 7.1.2 considering current plant conditions. _____

7.1.31 At 1C02, confirm MAIN STEAM LINE RAD MONITOR RR-4448 red pen indicates an acceptable value compared to Step 7.1.4 considering current plant conditions. _____

7.1.32 Inform the OSS to record the AOT stop time and record time below: _____

AOT Stop: _____

_____ _____ _____ _____

_____ _____ _____ _____

_____ _____ _____ _____

Performed by: Date: Time:

Reference Only

7.2.9 Confirm the following indicating lights on:

a. INOP _____

b. DOWNSCALE _____

7.2.10 Slide the drawer out for access to the internals. _____

7.2.11 Place the mode switch to TRIP TEST. _____

7.2.12 Adjust TRIP ADJUST (R50) for a reading of 10 on the meter. _____

7.2.13 At 1C05, verify MAIN STEAM LINE RAD MONITOR DOWNSCALE annunciator (1C05B, E-2) reset. (N/A if plant is shutdown.) _____

7.2.14 Operate the TRIP RESET switch. _____

7.2.15 Verify the following indicating lights off:

a. DOWNSCALE _____

b. UPSCALE HI _____

c. UPSCALE HI-HI _____

7.2.16 Depress and hold the INOP INH push-button (until Step 7.2.22). _____

7.2.17 At 1C05, verify MAIN STEAM LINE HI HI RAD / INOP TRIP annunciator (1C05B, C-2) reset. _____

7.2.18 Confirm computer point D526 MSL HI HI RAD / INOP TRIP CH A2 RSET typed out. _____

**CAUTION**

**The following step will result in 1 of the required 2 signals for DIV 2 for the Inboard Main Steam Line Drain Valve, Inboard Recirculation Loop Sample Valve, and Mechanical Vacuum Pump Trip.**

7.2.19 Slowly adjust TRIP ADJUST (R50) clockwise until the UPSCALE HI-HI indicating light is on. _____

Reference Only

7.2.20 At 1C05, confirm the following annunciators activated:

a. MAIN STEAM LINE HI HI RAD / INOP TRIP (1C05B, C-2) _____ TS

b. MAIN STEAM LINE HI RAD (1C05B, D-2) _____

7.2.21 Confirm the UPSCALE HI indicating light on. _____

7.2.22 Release the INOP INH push-button. _____

7.2.23 Adjust TRIP ADJUST (R50) counterclockwise for a reading of 10 on the meter. _____

7.2.24 Slide the drawer into the panel and secure. _____

7.2.25 Place the mode switch in OPERATE. _____

7.2.26 Operate the TRIP RESET switch. _____

7.2.27 Verify all indicating lights off. (DOWNSCALE light will remain on if the plant is shutdown.) _____

7.2.28 At 1C05, verify the following annunciators reset:

a. MAIN STEAM LINE HI RAD (1C05B, D-2) _____

b. MAIN STEAM LINE HI HI RAD / INOP TRIP (1C05B, C-2) _____

7.2.29 At 1C15, visually confirm relay A71B-K44C PCIS TRIP CHANNEL A2 MAIN STEAM LINE HI RAD energized. _____

7.2.30 Confirm RM-4448C meter indicates an acceptable value compared to Step 7.2.2 considering current plant conditions. _____

7.2.31 At 1C02, confirm MAIN STEAM LINE RAD MONITOR RR-4448 red pen indicates an acceptable value compared to Step 7.2.4 considering current plant conditions. _____

7.2.32 Inform the OSS to record the AOT stop time and record time below: _____

AOT Stop: _____

_____ _____ _____ _____

_____ _____ _____ _____

_____ _____ _____ _____

Performed by: Date: Time:

Reference Only

7.3.20 At 1C05, confirm the following annunciators activated:

a. MAIN STEAM LINE HI RAD (1C05B, D-2) _____

b. MAIN STEAM LINE HI HI RAD / INOP TRIP (1C05B, C-2) _____ TS

7.3.21 Confirm the UPSCALE HI indicating light on. _____

7.3.22 Release the INOP INH push-button. _____

7.3.23 Adjust TRIP ADJUST (R50) counterclockwise for a reading of 10 on the meter. _____

7.3.24 Slide the drawer into the panel and secure. _____

7.3.25 Place the mode switch in OPERATE. _____

7.3.26 Operate the TRIP RESET switch. _____

7.3.27 Verify all indicating lights off. (DOWNSCALE light will remain on if the plant is shutdown.) _____

7.3.28 At 1C05, verify the following annunciators reset:

a. MAIN STEAM LINE HI HI RAD / INOP TRIP (1C05B, C-2) _____

b. MAIN STEAM LINE HI RAD (1C05B, D-2) _____

7.3.29 At 1C17, visually confirm relay A71B-K44B PCIS TRIP CHANNEL B1 MAIN STEAM LINE HI RAD energized. _____

7.3.30 Confirm RM-4448B meter indicates an acceptable value compared to Step 7.3.2 considering current plant conditions. _____

7.3.31 At 1C02, confirm MAIN STEAM LINE RAD MONITOR RR-4448 black pen indicates an acceptable value compared to Step 7.3.4 considering current plant conditions. _____

7.3.32 Inform the OSS to record the AOT stop time and record time below: _____

AOT Stop: _____

| | | | |
|---|---|---|---|
| | | | |
| | | | |
| Performed by: | Date: | Time: | |

Reference Only

7.4 RM-4448D D MAIN STEAM LINE RADIATION MONITOR FUNCTIONAL TEST

7.4.1 Inform the OSS to record the AOT start time and record time below: _____

AOT Start: _____

**NOTE**

The following steps are performed at Panel 1C36 RM-4448D D MAIN STEAM LINE RADIATION MONITOR unless otherwise stated.

7.4.2 Record meter indication: _____ mR/hr _____

7.4.3 At 1C02, place MSL RR-4448 BLACK PEN CHANNEL SELECT RSS-4448B to MON D. _____

7.4.4 Record MAIN STEAM LINE RAD MONITOR RR-4448 black pen reading. _____
RR-4448 (black pen): _____ mR/hr

**CAUTION**

The following step will result in 1 of the required 2 signals for DIV 2 for the Inboard Main Steam Line Drain Valve, Inboard Recirculation Loop Sample Valve and Mechanical Vacuum Pump Trip.

7.4.5 Place the mode switch to ZERO. _____

7.4.6 At 1C05, confirm the following annunciators activated:

a. MAIN STEAM LINE HI HI RAD / INOP TRIP (1C05B, C-2). _____ TS

b. MAIN STEAM LINE RAD MONITOR DOWNSCALE (1C05B, E-2) (already activated if plant is shutdown). _____

7.4.7 Confirm computer point D527 MSL HI HI RAD / INOP TRIP CH B2 TRIP typed out. _____

7.4.8 At 1C17, visually confirm relay A71B-K44D PCIS TRIP CHANNEL B2 MAIN STEAM LINE HI RAD deenergized. _____ TS

Reference Only

7.4.9 Confirm the following indicating lights on:

a. INOP _____

b. DOWNSCALE _____

7.4.10 Slide the drawer out for access to the internals. _____

7.4.11 Place the mode switch to TRIP TEST. _____

7.4.12 Adjust TRIP ADJUST (R50) for a reading of 10 on the meter. _____

7.4.13 At 1C05, verify MAIN STEAM LINE RAD MONITOR DOWNSCALE annunciator (1C05B, E-2) reset. (N/A if plant is shutdown.) _____

7.4.14 Operate the TRIP RESET switch. _____

7.4.15 Verify the following indicating lights off:

a. DOWNSCALE _____

b. UPSCALE HI _____

c. UPSCALE HI-HI _____

7.4.16 Depress and hold the INOP INH push-button (until Step 7.4.22). _____

7.4.17 At 1C05, verify MAIN STEAM LINE HI HI RAD / INOP TRIP annunciator (1C05B, C-2) reset. _____

7.4.18 Confirm computer point D527 MSL HI HI RAD / INOP TRIP CH B2 RSET typed out. _____

**CAUTION**

The following step will result in 1 of the required 2 signals for DIV 2 for the Inboard Main Steam Line Drain Valve, Inboard Recirculation Loop Sample Valve, and Mechanical Vacuum Pump Trip.

7.4.19 Slowly adjust TRIP ADJUST (R50) clockwise until the UPSCALE HI-HI indicating light is on. _____

Reference Only

7.4.20 At 1C05, confirm the following annunciators activated:

a. MAIN STEAM LINE HI HI RAD / INOP TRIP (1C05B, C-2) _____ TS

b. MAIN STEAM LINE HI RAD (1C05B, D-2) _____

7.4.21 Confirm the UPSCALE HI indicating light on. _____

7.4.22 Release the INOP INH push-button. _____

7.4.23 Adjust TRIP ADJUST (R50) counterclockwise for a reading of 10 on the meter. _____

7.4.24 Slide the drawer into the panel and secure. _____

7.4.25 Place the mode switch in OPERATE. _____

7.4.26 Operate the TRIP RESET switch. _____

7.4.27 Verify all indicating lights off. (DOWNSCALE light will remain on if the plant is shutdown.) _____

7.4.28 At 1C05, confirm the following annunciators reset:

a. MAIN STEAM LINE HI HI RAD / INOP TRIP (1C05B, C-2) _____

b. MAIN STEAM LINE HI RAD (1C05B, D-2) _____

7.4.29 At 1C17, visually confirm relay A71B-K44D PCIS TRIP CHANNEL B2 MAIN STEAM LINE HI RAD energized. _____

7.4.30 Confirm RM-4448D meter indicates an acceptable value compared to Step 7.4.2 considering current plant conditions. _____

7.4.31 At 1C02, confirm MAIN STEAM LINE RAD MONITOR RR-4448 black pen indicates an acceptable value compared to Step 7.4.4 considering current plant conditions. _____

7.4.32 Inform the OSS to record the AOT stop time and record time below: _____

AOT Stop: _____

| Performed by: | Date: | Time: | |
|---|---|---|---|
| _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ |

Reference Only

## 8.0 ACCEPTANCE CRITERIA

8.1 If this STP is performed for any reason other than for satisfying the PURPOSE as stated in Section 1.0, indicate below (otherwise mark this step "N/A"):

_____

_____

_____

_____

8.2 If a DCF, Procedure Work Request (PWR), or Action Request (AR) was written due to problems encountered with the performance of this procedure, list the applicable number(s) below and attach a copy of each to this procedure. ("N/A" blocks as appropriate.)

DCF No. _____ PWR No. _____ AR No. _____

DCF No. _____ PWR No. _____ AR No. _____

8.3 All Technical Specification-required items, as indicated by "TS", have been performed satisfactorily.

8.3.1 Section 7.1 ( ) YES ( ) NO ➡ OSS notified _____

8.3.2 Section 7.2 ( ) YES ( ) NO ➡ OSS notified _____

8.3.3 Section 7.3 ( ) YES ( ) NO ➡ OSS notified _____

8.3.4 Section 7.4 ( ) YES ( ) NO ➡ OSS notified _____

8.4 All other items checked in this test have been performed satisfactorily.

8.4.1 Section 7.1 ( ) YES ( ) NO ➡ OSS notified _____

8.4.2 Section 7.2 ( ) YES ( ) NO ➡ OSS notified _____

8.4.3 Section 7.3 ( ) YES ( ) NO ➡ OSS notified _____

8.4.4 Section 7.4 ( ) YES ( ) NO ➡ OSS notified _____

Reference Only

8.5 Indicate any relevant test comments below, otherwise mark this step "N/A":

_____

_____

_____

_____

_____

_____

_____ _____
Operations Date

_____ _____
Surveillance Coordinator Date

## 9.0 ATTACHMENTS

9.1 None.

Reference Only

# *DUANE ARNOLD ENERGY CENTER*

## JOB PERFORMANCE MEASURE

**NUMBER: 2.3.1-04**

**TASK NUMBER: NONE**

**TITLE: Gain Access to a High Radiation Area**

**Rev. 1**

| | | |
|---|---|---|
| DEVELOPED BY: | Michael Fisher<br>Instructor | 3/23/2001<br>Date |
| VALIDATED BY: | SME/Instructor | 3/29/01<br>Date |
| REVIEWED BY: | Paul D Hansen<br>Plant Reviewer | 3-30-2001<br>Date |
| APPROVED BY: | for<br>Training Supervisor-Operations | 4/2/01<br>Date |

# DUANE ARNOLD ENERGY CENTER

## JOB PERFORMANCE MEASURE

| | | | |
|---|---|---|---|
| **JPM No.** 2.3.1-04 | **JPM Description:** Gain access to a high radiation area | | |
| **Task No.** None | **Task Description:** None | | |
| **K/A Reference:** 2.3.1 | 2.6/3.6 | | |
| APPLICABLE METHOD OF TESTING: RO/SRO | | | |
| Simulate Performance | X | Actual Performance | |
| Simulator | In-Plant | X | Control Room |
| Time for Completion: 30 minutes | | | |

# JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

**NOTE**

All steps of this checklist should be performed upon initial validation. Prior to JPM usage, revalidate JPM using steps 7 through 10.

JPM No. 2.3.1-04 JPM Title Gain access to a high radiation area

✓ 1. Task description and number, JPM description and number are identified

✓ 2. Task elements identified and K/A references are included

✓ 3. Performance location specified

a. in-plant

b. control room

c. simulator

✓ 4. Initial conditions and cues identified

a. setup, required materials, and procedure

b. malfunctions and instructor actions

c. initiating and terminating cues

✓ 5. Task standards identified and verified by SME review

✓ 6. Critical tasks/steps identified meet criteria and identified with a "C"

✓ 7. Verify JPM steps fit the most current procedures
Procedure Rev. 9 Date 6-28-2000

✓ 8. Pilot test JPM

a. verify cues both verbal and visual are free of conflict

b. ensure performance time is accurate

9. If the JPM cannot be performed as written with proper responses, then revise the JPM

_____ 10. When JPM is revalidated, SME/Instructor signs and dates JPM

SME/Instructor Date

SME/Instructor Date

SME/Instructor Date

**SIMULATOR SETUP:**

NONE

**EVENT TRIGGERS:**

NONE

**MALFUNCTIONS:**

NONE

**OVERRIDES:**

NONE

**REMOTE FUNCTIONS:**

NONE

## INSTRUCTOR ACTIONS:

1. Verify that the CAVs area is currently posted as a High Rad Area.
2. Start this JPM in the Reactor Building.
3. Read initial conditions and initiating cues to the operator.

## TASK STANDARDS:

1. Operator does not attempt to enter the High Rad Area improperly.
2. The need to sign in on another RWP (which will allow entry) is identified.
3. Current survey map reviewed.
4. HP briefing requested.

## REQUIRED MATERIALS:

RWP 10, Job Step 2
RWP 10, Job Step 6
RWP 33, Job Step 1
Marked-up copy of P&ID Bech-M189<3>
Digital picture of the CAVs area
CAVs Area Survey Map

## GENERAL REFERENCES:

ACP 1411.22, Control of Access to Radiological Areas

**Read to the operator the following information:**

**NOTE:**
**Start this JPM in the Reactor Building.**

**INITIAL CONDITIONS:**

1. The plant is in normal full power operation.
2. Assume you are a (Senior) Reactor Operator in the Reactor Building doing maintenance planning.
3. You are to demonstrate the proper verification techniques while performing this JPM.

**INITIATING CUES:**

As Shift Supervisor, I direct you to go to the CAVs Area and verify the out-of-service CAV vessel 1T-415A isolation valves V-89-150, V-89-151, V-89-154, V-89-155 are closed, bypass valve V-89-153 and drain valve V-89-152 are open.

**This task is not time critical.**

**Inform the evaluator when you have completed the task.**

## PERFORMANCE INFORMATION

| NOTE: |
|---|
| Critical steps are denoted with a "C". Failure to meet the standard for this step constitutes failure. |

Time Start _____

CAUTION

DO NOT allow the examinee to cross the roped-off boundary of the High Rad Area. Use physical restraint if necessary. If an improper entry is attempted, the JPM will have been performed unsatisfactorily and should be ended by reading the Terminating Cue.

| | |
|---|---|
| PERFORMANCE STEP:<br>Critical: C | Operator identifies the need to enter a High Rad area. |
| STANDARD: | Operator does not attempt to enter the High Rad Area improperly. |
| COMMENTS:<br>The examinee need not enter the Reactor Building 786' level area if he recognizes that the CAV vessel valves are in a High Rad Area and begins to work on gaining access.<br><br>(After the need to enter a High Rad Area is identified),<br>CUE:<br>The intent of this JPM is to demonstrate the actions necessary to enter a High Rad Area. An actual entry will not be performed but you are to continue to walkthrough your actions as if it were. I will role play plant support personnel as necessary. | |

Note:

Do not allow the on-shift HPs to become involved with this JPM other than to provide the book of survey maps.

| | |
|---|---|
| PERFORMANCE STEP:<br>Critical: C | Operator returns to Access Control to review and identify an RWP which will allow entry. |
| STANDARD: | The need to sign in on another RWP (which will allow entry) is identified. |
| COMMENTS:<br>The correct RWP for operations duties in HRA/LHRA areas is RWP 10, Job Step 6.<br><br>Role Play the On-Shift Health Physics Technician (HP) as necessary. It is preferable for the candidate to identify the correct RWP but this information may be given by the HP/evaluator upon request. | |

| PERFORMANCE STEP:<br>Critical: C | Review a current survey for specific locations of high dose and low dose standby areas. |
|---|---|
| STANDARD: | Current survey map reviewed. |
| COMMENTS:<br><br>(If not stated in the review of the survey map)<br>CUE:<br>Identify the maximum dose rates in the CAVs area. ( ≈ 80 to 100 mR/hr.) | |

| PERFORMANCE STEP:<br>Critical: C | Request a pre-job briefing by the HP. |
|---|---|
| STANDARD: | HP briefing requested. |
| COMMENTS:<br>CUE: Instruct the student to provide a reverse brief.<br><br>The student should provide a reverse brief that contains the following items:<br>Review of the RWP.<br>Wearing Electronic Dosimetry.<br>Obtaining a dose rate instrument.<br>Wearing proper protective clothes.<br>May discuss locating low dose standby areas outside the CAVs area. | |

Note:

The operator should have already demonstrated the ability to sign in on a RWP, so signing in on the new RWP is not necessary.

Time Stop _____

**TERMINATING CUES:** The intent of this JPM was to demonstrate the actions necessary to enter a High Rad Area. This JPM is complete.

## VERIFICATION OF COMPLETION

JPM No.: 2.3.1-04 JPM Description: Gain access to a high radiation area

Operator: _____ Evaluator: _____

Licensee: ☐ RO ☐ SRO ☐ SRO Cert
☐ STA ☐ NSPEO

Result: ☐ SATISFACTORY ☐ UNSATISFACTORY

**COMMENTS/FEEDBACK:** (Note any trainee discrepancies or misperformed steps.)

_____

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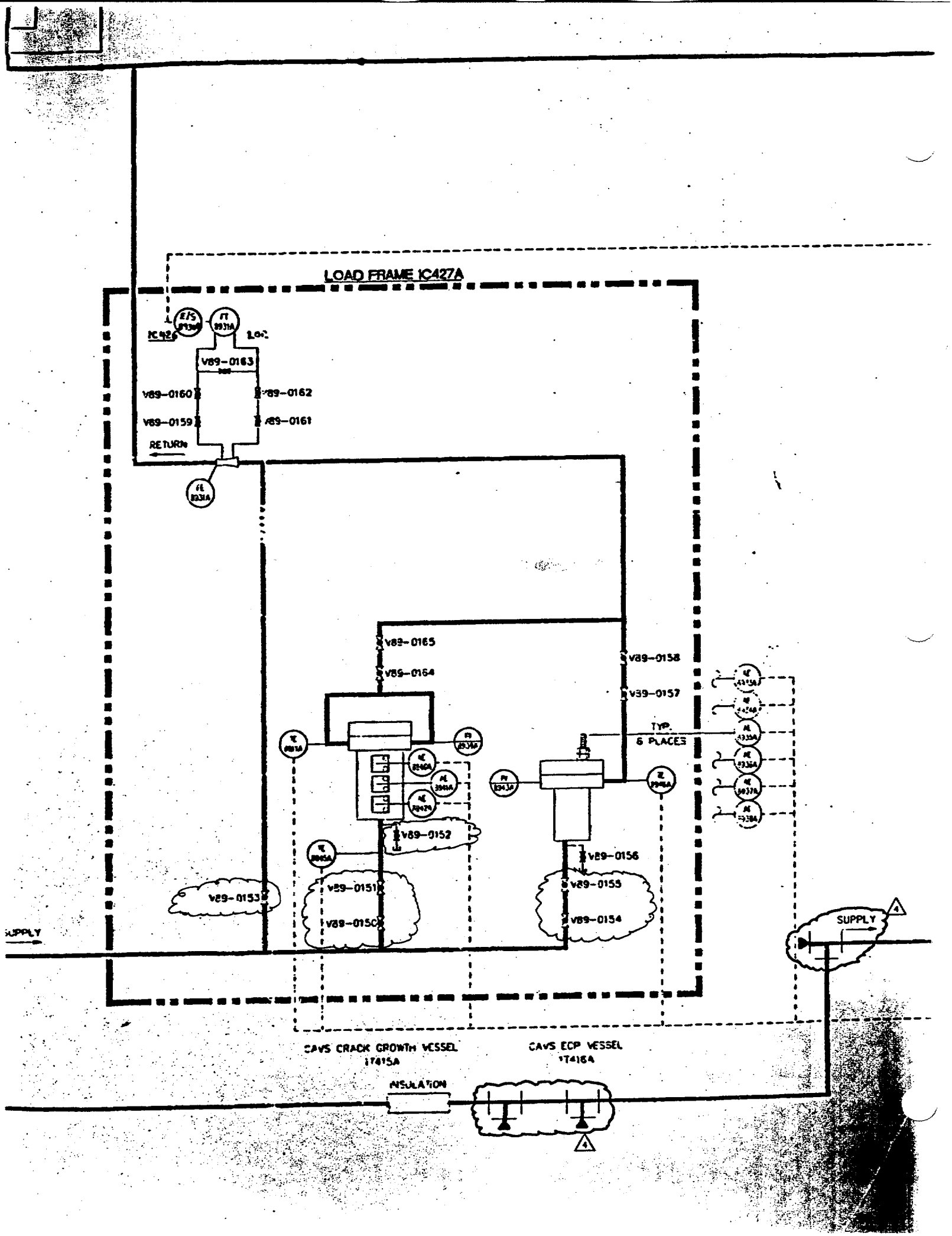
_____ _____
Evaluator's Signature Date


LOAD FRAME IC427A
IC426
V89-0163
V89-0160
V89-0162
V89-0159
V89-0161
RETURN
V89-0165
V89-0164
V89-0158
V89-0157
TYP.
6 PLACES
V89-0152
V89-0156
V89-0153
V89-0151
V89-0150
V89-0155
V89-0154
SUPPLY
CAVS CRACK GROWTH VESSEL
T415A
CAVS ECP VESSEL
T416A
INSULATION

CAUTION
HOT

Duane Arnold Energy Center HP Survey

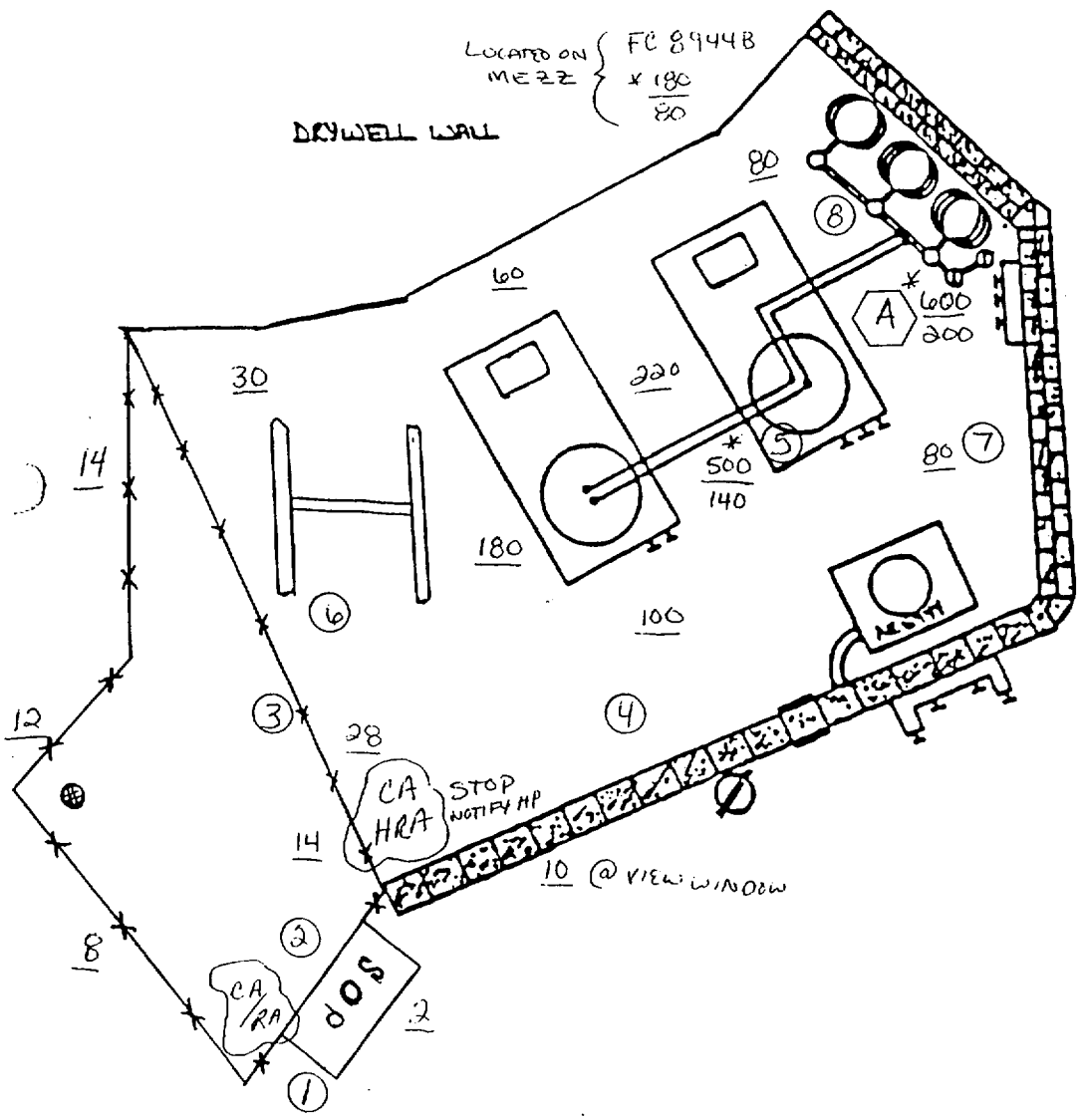
**ORIGINAL if stamped in RED**

Survey # 01-457

Key: Low Dose Area; A Alara Caution; C Caution Hot Spot; D Danger Hot Spot; # Smears; XXX Radiological Boundry; # Contact @ 30 cm; # Dose Rate mrem/Hr DDE; # Dose Rate mrem/Hr DDE

| Map# | Location/Description | Date: 2-23-01 | Freq. | Radiological Ranges | RWP - JS |
|---|---|---|---|---|---|
| RB223 | RB 786', C.A.V. AREA<br>ROUTINE | | 2xY | Dose 2-220<br>Cont. <1K-2K | 2-6 |

Rx Power: 100 % | HWC injection rate: 6.3 scfm




| # | Location | dpm 100cm^2 |
|---|---|---|
| 1 | SOP | <1K |
| 2 | FLOOR | <1K |
| 3 | ↓ | 1K |
| 4 | ↓ | 1K |
| 5 | CAV. UNIT | <1K |
| 6 | FLOOR | 1K |
| 7 | ↓ | 1K |
| 8 | ↓ | 2K |
| 9 | | |
| 10 | | |
| 11 | NA | |
| 12 | | |
| 13 | | |
| 14 | | |
| 15 | | |
| 16 | | |
| 17 | | |
| 18 | | |
| 19 | | |
| 20 | | |
| 21 | | |
| 22 | | |
| 23 | | |
| 24 | | |
| 25 | | |
| 26 | | |
| 27 | | |
| 28 | | |
| 29 | | |
| 30 | | |

ORIGINAL
if stamped in
RED

# Duane Arnold Energy Center HP Survey

Survey # 01-457

| Instrument | Serial # | Cal. Due | Daily Ck |
|---|---|---|---|
| Ro2 | 2382 | 6 30 01 | ✓ |
| L177 | 360167 | 11 30 01 | ✓ |
| | | | |
| | | | |
| | | | |
| | | | |

| Surveyor | Date | Time | % Rx Pwr |
|---|---|---|---|
| STYRE / R. Cave | 2 23 01 | 1040 | 100 |

| Air Sample # | Results |
|---|---|
| NA | NA uCi/cc |
| | uCi/cc |

Comments: ROUTINE

NA

HP-41

A.4(R)

# *DUANE ARNOLD ENERGY CENTER*

## JOB PERFORMANCE MEASURE

**NUMBER: 2.4.3-01**

**TASK NUMBER: 86.00**

**TITLE: Function as the Back Panel Communicator**

**Rev. 1**

| | | |
|---|---|---|
| DEVELOPED BY: | Michael Fisher<br>Instructor | 3/23/2001<br>Date |
| VALIDATED BY: | SME/Instructor | 3/29/01<br>Date |
| REVIEWED BY: | David Hansen<br>Plant Reviewer | 3-30-2001<br>Date |
| APPROVED BY: | Training Supervisor-Operations | 4/2/01<br>Date |

# DUANE ARNOLD ENERGY CENTER

## JOB PERFORMANCE MEASURE

| | | |
|---|---|---|
| **JPM No.** 2.4.3-01 | **JPM Description:** Function as the Back Panel Communicator | |
| **Task No.** 86.00 | **Task Description:** Monitor the Area Radiation Monitoring System | |
| **K/A Reference:** 2.4.3 | 3.5/3.8 | |
| APPLICABLE METHOD OF TESTING: | | |
| Simulate Performance | Actual Performance X | |
| Simulator X | In-Plant | Control Room |
| Time for Completion: 20 minutes | | |

# JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

**NOTE**

All steps of this checklist should be performed upon initial validation. Prior to JPM usage, revalidate JPM using steps 7 through 10.

JPM No. 2.4.3-01 JPM Title Function as the Back Panel Communicator

✓ 1. Task description and number, JPM description and number are identified

✓ 2. Task elements identified and K/A references are included

✓ 3. Performance location specified

a. in-plant

b. control room

c. simulator

✓ 4. Initial conditions and cues identified

a. setup, required materials, and procedure

b. malfunctions and instructor actions

c. initiating and terminating cues

✓ 5. Task standards identified and verified by SME review

✓ 6. Critical tasks/steps identified meet criteria and identified with a "C"

✓ 7. Verify JPM steps fit the most current procedures
Procedure Rev. 13 Date 9/30/98

✓ 8. Pilot test JPM

a. verify cues both verbal and visual are free of conflict

b. ensure performance time is accurate

9. If the JPM cannot be performed as written with proper responses, then revise the JPM

_____ 10. When JPM is revalidated, SME/Instructor signs and dates JPM

| | |
|---|---|
| SME/Instructor | Date |
| SME/Instructor | Date |
| SME/Instructor | Date |

**SIMULATOR SETUP:**
Place the simulator in a stable post-LOCA condition.
Insert a malfunction for the RWCU Pump Room ARM to read 2000 mrem/hr.

**EVENT TRIGGERS**

None

**MALFUNCTIONS:**

RM01RE9156 @ 0.55

**OVERRIDES:**

None

**REMOTE FUNCTIONS:**

None

**INSTRUCTOR ACTIONS:**

1. Read initial conditions and initiating cues to the operator.

**TASK STANDARDS:**

1. Complete form CR-03 of EPIPs.
2. Detect and notify the OSS of elevated reading on the RWCU Pump Room ARM.

**REQUIRED MATERIALS:**

EPIP forms:

1. CR-02, "Back Panel Communicator Checklist"
2. CR-03, "Dose Projection & ARM Data Sheet"

**GENERAL REFERENCES:**

EPIP 2.5, Rev. 13, 9/30/98

**Read to the operator the following information:**

**INITIAL CONDITIONS:**

1. The plant status is as you see it.
2. You were in the plant when an emergency occurred and have just reported to the Control Room for accountability.
3. The TSC and OSC are in the process of being staffed.
4. The Back Panel Communicator has not yet reported to the Control Room.

**INITIATING CUES:**

The Shift Manager directs you to function as Back Panel Communicator and complete EPIP forms CR-02 and CR-03. Perform only the OPERATION Section of CR-02.

**This task is not time critical.**

**Inform the evaluator when you have completed the task.**

NOTE to Evaluator: Give the operator EPIP forms CR-02 and CR-03.

## PERFORMANCE INFORMATION

| NOTE: |
|---|
| Critical steps are denoted with a "C". Failure to meet the standard for this step constitutes failure. |

Time Start _____

| | |
|---|---|
| PERFORMANCE STEP:<br>Critical: | Activate the Back Panel Communicator position. |
| STANDARD: | Report to the TSC.<br>Swipe in the Emergency accountability card reader.<br>Locate the Back Panel Communicator Handbook and Checklist.<br>Report to the Control Room.<br>Inform the OSM of arrival. |
| COMMENTS: Note: These steps are N/A. | |

| | |
|---|---|
| PERFORMANCE STEP:<br>Critical: | Initiate communications with the TSC using the Phone mounted on 1C22. |
| STANDARD: | Communications initiated. |
| COMMENTS: Cue Respond as Rad Support Staff in the TSC that communications are satisfactory. | |

| | |
|---|---|
| PERFORMANCE STEP:<br>Critical: C | Obtain an initial set of readings on Form CR-03, "Dose Projection and ARM Data Sheet" and report them to Rad Support Staff person in the TSC. |
| STANDARD: | Initial set of readings taken on CR-03 and communicated to the TSC:<br>ARM readings from 1C11<br>Drywell/Torus Monitor readings from 1C09<br>KAMAN effluent readings from PPC<br>Met data from SPMET or Met recorder at 1C22 |
| COMMENTS: Verify each reading on form CR-03 as the candidate records it, use a provided copy of CR-03.<br><br>Note for Grading: Readings should be less than alarm setpoint. If the candidate records a value larger than the alarm and does not recognize; this is a failure of the critical step.<br><br>The student may inform the Shift Manager immediately upon discovery of the alarming ARM or continue to obtain readings. | |

| | |
|---|---|
| PERFORMANCE STEP:<br>Critical: C | Recognize elevated reading on the RWCU Pump Room ARM and report the reading to the Shift Manager. |
| STANDARD: | Report made to the Shift Manager that the RWCU Pump Room ARM is reading 2000 mrem/hr. |
| COMMENTS: Acknowledge the elevated ARM reading and provide the terminating cue. | |

Time Stop _____

**TERMINATING CUES:** The Back Panel Communicator has just reported and will assume the position.

## VERIFICATION OF COMPLETION

JPM No.: 2.4.3-01 JPM Description: Function as the Back Panel Communicator

Operator: _____ Evaluator: _____

Licensee: ☐ RO ☐ SRO ☐ SRO Cert
☐ STA ☐ NSPEO

Result: ☐ SATISFACTORY ☐ UNSATISFACTORY

**COMMENTS/FEEDBACK:** (Note any trainee discrepancies or misperformed steps.)

_____

_____ Evaluator's Signature

_____ Date

# BACK PANEL COMMUNICATOR CHECKLIST

## CONTROL ROOM ACTIVATION

____ Report to the TSC.

____ Swipe in the emergency accountability card reader, sign in on the Emergency Assignment Staffing Board, acquire the Back Panel Communicator badge.

## CONTROL ROOM STAFFING

____ Locate and utilize the Back Panel Communicator handbook and checklist.

____ Report to the Control Room

____ Inform the Operations Shift Manager of your arrival.

## OPERATION

____ Verify communications with Radiological Support Staff. The Back Panel Communicator must initiate communications with the TSC utilizing the back direct ring down phone mounted on the side of panel 1C22.

____ Obtain an initial set of readings identified on Form CR-03, "Dose Projection and ARM Data Sheet," upon arriving at the Control Room and report them to the Rad Support Staff person in the TSC

____ Continuously update the TSC with the most current ARM data obtained, at least every 15 minutes.

____ Continuously monitor data for trends or changes.

____ Alarming ARM data should be provided to the Operations Shift Manager for evaluation.

____ Notify the SRPC immediately of any changes in ARM data.

____ Notify the HP Supervisor immediately of any changes in ARM data.

____ Assist the TSC MIDAS Operator with any dose projection operations.

## RECOVERY

# BACK PANEL COMMUNICATOR CHECKLIST

## CONTROL ROOM ACTIVATION

____ Report to the TSC.

____ Swipe in the emergency accountability card reader, sign in on the Emergency Assignment Staffing Board, acquire the Back Panel Communicator badge.

## CONTROL ROOM STAFFING

____ Locate and utilize the Back Panel Communicator handbook and checklist.

____ Report to the Control Room

____ Inform the Operations Shift Manager of your arrival.

## OPERATION

____ Verify communications with Radiological Support Staff. The Back Panel Communicator must initiate communications with the TSC utilizing the back direct ring down phone mounted on the side of panel 1C22.

____ Obtain an initial set of readings identified on Form CR-03, "Dose Projection and ARM Data Sheet," upon arriving at the Control Room and report them to the Rad Support Staff person in the TSC

____ Continuously update the TSC with the most current ARM data obtained, at least every 15 minutes.

____ Continuously monitor data for trends or changes.

____ Alarming ARM data should be provided to the Operations Shift Manager for evaluation.

____ Notify the SRPC immediately of any changes in ARM data.

____ Notify the HP Supervisor immediately of any changes in ARM data.

____ Assist the TSC MIDAS Operator with any dose projection operations.

## RECOVERY

## DOSE PROJECTION ALARM DATA SHEET



| MONITOR # | MONITOR LOCATION | UNITS | ALARM LEVEL | MAX NORM | MAX SAFE | TIME :00 | TIME :15 | TIME :30 | TIME :45 |
|---|---|---|---|---|---|---|---|---|---|
| RT-9180 | RB 747' WASTE COLL. | mR/hr | 250.0 | | | | | | |
| RT-9166 | RB 716' SW, RW PUMP ROOM | mR/hr | 50.0 | | | | | | |
| RT-9178 | RB 855' SPENT FUEL STORAGE AREA | mR/hr | 19.0 | 100 | 1000 | | | | |
| RT-9163 | REFUEL FLOOR NORTH | mR/hr | 10.0 | 10 | 100 | | | | |
| RT-9176 | RB 757' TIP | mR/hr | 100.0 | 60 | 600 | | | | |
| RT-9170 | CRD REPAIR ROOM | mR/hr | 22.0 | 15 | 150 | | | | |
| RT-9167 | RB 757' RR ACCESS | mR/hr | 12.0 | 10 | 100 | | | | |
| RT-9162 | CONTROL ROOM | mR/hr | 3.0 | | | | | | |
| RT-9173 | RB 786' RESIN HANDLING | mR/hr | 80.0 | 100 | 1000 | | | | |
| RT-9177 | RB 786' CU PH. SEPARATOR | mR/hr | 100.0 | 20 | 200 | | | | |
| RT-9155 | RB 812' JUNGLE ROOM, C/U DEMIN AREA | mR/hr | 2500.0 | 60 | 600 | | | | |
| RT-9156 | RB 786' RWCU PUMP ROOM | mR/hr | 1000.0 | 1000 | 10000 | | | | |
| RT-9157 | RB 786' RWCU HEAT EXCH. | mR/hr | 2000.0 | 1000 | 10000 | | | | |
| RT-9171 | RB 812' VENTILATION EQUIP. | mR/hr | 2.2 | 60 | 600 | | | | |
| RT-9153 | Rx B 855 NEW FUEL STORAGE AREA | mR/hr | 10.0 | 10 | 100 | | | | |
| RT-9168 | RB 757' CRD NORTH | mR/hr | 10.0 | 10 | 100 | | | | |
| RT-9175 | RB 833' COND. PH. SEPARATOR TANK | mR/hr | 150.0 | | | | | | |
| RT-9169 | RB 757' CRD SOUTH | mR/hr | 10.0 | 10 | 100 | | | | |
| RT-9164 | REFUEL FLOOR SOUTH | mR/hr | 20.0 | 10 | 100 | | | | |
| RT-9159 | TB 734' FEED PUMP AREA | mR/hr | 2.3 | | | | | | |
| RT-9158 | TB 734' COND. PUMP AREA | mR/hr | 5.0 | | | | | | |
| RT-9160 | TB 734' LUBE OIL AREA | mR/hr | 10.0 | | | | | | |
| RT-9174 | TB 734' SUMP AREA | mR/hr | 2.5 | | | | | | |
| RT-9172 | HOT LAB | mR/hr | 2.5 | | | | | | |
| RT-9179 | TB 780' TURBINE FRONT STANDARD | mR/hr | 25.0 | | | | | | |
| RT-9161 | MACHINE SHOP | mR/hr | 5.0 | | | | | | |
| RT-9151 | RW CONTROL ROOM | mR/hr | 2.7 | | | | | | |
| RT-9152 | RW 786' RW, SAMPLE TANK CORRIDOR | mR/hr | 20.0 | | | | | | |
| RT-9154 | RW 757' RW, DRUMMING AREA | mR/hr | 15.0 | | | | | | |
| RT-9165 | ACCESS CONTROL | mR/hr | 2.5 | | | | | | |

# DOSE PROJEC[illegible] & ARM DATA SHEET



DATE: _____ SHUTDOWN TIME: _____

| INFORMATION | | | Time | :00 | :15 | :30 | :45 |
|---|---|---|---|---|---|---|---|
| RIM-9184 A/B | DRYWELL | R/hr | | | | | |
| SAE=1600 R/hr, GE=3200 R/hr | | | | | | | |
| RIM-9185 A/B | TORUS | R/hr | | | | | |
| | | | | | | | |
| RR-4448 A/B | MAIN STEAM | mR/hr | | | | | |
| RR 4104 | OFFGAS | mR/hr | | | | | |
| | | | | | | | |
| 156' | WIND DIRECTION | (degree | | | | | |
| 156' | WIND SPEED | (mph) | | | | | |
| 33' | WIND SPEED | (mph) | | | | | |
| | DELTA T | (degree | | | | | |
| | Time Since Shutdown | (hrs) | | | | | |
| Rx Bldg "A" | Vent Concentration | | | | | | |
| Rx Bldg "B" | Vent Concentration | | | | | | |
| Rx Bldg "C" | Vent Concentration | | | | | | |
| Rx Bldg "A" | Vent Flow Rate | | | | | | |
| Rx Bldg "B" | Vent Flow Rate | | | | | | |
| Rx Bldg "C" | Vent Flow Rate | | | | | | |
| | Offgas Stack Concentration | | | | | | |
| | Offgas Stack Flow Rate | | | | | | |
| | Turbine Bldg Vent Concentration | | | | | | |
| | Turbine Bldg Vent Flow Rate | | | | | | |
| | Standby Gas Operating | (Y/N) | | | | | |

• = EOP related

## DOSE PROJECTION ALARM DATA SHEET



| MONITOR # | MONITOR LOCATION | UNITS | ALARM LEVEL | MAX NORM | MAX SAFE | TIME :00 | TIME :15 | TIME :30 | TIME :45 |
|---|---|---|---|---|---|---|---|---|---|
| RT-9180 | RB 747' WASTE COLL. | mR/hr | 250.0 | | | | | | |
| RT-9166 | RB 716' SW, RW PUMP ROOM | mR/hr | 50.0 | | | | | | |
| RT-9178 | RB 855' SPENT FUEL STORAGE AREA | mR/hr | 19.0 | 100 | 1000 | | | | |
| RT-9163 | REFUEL FLOOR NORTH | mR/hr | 10.0 | 10 | 100 | | | | |
| RT-9176 | RB 757' TIP | mR/hr | 100.0 | 60 | 600 | | | | |
| RT-9170 | CRD REPAIR ROOM | mR/hr | 22.0 | 15 | 150 | | | | |
| RT-9167 | RB 757' RR ACCESS | mR/hr | 12.0 | 10 | 100 | | | | |
| RT-9162 | CONTROL ROOM | mR/hr | 3.0 | | | | | | |
| RT-9173 | RB 786' RESIN HANDLING | mR/hr | 80.0 | 100 | 1000 | | | | |
| RT-9177 | RB 786' CU PH. SEPARATOR | mR/hr | 100.0 | 20 | 200 | | | | |
| RT-9155 | RB 812' JUNGLE ROOM, C/U DEMIN AREA | mR/hr | 2500.0 | 60 | 600 | | | | |
| RT-9156 | RB 786' RWCU PUMP ROOM | mR/hr | 1000.0 | 1000 | 10000 | | | | |
| RT-9157 | RB 786' RWCU HEAT EXCH. | mR/hr | 2000.0 | 1000 | 10000 | | | | |
| RT-9171 | RB 812' VENTILATION EQUIP. | mR/hr | 2.2 | 60 | 600 | | | | |
| RT-9153 | Rx B 855 NEW FUEL STORAGE AREA | mR/hr | 10.0 | 10 | 100 | | | | |
| RT-9168 | RB 757' CRD NORTH | mR/hr | 10.0 | 10 | 100 | | | | |
| RT-9175 | RB 833' COND. PH. SEPARATOR TANK | mR/hr | 150.0 | | | | | | |
| RT-9169 | RB 757' CRD SOUTH | mR/hr | 10.0 | 10 | 100 | | | | |
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| RT-9158 | TB 734' COND. PUMP AREA | mR/hr | 5.0 | | | | | | |
| RT-9160 | TB 734' LUBE OIL AREA | mR/hr | 10.0 | | | | | | |
| RT-9174 | TB 734' SUMP AREA | mR/hr | 2.5 | | | | | | |
| RT-9172 | HOT LAB | mR/hr | 2.5 | | | | | | |
| RT-9179 | TB 780' TURBINE FRONT STANDARD | mR/hr | 25.0 | | | | | | |
| RT-9161 | MACHINE SHOP | mR/hr | 5.0 | | | | | | |
| RT-9151 | RW CONTROL ROOM | mR/hr | 2.7 | | | | | | |
| RT-9152 | RW 786' RW, SAMPLE TANK CORRIDOR | mR/hr | 20.0 | | | | | | |
| RT-9154 | RW 757' RW, DRUMMING AREA | mR/hr | 15.0 | | | | | | |
| RT-9165 | ACCESS CONTROL | mR/hr | 2.5 | | | | | | |

DATE: _____ SHUTDOWN TIME: _____

| INFORMATION | | | Time | :00 | :15 | :30 | :45 |
|---|---|---|---|---|---|---|---|
| • RIM-9184 A/B | DRYWELL | R/hr | | | | | |
| SAE=1600 R/hr, GE=3200 R/hr | | | | | | | |
| • RIM-9185 A/B | TORUS | R/hr | | | | | |
| | | | | | | | |
| RR-4448 A/B | MAIN STEAM | mR/hr | | | | | |
| RR 4104 | OFFGAS | mR/hr | | | | | |
| | | | | | | | |
| 156' | WIND DIRECTION | (degree | | | | | |
| 156' | WIND SPEED | (mph) | | | | | |
| 33' | WIND SPEED | (mph) | | | | | |
| | DELTA T | (degree | | | | | |
| | Time Since Shutdown | (hrs) | | | | | |
| Rx Bldg "A" | Vent Concentration | | | | | | |
| Rx Bldg "B" | Vent Concentration | | | | | | |
| Rx Bldg "C" | Vent Concentration | | | | | | |
| Rx Bldg "A" | Vent Flow Rate | | | | | | |
| Rx Bldg "B" | Vent Flow Rate | | | | | | |
| Rx Bldg "C" | Vent Flow Rate | | | | | | |
| | Offgas Stack Concentration | | | | | | |
| | Offgas Stack Flow Rate | | | | | | |
| | Turbine Bldg Vent Concentration | | | | | | |
| | Turbine Bldg Vent Flow Rate | | | | | | |
| | Standby Gas Operating | (Y/N) | | | | | |

• = EOP related

A.4S

# *DUANE ARNOLD ENERGY CENTER*

## JOB PERFORMANCE MEASURE

**NUMBER: 2.4.43-01**

**TASK NUMBER: SRO 3.01**

**TITLE: Perform OP-28, EPIP OFFSITE AGENCIES NOTIFICATION WEEKLY TEST Alternate Path**

**Rev. 1**

| | | |
|---|---|---|
| DEVELOPED BY: | Michael Fisher<br>Instructor | 3/23/2001<br>Date |
| VALIDATED BY: | [illegible]<br>SME/Instructor | 3/24/2001<br>Date |
| REVIEWED BY: | Paul D Hansen<br>Plant Reviewer | 3-30-2001<br>Date |
| APPROVED BY: | [illegible] for<br>Training Supervisor-Operations | 4/2/01<br>Date |

# DUANE ARNOLD ENERGY CENTER

## JOB PERFORMANCE MEASURE

| | | |
|---|---|---|
| **JPM No.** 2.4.43-01 | **JPM Description:** Perform Op-28, EPIP Offsite Agencies Notification Weekly Test. Alternate Path | |
| **Task No.** SRO 3.01 | **Task Description:** Implement Emergency Plan | |
| **K/A Reference:** 2.4.43 | 2.8/3.5 | |
| APPLICABLE METHOD OF TESTING: SRO/RO | | |
| Simulate Performance X | Actual Performance | |
| Simulator X | In-Plant | Control Room |
| Time for Completion: 10 minutes | | |

**SIMULATOR SETUP:**

None

**EVENT TRIGGERS**

None

**MALFUNCTIONS:**

None

**OVERRIDES:**

None

**REMOTE FUNCTIONS:**

None

## INSTRUCTOR ACTIONS:

1. Read initial conditions and initiating cues to the operator.

## TASK STANDARDS:

NOTE: This test would normally be performed by the OSS or STA. Notifications would be made by Operations personnel during a Security Emergency.

1. Communication has been established with offsite agencies. (Linn County, Benton County and Iowa Emergency Management Agencies) Simulated
2. Linn County, Benton County and Iowa Emergency Management Agencies verified to be on the microwave telephone line. Simulated
3. Offsite agencies notified that this a test of the DAEC Notification System and that a FAX will be sent. Simulated
4. Microwave telephone receiver hung up. Simulated
5. FAX form inserted into the Control Room FAX machine. Simulated
6. #01 push button depressed. Simulated
7. Linn County has been contacted using the numbers in the Emergency Telephone Book Simulated

## REQUIRED MATERIALS:

OP-28

## GENERAL REFERENCES:

OP 28

**Read to the operator the following information:**

**INITIAL CONDITIONS:**

1. You are the Shift Supervisor.
2. It is the middle of the week on the 0700 to 1900 shift.
3. It is currently 1000.

**INITIATING CUES:**

1. The Shift Manager directs you to perform Op-28, EPIP Offsite Agencies Notification Weekly Test.

**This task is not time critical.**

**Inform the evaluator when you have completed the task.**

## PERFORMANCE INFORMATION

NOTE:

Critical steps are denoted with a "C".
Failure to meet the standard for this step constitutes failure.

Time Start _____

| | |
|---|---|
| PERFORMANCE STEP:<br>Critical: **C** | Pick up Control Room Microwave telephone receiver, select line 2, dial 9999. |
| STANDARD: | Communication has been established with offsite agencies. (Linn County, Benton County and Iowa Emergency Management Agencies) Simulated |
| COMMENTS: | |

| | |
|---|---|
| PERFORMANCE STEP:<br>Critical: **C** | Verify offsite agencies answer. |
| STANDARD: | Linn County, Benton County and Iowa Emergency Management Agencies verified to be on the microwave telephone line. Simulated |
| COMMENTS: Cue the student that Benton County and Iowa Emergency Management agencies answer but Linn County does not answer. | |

| | |
|---|---|
| PERFORMANCE STEP:<br>Critical: | After the offsite agencies have answered, dial #### to cancel the ringer. |
| STANDARD: | #### dialed. Simulated |
| COMMENTS: | |

| | |
|---|---|
| PERFORMANCE STEP:<br>Critical: **C** | Inform offsite agencies that this is a test of the DAEC Notification System and that a test FAX will be sent. |
| STANDARD: | Offsite agencies notified that this a test of the DAEC Notification System and that a FAX will be sent. Simulated |
| COMMENTS: | |

| | |
|---|---|
| PERFORMANCE STEP:<br>Critical: | Ask for a call back at 2222 if FAX is not received. |
| STANDARD: | A call back is asked for if the FAX is not received. Simulated |
| COMMENTS: | |

| | |
|---|---|
| PERFORMANCE STEP:<br>Critical: **C** | Hang up the microwave telephone receiver. |
| STANDARD: | Microwave telephone receiver hung up. Simulated |
| COMMENTS: | |

| | |
|---|---|
| PERFORMANCE STEP:<br>Critical: **C** | Insert FAX form (Attachment 1) into Control Room FAX face down. |
| STANDARD: | FAX form inserted into the Control Room FAX machine. Simulated |
| COMMENTS: | |

| | |
|---|---|
| PERFORMANCE STEP.<br>Critical: **C** | After "Document Ready" message is displayed, push button #01 for normal hours or #02 for off-hours. |
| STANDARD: | #01 push button depressed. Simulated |
| COMMENTS: | |

| | |
|---|---|
| PERFORMANCE STEP:<br>Critical: | After the FAX has been sent, the machine will print out "Activity Report". Include this with the procedure. |
| STANDARD: | Activity Report included with OP-28. Simulated |
| COMMENTS: | |

| | |
|---|---|
| PERFORMANCE STEP:<br>Critical: | Verify that the Activity Report indicates the FAX forms were received. |
| STANDARD: | Receipt of the Fax forms has been verified. Simulated |
| COMMENTS: | |

| | |
|---|---|
| PERFORMANCE STEP:<br>Critical: **C** | If any offsite agencies cannot be contacted via the Control Room microwave telephone, contact those agencies using the telephone numbers of the Emergency Telephone Book (N/A if no problems). |
| STANDARD: | Linn County contacted by alternate method. (Simulated) |
| COMMENTS:<br>Number from Emergency Telephone Book for the Linn County Sheriff is 398-3511 or 911. | |

| | |
|---|---|
| PERFORMANCE STEP:<br>Critical: | If any problems are encountered with the FAX, inform the Supervisor of Emergency Planning during normal working hours. (N/A if no problems) |
| STANDARD: | Supervisor of Emergency Planning notified of any problems noted during the test. Simulated |
| COMMENTS: | |

| | |
|---|---|
| PERFORMANCE STEP:<br>Critical: | Section 8.0 ACCEPTANCE CRITERIA completed. |
| STANDARD: | Section 8.1<br>• Problems encountered; Yes<br>• An AR is appropriate<br>Section 8.2<br>• Test Comments<br>• Test Date<br>• OSS Signature and Date |
| COMMENTS:<br>CUE: It is not necessary to complete the AR Form. | |

Time Stop _____

**TERMINATING CUES:** OP-28 completed.

# VERIFICATION OF COMPLETION

JPM No.: 2.4.43-01 JPM Description: Perform OP-28, EPIP Offsite Agencies Notification Weekly Test

Operator: ______________________ Evaluator: ______________________

Licensee: ☐ RO ☐ SRO ☐ SRO Cert
☐ STA ☐ NSPEO

Result: ☐ SATISFACTORY ☐ UNSATISFACTORY

**COMMENTS/FEEDBACK:** (Note any trainee discrepancies or misperformed steps.)

______________________________ ____________
Evaluator's Signature Date

DUANE ARNOLD ENERGY CENTER

IES UTILITIES INC.

REV. 5 APPROVAL

TEST PROCEDURE NO. OP-028

EPIP OFFSITE AGENCIES NOTIFCATION WEEKLY TEST

Verified by: Susan Brown Date: 3-25-99

Approved by: Dean Cortland Date: 3/26/99
Operations Manager

Approved by: Dane Engelhardt Date: 3-30-99
Security Superintendent

Reviewed by: Paul R Sullivan Date: 4-10-99
Manager, Emergency Planning

Implementation Date APR 14 1999

# EPIP OFFSITE AGENCY NOTIFICATION WEEKLY TEST

1.0 Purpose

1.1 The purpose of this test is to demonstrate the ability of the Control Room FAX machine and microwave telephone to notify Linn County Emergency Management Agency, Benton County Emergency Management Agency and Iowa Emergency Management Division of any Emergency Event.

2.0 References

2.1 EPIP-1.2

2.2 10CFR50, Appendix E, IV.E.9

3.0 Performance Requirements

3.1 Frequency

3.1.1 At least once per week perform all steps.

3.2 Applicable Operating Condition

3.2.1 This test can be performed during all modes of operation.

4.0 General Instructions

4.1 All steps of this procedure are to be performed in sequence.

4.2 The Operations Shift Supervisor should be notified if any problems are encountered during this test.

4.3 An Action Request should be completed if any equipment problems are encountered during this test.

4.4 A Procedure Work Request (PWR) should be completed if any procedural problems are encountered during this test.

4.5 Personnel required for this procedure.

4.5.1 1 - Operations, or

4.5.2 1 - Security

5.0 Special Precautions

5.1 None

6.0 Prerequisites

6.1 None

| 7.0 | Procedure | INITIALS |
|---|---|---|

7.1 Microwave Phone Test

* * *

NOTE

No dial tone will be heard on this system.

* * *

7.1.1 Pick up Control Room Microwave telephone receiver, select line 2, dial 9999. _____

7.1.2 Verify offsite agencies answer.

a. Linn County Emergency Management Agency on line. (Linn County Sheriff during off hours) _____

b Benton County Emergency Management Agency on line. (Benton County Sheriff during off hours). _____

c. Iowa Emergency Management Division on line. (Iowa Department of Public Safety during off hours) _____

7.1.3 After offsite agencies have answered, dial # # # # to cancel the ringer. _____

7.1.4 Inform offsite agencies that this is a test of the DAEC Notification System and that a test FAX will be sent. _____

* * *

NOTE

Ask for call back at 2222 if FAX not received.

* * *

7.1.5 Hang up microwave telephone receiver. _____

INITIALS

7.1.6 FAX test

a. Insert test FAX form (Attachment 1) into Control Room FAX face down. _____

b. After "Document Ready" message is displayed, push button #01 for normal hours or button #02 for off-hours. _____

7.1.7 After the FAX has been sent, machine will print out "Activity Report". Include with this procedure. _____

7.1.8 Verify that "Activity Report" indicates the FAX forms were received. _____

7.1.9 If any offsite agencies cannot be contacted via the Control Room microwave telephone, contact those agencies using the telephone numbers of the Emergency Telephone Book provided in DAEC Notification List No. 1. (N/A if no problems) _____

7.1.10 If any problems are encountered with the fax, inform the Supervisor of Emergency Planning during normal working hours. (N/A if no problems) _____

Performed by _____ Date _____ Time _____

INITIALS

8.0 ACCEPTANCE CRITERIA

8.1 Were any problems encountered during the test? _____

( ) Yes ( ) No

PWR #_____ WO #_____ AR #_____

8.2 Test Comments indicated below, otherwise N/A.

_____

_____

_____

_____

_____

_____

Test Date _____

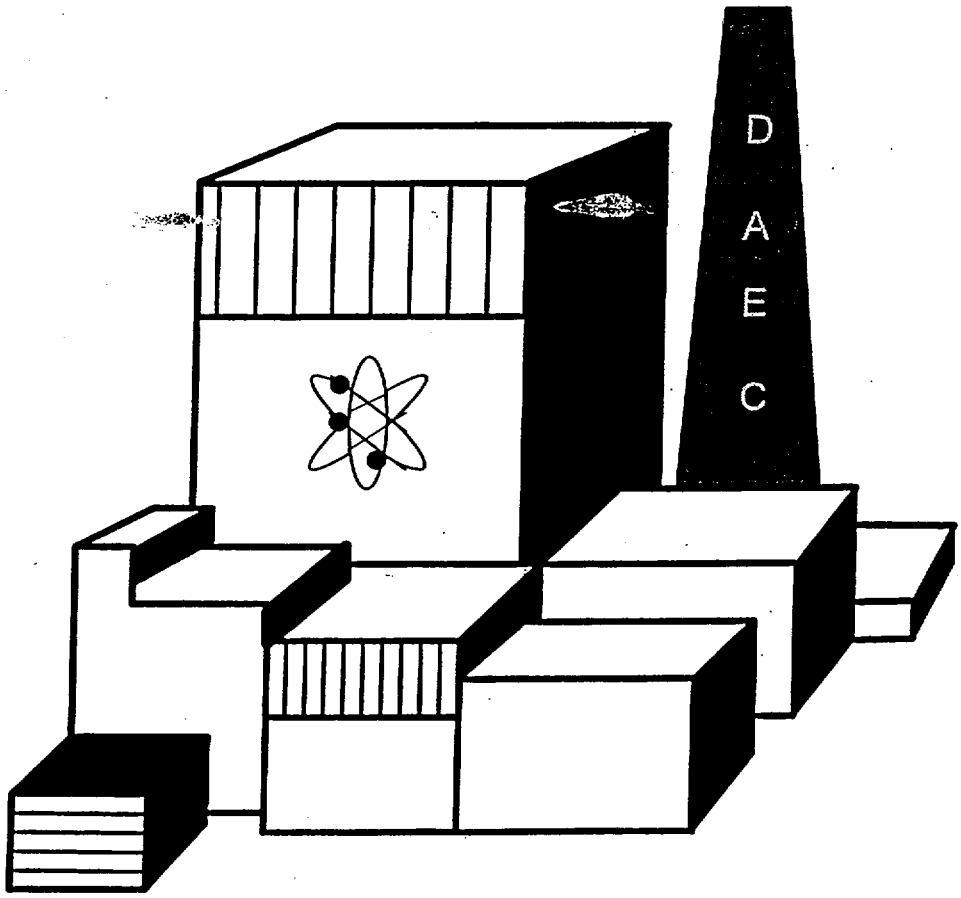
_____ _____
Operations Shift Supervisor Date

9.0 ATTACHMENT

9.1 FAX test form

# ATTACHMENT # 1
# TEST FAX MESSAGE

THIS IS A TEST FAX OF THE

EMERGENCY NOTIFICATION SYSTEM

DUANE ARNOLD ENERGY CENTER
CONTROL ROOM
319-851-7266