INITIAL SUBMITTAL OF THE ADMINISTRATIVE JPMS

FOR THE BRAIDWOOD INITIAL EXAMINATION - JULY 2002

JOB PERFORMANCE MEASURE

TASK TITLE: **Review Calorimetric Surveillance**

JPM No.: **S-42a**   REV: <u>1</u>

TPO No.: IV.C.NI-05   K&A No.: (015A1.01)

TASK No.: NI-004   K&A IMP: 3.5 /3.8

TRAINEE:_____

EVALUATOR:_____   DATE:_____

The Trainee: PASSED _____ this JPM.   TIME STARTED: _____

              FAILED _____   TIME FINISHED: _____

CRITICAL ELEMENTS: (*)3   JPM TIME:_____ MINUTES

CRITICAL TIME: **NA**   APPROX COMPLETION TIME 10 MINUTES

EVALUATION METHOD: LOCATION:
          __X__ PERFORM   _____ IN PLANT
          _____ SIMULATE   __X__ SIMULATOR

GENERAL REFERENCES:

1.   1BwOSR 3.3.1.2-1, Rev. 6, Unit 1 Power Range High Flux Setpoint Daily
      Channel Calibration (Computer Calorimetric).

MATERIALS:

      Copy of Completed/Ready for review 1BwOSR 3.3.1.2-1.

TASK STANDARDS:

1.   Perform review of calorimetric data collected by NSO.
2.   Verify the adjustment of NI's is correct.
3.   Demonstrates the use of good Core Work Practices (CWP).

TASK CONDITIONS:

1.   You are the Unit Supervisor.
2.   The Unit 1 is at 100% power, steady state.
3.   Unit 2 is at 100% power.

INITIATING CUES:

1.   The Unit NSO has completed the required calorimetric surveillance and has
      asked for your review per 1BwOSR 0.1-1,2,3.

**Note: Hand examinee completed calorimetric D-2 data sheet #1, with the 4 page printout
of the calorimetric results from the JPM. (pages 6-9)**

1

PERFORMANCE CHECKLIST	STANDARDS	SAT	UNSAT	N/A

RECORD START TIME _____

Note: This JPM is performed by having the examinee review the D-2 Data sheet from the surveillance. The first data sheet is complete through block 15 but has 1 mistake in it. The examinee must locate the mistake to pass the JPM prior to signing block 16, Review Authorization, and ending the JPM.

1. Refer to completed 1BwOSR 3.3.1.2-1.

   (CUE: **Ensure D-2 Data Sheet #1 is handed to examinee with the printout of the calorimetric data.)**

   All Prereqs were met

   Review the data sheet for completeness/errors for blocks 1 and 2:

   - Date: Today
   - Time: 10 minutes ago
   - Mwe Gross: Current (1257.0)
   - Control Bank Position: Current for C1 (228), C2 (228), D1 (215), D2 (215).
   - NSOs Signature.

   ☐ ☐ ☐

2. Review blocks 3,10,11 and 12.

   Review blocks 3,10,11 and 12 for completeness and/or errors:

   - Initial NIS Drawer Front Panel Meter Power filled in.
   - Calculated Calorimetric Power from printout filled in.
   - Calculated Power difference filled in.
   - Block 12 checked (3 NO, 1 YES)

   ☐ ☐ ☐

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PERFORMANCE CHECKLIST	STANDARDS	SAT	UNSAT	N/A

*3. Verify the calculation that determines to what power N-42 must be adjusted.

DETERMINE the power channel N-42 needs to be adjusted to as follows:

☐ SAT ☐ UNSAT ☐ N/A

o Ensure the present percent power values are filled in block 13.

(Note: If examinee discovers the N-44 mistake, and either wants the NSO to correct box 15 or wants to do it himself, cue the examinee that the correction has been made and hand him D-2 data sheet #2.

o VERIFY the corrected calculated power difference from block 11 in block 14.

o VERIFY/SUBTRACT the power difference from the present indicated power and the value as the Power to adjust the NIS channels to in block 15.

(Note: The examinee needs to verify the subtraction and determination of the indicated power the adjustments must result in for N-44.)

• Identify that the numbers were subtracted incorrectly (error) Correct answer should be 100.0%

(Note: If the examinee has NOT identified and corrected the mistake (N-44) by the time he signs Block 16, "Review Authorization", and ends the JPM then the JPM performance is UNSAT.)

• Sign the "Review Authorization", block 16 after correction is made to block 15.

(CUE:) THIS COMPLETES THIS JPM.

RECORD STOP TIME _____

COMMENTS:

TASK CONDITIONS:

    1.   You are the Unit Supervisor.
    2.   The Unit 1 is at 100% power, steady state.
    3.   Unit 2 is at 100% power.

INITIATING CUES:

    2.   The Unit NSO has completed the required calorimetric surveillance and has asked for your review per 1BwOSR 0.1-1,2,3.

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S-42 (7/3/01)
ZD73EXAM

SIMULATOR SETUP INSTRUCTIONS

JPM NO: S-42

REQUIRED SIMULATOR MODE(S): 100% power steady state

MALFUNCTION #'S: N/A

COMMENTS:
1)   Since the data sheets are already filled in, no further set up is necessary.

UNIT ONE
COMPUTER CALORIMETRIC DATA SHEET

1. Date: _TO/ DA/Y-_   Time: _(10 minutes ago)_

2. MWe (gross): _1257.0_   Control Bank Positions:

C1	_228_	steps
C2	_228_	steps
D1	_215_	steps
D2	_215_	steps

ALL prerequisites have been satisfactorily addressed?:   NSO Signature: _Joe Operator_

	3. INITIAL NIS Drawer Front Panel Meter Power	−	10. Calculated Calorimetric Power (From Printout)	=	11. Calculate Power Difference	12. Is an adjustment required? ["YES" if F.11 ≥ 2% (+ or -) or is negative when above P-8]
NR-41	_100.5_	−	_100.0_	=	_0.5_	☐ YES ☒ NO
NR-42	_101.2_	−	_100.0_	=	_1.2_	☐ YES ☒ NO
NR-43	_100.1_	−	_100.0_	=	_0.1_	☐ YES ☒ NO
NR-44	_99.7_	−	_100.0_	=	_-0.3_	☒ YES ☐ NO

	13. PRESENT NIS Drawer Front Panel Meter Power	−	14. Calculated Power Difference (F.11)	=	15. Power to Adjust NIS Channel to	16. Review Authorization	19. Was NIS Channel Satisfactorily Adjusted?
NR-41	_NA_	−	_NA_	=	_NA_		☐ YES ☐ NO
NR-42	_NA_	−	_NA_	=	_NA_		☐ YES ☐ NO
NR-43	_NA_	−	_NA_	=	_NA_		☐ YES ☐ NO
NR-44	_99.7_	−	_-0.3_	=	_99.4_		☐ YES ☐ NO

22. a. Printout reviewed by Shift Manager or Designee?	☐ YES ☐ NO
b. Printout attached on next data sheet?	☐ YES ☐ NO

UNIT ONE
COMPUTER CALORIMETRIC DATA SHEET

1. Date: _TO / DA / Y-_   Time: _(10 minutes ago)_

2. MWe (gross): _1257.0_   Control Bank Positions:

   C1 _228_ steps
   C2 _228_ steps
   D1 _215_ steps
   D2 _215_ steps

   ALL prerequisites have been satisfactorily addressed?:   NSO Signature: _____

3. INITIAL NIS Drawer Front Panel Meter Power	-	10. Calculated Calorimetric Power (From Printout)	=	11. Calculate Power Difference	12. Is an adjustment required? ["YES" if F.11 ≥ 2% (+ or -) or is negative when above P-8]
NR-41 _100.5_	-	_100.0_	=	_0.5_	☐ YES ☒ NO
NR-42 _101.2_	-	_100.0_	=	_1.2_	☐ YES ☒ NO
NR-43 _100.1_	-	_100.0_	=	_0.1_	☐ YES ☒ NO
NR-44 _99.7_	-	_100.0_	=	_-0.3_	☒ YES ☐ NO

13. PRESENT NIS Drawer Front Panel Meter Power	-	14. Calculated Power Difference (F.11)	=	15. Power to Adjust NIS Channel to	16. Review Authorization	19. Was NIS Channel Satisfactorily Adjusted?
NR-41 _NA_	-	_NA_	=	_NA_		☐ YES ☐ NO
NR-42 _NA_	-	_NA_	=	_NA_		☐ YES ☐ NO
NR-43 _NA_	-	_NA_	=	_NA_	_____	☐ YES ☐ NO
NR-44 _99.7_	-	_-0.3_	=	_100.0_		☐ YES ☐ NO

22. a. Printout reviewed by Shift Manager or Designee?	☐ YES ☐ NO
b. Printout attached on next data sheet?	☐ YES ☐ NO

#2

UNIT ONE
COMPUTER CALORIMETRIC DATA SHEET

1. Date TO / DA / Y-   Time: (10 minutes ago)

2. MWe (gross): 1257.0   Control Bank Positions:

C1	228	steps
C2	228	steps
D1	215	steps
D2	215	steps

ALL prerequisites have been satisfactorily addressed?:   NSO Signature: _____

	3. INITIAL NIS Drawer Front Panel Meter Power	-	10. Calculated Calorimetric Power (From Printout)	=	11. Calculate Power Difference	12. Is an adjustment required? ["YES" if F.11 ≥ 2% (+ or -) or is negative when above P-8]
NR-41	100.5	-	100.0	=	0.5	
NR-42	101.2	-	100.0	=	1.2	☐ YES ☒ NO
NR-43	100.1	-	100.0	=	0.1	☐ YES ☒ NO
NR-44	99.7	-	100.0	=	-0.3	☐ YES ☒ NO
						☒ YES ☐ NO

	13. PRESENT NIS Drawer Front Panel Meter Power	-	14. Calculated Power Difference (F.11)	=	15. Power to Adjust NIS Channel to	16. Review Authorization	19. Was NIS Channel Satisfactorily Adjusted?
NR-41	NA	-	NA	=	NA		
NR-42	NA	-	NA	=	NA		☐ YES ☐ NO
NR-43	NA	-	NA	=	NA	_____	☐ YES ☐ NO
NR-44	99.7	-	-0.3	=	100.0		☐ YES ☐ NO

22. a. Printout reviewed by Shift Manager or Designee?   ☐ YES ☐ NO

b. Printout attached on next data sheet?   ☐ YES ☐ NO   ☐ YES ☐ NO

#2

BRAIDWOOD UNIT 1

TIME: 10 MINUTES AGO   TEN MINUTE AVERAGE CALORIMETRIC   DATE: TODAY

GROSS GENERATION: 1257.0   AVE NIS PR(%)   100.3

AVERAGE FEED WATER (DEGF)   443.21

	STEAM PRESS (PSIG)	NET FEEDWATER FLOW (KBH)	BLOWDOWN FLOW (GPM)	TEMPERING FLOW (KBH)	INITIAL NIS POWER(%)	LOOP THERMAL POWER (KBTU/HR)
LOOP 1:	998.1	4008.89	58.26	41.31	100.3	3055.8
LOOP 2:	997.6	4020.04	58.18	41.06	99.1	3064.4
LOOP 3:	997.2	4021.15	58.18	41.85	100.1	3065.3
LOOP 4:	998.5	4004.22	58.29	41.97	99.6	3052.1

SUM LOOP THERMAL POWER (KBTU/HR):   .1224E 05

PERCENT POWER (%):   100.0

BRAIDWOOD UNIT 1

CALORIMETRIC PAGE #2

PREREQUISITE	TIME	TOLERANCE	AVERAGE	DEVIATION	SATISFIED?
#1 REACTOR POWER	5 MIN	+/- 0.5%	100.3	.0	YES
#2 SG 1A LEVEL	5 MIN	+/- 1.5%	60.0	.0	YES
#2 SG 1B LEVEL	5 MIN	+/- 1.5%	60.0	.0	YES
#2 SG 1C LEVEL	5 MIN	+/- 1.5%	60.0	.0	YES
#2 SG 1D LEVEL	5 MIN	+/- 1.5%	60.0	.0	YES
#3 SG 1A PRESS	5 MIN	+/- 1.0%	998.1	.0	YES
#3 SG 1B PRESS	5 MIN	+/- 1.0%	997.6	.0	YES
#3 SG 1C PRESS	5 MIN	+/- 1.0%	997.2	.0	YES
#3 SG 1D PRESS	5 MIN	+/- 1.0%	998.5	.0	YES
#4 NO ROD MOTION C	5 MIN	+/- 0.2%	228.0	0.0	YES
#4 NO ROD MOTION D	5 MIN	+/- 0.2%	216	0.0	YES
#5 S/G 1A BLWD FLOWS	5 MIN	+/- 10%	58.3	.0	YES
#5 S/G 1B BLWD FLOWS	5 MIN	+/- 10%	58.2	.0	YES
#5 S/G 1C BLWD FLOWS	5 MIN	+/- 10%	58.2	.0	YES
#5 S/G 1D BLWD FLOWS	5 MIN	+/- 10%	58.3	.0	YES

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#6 FEEDWATER FLOW

SG 1A TAP SET	1	5 MIN	+/- 5.0%	488.2	.0	YES
SG 1A TAP SET	2	5 MIN	+/- 5.0%	487.6	.0	YES
SG 1B TAP SET	1	5 MIN	+/- 5.0%	491.0	.0	YES
SG 1B TAP SET	2	5 MIN	+/- 5.0%	489.1	.0	YES
SG 1C TAP SET	1	5 MIN	+/- 5.0%	487.2	.0	YES
SG 1C TAP SET	2	5 MIN	+/- 5.0%	485.9	.0	YES
SG 1D TAP SET	1	5 MIN	+/- 5.0%	477.2	.0	YES
SG 1D TAP SET	2	5 MIN	+/- 5.0%	481.9	.0	YES

#7 FEEDWATER TEMPERATURE

SG 1A	5 MIN	+/- 0.5%	443.2	.0	YES
SG 1B	5 MIN	+/- 0.5%	443.2	.0	YES
SG 1C	5 MIN	+/- 0.5%	443.2	.0	YES
SG 1D	5 MIN	+/- 0.5%	443.2	.0	YES

BRAIDWOOD UNIT 1

CALORIMETRIC PAGE #4

TIME: 10 MINUTES AGO   CALORIMETRIC INPUT SCAN STATUS

0 OF 88 CALORIMETRIC INPUTS ARE OFF SCAN

UNIT ONE
POWER RANGE HIGH FLUX SETPOINT
DAILY CHANNEL CALIBRATION
(COMPUTER CALORIMETRIC)

A.   STATEMENT OF APPLICABILITY

This procedure outlines the steps necessary to perform a CHANNEL CALIBRATION of each OPERABLE Power Range Neutron Flux High Setpoint Channel by performing a secondary side computer calorimetric and verifying/adjusting the channel(s) as necessary. This procedure or 1BwOSR 3.3.1.2-2 SHALL be performed as applicable at least once per 24 hours (normally performed twice) as directed by 1BwOSR 0.1-1,2,3 and is applicable in MODE 1 ≥ 15% RTP.

B.   REFERENCES

1.   Tech Spec LCO 3.3.1.

2.   Tech Spec Surveillance Requirement SR 3.3.1.2, Table 3.3.1-1, Function 2.a.

3.   Station Procedures:

   a.   1BwGP 100-3, Power Ascension.

   b.   1BwOSR 0.1-1,2,3, UNIT One MODES 1, 2 and 3 Shiftly and Daily Operating Surveillance.

   c.   1BwOSR 3.3.1.2-2, UNIT One Power Range High Flux Setpoint Daily Channel Calibration (Hand Calculated Calorimetric).

   d.   1BwOL 3.3.1, LCOAR - Instrumentation - Reactor Trip System Instrumentation.

4.   UFSAR Sections:

   a.   4.3.1.3.   g.   10.4.9.3.2.
   b.   4.3.2.2.6   h.   Table 14.2-82.
   c.   4.4.2.9.1.   i.   15.0.7.
   d.   4.4.2.9.6.   j.   Table 15.0-6.
   e.   5.2.2.2.   k.   Table 15.6-2.
   f.   6.2.1.3.2.

5.   ASME Steam Tables.

B.   6.   Station Commitments/AIRs/etc.:

      a.   456-400-89-OP.02-01D, define/address "suspect" values.

      b.   456-402-89-02301, notify SNE if Coarse adjustment was performed or if an adjustment of > $\underline{3}$% was made.

C.   PREREQUISITES

1.   Receive permission to perform this surveillance from the Shift Manager or designee prior to performance by having the Data Package Cover Sheet signed and dated IF being performed other than as directed by 1BwOSR 0.1-1,2,3.

2.   Notify the Shift Manager or designee prior to performance of this surveillance if being performed as directed by 1BwOSR 0.1-1,2,3.

3.   The Reactor has been at a constant power level ≥ $\underline{15}$% of rated thermal power and the unit has been at a steady state load for greater than $\underline{10}$ minutes.

4.   Steam Generator levels and steam pressures have been constant for greater than $\underline{10}$ minutes.

5.   There has been no rod motion for greater than $\underline{10}$ minutes.

6.   Feedwater flow and temperature have been constant for greater than $\underline{10}$ minutes.

7.   Steam Generator Blowdown flows have been constant for greater than $\underline{10}$ minutes.

D.   PRECAUTIONS

1.   When using the process computer to perform the calorimetric calculation, care must be taken to verify that the steam generator blowdown flowrates are correctly input into the computer AT ALL TIMES. This must be done in order to verify the eight hour average power values are correct.

2.   If any calorimetric manual input value is added, removed, or modified, a minimum of 15 minutes must elapse prior to initiation of the calorimetric to verify that the 10 minute historical calculation performed by the computer contains the new value(s) for the entire 10 minute calculated period. Field obtained manual inputs for feedwater pressure and feedwater temperature may be determined by the use of Appendix D.

3.   UNIT operating parameters SHALL not be changed while performing the calorimetric or adjusting the NIS Power Range channels.

4.   Data SHALL be obtained concurrently so that it is compatible.

5.   Care should be taken when adjusting NIS Power Range channels to prevent an inadvertent Reactor trip due to an excessive rate of adjustment and/or failure to reset rate trips prior to adjusting subsequent channels.

6.   The Calorimetric calculation should, whenever possible, be performed with the Tave - Tref deviation within 1°F, unless the Unit is in Coastdown. This is to verify that any required adjustments will result in more constant Nuclear Power indications when operating at or near 100% power.

E.   LIMITATIONS AND ACTIONS

1.   In the event the Acceptance Criteria is not met during the performance of this surveillance, IMMEDIATELY notify the Shift Manager or designee to initiate 1BwOL 3.3.1.

2.   The computer printout must be signed by the Shift Manager or designee and attached to the last data sheet and retained.

3.   All steps requiring recorded information SHALL be recorded in the specified blocks of the data sheets.

*E. 4. The following applies to the QUALITY assigned to the values used in Plant Process Computer applications:

    a. SUSPECT (an "S" follows the value) means the data was not collected under optimal conditions or is the result of a manually entered input. The value is acceptable.

    b. POOR (a "P" follows the value) means the value is marginal. Every effort must first be made to determine and correct the cause of a POOR final calorimetric output and the Shift Manager or designee must approve its use.

    c. BAD ("XXXX" is displayed in place of the value) means the value is unacceptable for use.

    d. The quality for each value is carried through any calculation using that value. The quality that appears is the worst quality that went into the calculation. The only exception is that a POOR combined with a SUSPECT or another POOR will result in a BAD quality.

5. An OPERABLE NIS Power Range Channel SHALL be adjusted if, based on the calorimetric:

    a. The absolute difference is greater than 2 percent, or

    b. When above P-8, the indicated power is less than that obtained in this calculation.

6. If the calorimetric indicates the need to adjust an OPERABLE NIS Power Range channel, this adjustment SHALL be accomplished promptly after the calorimetric calculation and prior to a power change.

7. If the process computer is unavailable, results must be obtained by performing 1BwOSR 3.3.1.2-2, UNIT One Power Range High Flux Setpoint Daily Channel Calibration (Hand Calculated Calorimetric).

8. If the Drawer Front Panel Meter for any Power Range Channel is inoperable it is acceptable to use the Main Control Board Indicator on 1PM05J for any required reading or adjustments.

9. If a Cold Junction T/C Reference input has failed (as indicated by BwAR 1-4-A6 and on the 1PM05J Monitor), exit this procedure and PERFORM 1BwOSR 3.3.1.2-2, Unit One Power Range High Flux Setpoint Daily Channel Calibration (Hand Calculated Calorimetric).

E.   10.   If the Computer Room temperature and the Feedwater Inlet temperature
computer points are noticeably trending in either direction at the same time,
review the following sub-steps to determine if the calorimetric program is valid.

a.   Definitions:

Monitoring Period: A Monitoring Period is defined as the period of time
just prior to a Computer Room temperature change until the Room
temperature stabilizes (less than 0.2 Deg F change in one hour) at a new
value. This period may be up to 8 hours depending upon conditions.

Calorimetric Feedwater temperature points: T0418, T0438, T0458 and
T0478.

Computer Room temperature points: T8004 and T8005.

b.   During a Monitoring Period, perform the following review:

NOTE

It is recommended that the Operator review the following FW temperature trends:

- The Calorimetric Feedwater Temperature Point, U0490, Stm Gen Feedwater In Avg T.
- The RTD Feedwater Temperature Points U9030, Stm Gen in Avg RTD.

If a trending FW temperature is the result of actual Unit changes, this trend will be seen on both computer points.

If a trending FW temperature is the result of thermocouple compensation changes, only U0490, Stm Gen Feedwater Avg T will indicate the changing trend.

NOTE

When the supplemental Air Conditioner (Liebert Unit) is started or shutdown the following indications are considered normal.

Liebert Unit started   Calorimetric Feedwater Temperature approximate 0.6 Deg F increase over an approximate two hour period.

Liebert Unit shutdown   Calorimetric Feedwater Temperature approximate 0.6 Deg F decrease over an approximate two hour period.

E. 10. b. 1) For the duration of a Monitoring Period, monitor the change in the Calorimetric Feedwater Temperature Points to determine Calorimetric validity:

Calorimetric Valid

FW Temperature change less than 0.8 Deg F during the Monitoring Period.

Calorimetric May Be Invalid

FW temperature change greater than 0.8 Deg F during the Monitoring Period, and the cause is due to the thermocouple compensation changes.

The calorimetric may be invalid. At the discretion of the Shift Manager/designee, exit this procedure and perform 1BwOSR 3.3.1.2-2, Unit One Power Range High Flux Setpoint Daily Channel Calibration (Hand Calculated Calorimetric). Contact Engineering for additional guidance as required.

F. <u>MAIN BODY</u>

1. RECORD the date and time the calorimetric was started in Block 1 of Data Sheet D-2.

2. RECORD the gross megawatts electric and the control rod bank positions in Block 2 AND VERIFY that all <u>PREREQUISITES</u> (Section C) are satisfactorily addressed by signing in Block 2.

3. RECORD the Initial percent power readings from the NR-41, NR-42, NR-43, and NR-44 Drawer Front Panel Meters in Block 3.

4. SELECT OPCON Page:

   O   Verify OPCON Page showing at top center of computer.

   O   SELECT "OTHER" under "Page Section:" section at the left-center of computer screen.

5. POSITION mouse cursor to within the black background area to enable keyboard function.

6. DEPRESS "F8" to select function menu.

7. TYPE "23"

8. DEPRESS the "RETURN" key to select the computer calorimetric.

CAUTION

Steam Generator Blowdown Flows can be manually entered, if necessary. All manually entered values must be verified correct and kept up to date so the eight hour average calorimetric is accurate. Also, any manually entered value that is added, removed, or modified, requires that a minimum of 15 minutes elapse prior to initiation of a 10 minute average calorimetric to ensure that calculation performed by the computer contains the new value(s) for the entire 10 minute calculated period.

F.   9.   PERFORM the following to create a report:

    a.   TYPE "2" as the time span (for a 10 minute average).

    b.   SELECT the Report Format.

        O   TYPE "1" as the Report Format for Short Output.

        O   TYPE "2" as the Report Format for Long Output.

    c.   SELECT desired output device.

        O   TYPE "1" for this CRT.

        O   TYPE "2" for TREND TYPER.

    d.   VERIFY each steam generator loop blowdown flow (If there is a problem with the flow sensor, then ENTER these values through point detail).

    e.   DEPRESS RETURN.

    f.   IF the printout percent power value QUALITY has an assigned code of "S" (SUSPECT), THEN perform a review of all manually entered process computer points in accordance with Appendix C.
(Otherwise this step is N/A)

F.   10.   RECORD the percent power value for each OPERABLE Channel from the printout in Block 10.

11.   DETERMINE the power difference using the formula below for each OPERABLE channel AND RECORD results in Block 11.

NIS Power   Calorimetric Power   Power Difference
(Block 3)   -   (Block 10)   =   (Block 11)

12.   DETERMINE if an adjustment is required for each OPERABLE channel:

a.   IF Block 11 is a positive number and less than 2%, INDICATE "NO" in Block 12.

b.   IF Block 11 is greater than or equal to a positive or negative 2%, INDICATE "YES" AND PROCEED to step 13.

c.   IF above P-8 and Block 11 is negative, INDICATE "YES" AND PROCEED to step 13.

d.   IF all answers are positive and less than 2%, adjustments to NIS power range channels are not required but may be performed at the discretion of the Shift Manager or designee by proceeding to step 13.

e.   IF no adjustments are to be made, GO TO step 22.

13.   RECORD the PRESENT percent power readings from the NR-41, NR-42, NR-43 and NR-44 Drawer Front Panel Meters in Block 13.

14.   RECORD the POWER DIFFERENCE calculated in step 11 in Block 14.

15.   SUBTRACT the Power difference (Block 14) from the current NIS readings (Block 13) to determine the indicated power level to adjust to and RECORD result in Block 15.

16.   Power adjustment reviewed/approved by Shift Manager or Designee by signing in Block 16.

17.   PLACE the Rod control system in MANUAL.

F.   18.   Perform this step ONLY if one NIS Power Range Channel is Inoperable:

> **NOTE**
> Verify the Tech Spec Action Statement for one inoperable Power
> Range channel is complied with.

a.   INSTALL the control power fuse for the inoperable channel.

> **NOTE**
> The Lo RX Trip cannot be reset above 10% RTP.

b.   ADJUST the gain potentiometer (R303) on the inoperable NIS channel
power range drawer B until the HI Rx trip bistable can be reset.

> **CAUTION**
> The positive rate trips must be reset on the inoperable
> NIS channel prior to adjusting the gains on the operable
> channels. This will verify that a 2/4 Coincidence Reactor
> Trip will not occur.

c.   VERIFY/RESET any NIS Power Range RATE TRIP present.

d.   IF any of the applicable trip bistables cannot be reset, THEN DO NOT
continue. NOTIFY the Shift Manager or designee.

e.   IF all of the applicable trip bistables are reset on the inoperable NIS
channel, PROCEED to step 19 of this procedure.

F.   19.   ADJUST the out of tolerance channels one at a time utilizing the following format:

CAUTION

The following action could cause a Flux Rate Trip of the detector(s) being adjusted. Two of four channels will cause a reactor trip. Adjust one channel at a time.

NOTE

Notify the Station Nuclear Engineer or designee as soon as practical thereafter if any channel requires an adjustment of, or is adjusted by more than 3% of Rated Thermal Power.

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a.   ADJUST the GAIN potentiometer (R303) on Drawer B of the desired OPERABLE NIS Power Range to be adjusted until:

   1)   The PERCENT POWER reading agrees with the calculated value from Block 15, OR,

   2)   The GAIN potentiometer (R303) reaches the end of its adjustment range.

CAUTION

DO NOT adjust the "coarse adjust" pots (R304 or R305) near the front left and right sides of the drawer. These are the A and B ion current gain coarse level adjustments. Refer to Appendix A for location of R312.

NOTE

Notify the Station Nuclear Engineer or designee as soon as practical thereafter if any channel requires a COARSE GAIN adjustment.

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b.   IF the GAIN potentiometer (R303) reaches the end of its adjustment range. REQUEST IMD adjust the COARSE LEVEL ADJUST potentiometer (R312) such that:

   1)   The GAIN potentiometer (R303) is set approximately mid-range. and

   2)   The PERCENT POWER reading agrees with the calculated value from Block 15.

11

F.   19.   c.   VERIFY/RESET any NIS Power Range RATE TRIP present.

              d.   INDICATE "YES" in Block 19 for the channel adjusted.

              e.   REPEAT Steps F.19.a, b, c, and d for any remaining OPERABLE NIS channels needing adjustment.

              f.   IF the COARSE LEVEL ADJUST potentiometer was adjusted for any OPERABLE NIS Power Range Instrument, REPEAT this surveillance.

       20.   PERFORM this step ONLY if an inoperable NIS power range channel was restored in step 18 of this procedure:

              a.   VERIFY/RESET the following bistables on the OPERABLE channels.

                     ●   Hi Rx trip

                     ●   Positive rate trip

              b.   If the applicable trip bistables cannot be reset on the OPERABLE channels, then DO NOT continue and NOTIFY the Shift Manager or designee.

              c.   IF the trip bistables are reset, THEN CONTINUE to the next step.

              d.   REMOVE the control power fuse for the inoperable power range channel.

              e.   VERIFY the following bistable tripped:

                     ●   Lo Rx trip

                     ●   Hi Rx trip

                     ●   Positive rate trip

       21.   RETURN the Rod control system to AUTO when T_{ave} is within 1.0 F of T_{ref}, or as directed by Unit Supervisor.

       22.   ATTACH the computer printout (reviewed by the Shift Manager or designee) (with transparent tape) on the last data sheet and indicate "YES" in Block 22.

NOTE

Notify the Station Nuclear Engineer or designee as soon as practical thereafter if any channel:

1.   Requires a COARSE GAIN adjustment, or

2.   Requires an adjustment of, or is adjusted by more than 3% of Rated Thermal Power.
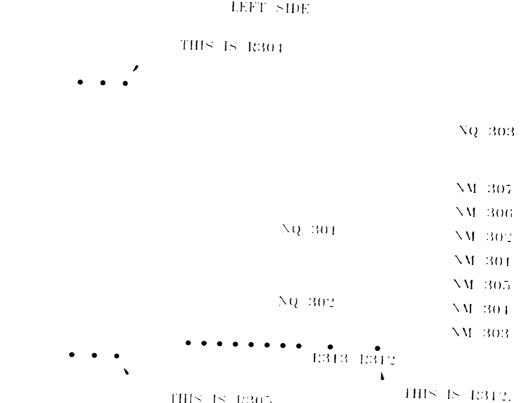
G.   ACCEPTANCE CRITERIA

1.   Administratively limited to have, when above P-8, all OPERABLE NIS power range instruments indicate or adjusted to within a positive 2% reading of calculated thermal power of the calorimetric.

2.   Limited by Tech Specs to have all OPERABLE NIS power range instruments indicate or adjusted to within a positive or negative 2% reading of calculated thermal power of the calorimetric.

APPENDIX A

TOP VIEW OF POWER RANGE DRAWER "B"

CAUTION
DO NOT adjust the "coarse adjust" pots (R304 or R305)
near the front left and right sides of the drawer. These are
the A and B ion current gain coarse level adjustments.

LEFT SIDE

THIS IS R304

NQ 303

NM 307

NM 306

NQ 301   NM 302

NM 301

NM 305

NQ 302   NM 304

NM 303

R313 R312

THIS IS R305   THIS IS R312,
COARSE LEVEL
ADJUSTMENT.

RIGHT SIDE

DRAWER FRONT

14

APPENDIX B
(Page 1 of 3)
CALORIMETRIC PROGRAM INPUTS

POINT ID	DESCRIPTION	UNITS	NOTES
F0407	S/G 1A BLOWDOWN	GPM	** ##
F0427	S/G 1B BLOWDOWN	GPM	** ##
F0447	S/G 1C BLOWDOWN	GPM	** ##
F0467	S/G 1D BLOWDOWN	GPM	** ##
F0417	S/G 1A BLOWDOWN	#2 TAP	**##
F0437	S/G 1B BLOWDOWN	#2 TAP	**##
F0457	S/G 1C BLOWDOWN	#2 TAP	**##
F0477	S/G 1D BLOWDOWN	#2 TAP	**##
F2239	S/G 1A FW TEMPERING	GPM	**
F2240	S/G 1B FW TEMPERING	GPM	**
F2241	S/G 1C FW TEMPERING	GPM	**
F2242	S/G 1D FW TEMPERING	GPM	**
U0415	STM GEN 1 NAR RNG L 1/2/3/4 AVG	PC	**
L0400	STM GEN 1 NAR RNG 1 L	PC	
L0401	STM GEN 1 NAR RNG 2L	PC	
L0402	STM GEN 1 NAR RNG 3 L	PC	
L0403	STM GEN 1 NAR RNG 4 L	PC	
U0435	STM GEN 2 NAR RNG L 1/2/3/4 AVG	PC	**
L0420	STM GEN 2 NAR RNG 1 L	PC	
L0421	STM GEN 2 NAR RNG 2 L	PC	
L0422	STM GEN 2 NAR RNG 3 L	PC	
L0423	STM GEN 2 NAR RNG 4 L	PC	
U0455	STM GEN 3 NAR RNG L 1/2/3/4 AVG	PC	**
L0440	STM GEN 3 NAR RNG 1 L	PC	
L0441	STM GEN 3 NAR RNG 2 L	PC	
L0442	STM GEN 3 NAR RNG 3 L	PC	
L0443	STM GEN 3 NAR RNG 4 L	PC	
U0475	STM GEN 4 NAR RNG L 1/2/3/4 AVG	PC	**
L0460	STM GEN 4 NAR RNG 1 L	PC	
L0461	STM GEN 4 NAR RNG 2 L	PC	
L0462	STM GEN 4 NAR RNG 3 L	PC	
L0463	STM GEN 4 NAR RNG 4 L	PC	
N0049	PWR RNG CH 41 (QUAD 4) DET Q	PC	**
N0050	PWR RNG CH 42 (QUAD 2) DET Q	PC	**
N0051	PWR RNG CH 43 (QUAD 1) DET Q	PC	**
N0052	PWR RNG CH 44 (QUAD 3) DET Q	PC	**

** These inputs are also used to determine the prerequisites
These inputs affect QUALITY of Final Output of Calorimetric

APPENDIX B

(Page 2 of 3)

CALORIMETRIC PROGRAM INPUTS

POINT ID	DESCRIPTION	UNITS	NOTES
U0414	STM GEN 1 STM P 1/2/3 AVG	PSIG	** ##
P0400	STM GEN 1 STM OUT 1 P	PSIG	
P0401	STM GEN 1 STM OUT 2 P	PSIG	
P0402	STM GEN 1 STM OUT 3 P	PSIG	
U0434	STM GEN 2 STM P 1/2/3 AVG	PSIG	** ##
P0420	STM GEN 2 STM OUT 1 P	PSIG	
P0421	STM GEN 2 STM OUT 2 P	PSIG	
P0422	STM GEN 2 STM OUT 3 P	PSIG	
U0454	STM GEN 3 STM P 1/2/3 AVG	PSIG	** ##
P0440	STM GEN 3 STM OUT 1 P	PSIG	
P0441	STM GEN 3 STM OUT 2 P	PSIG	
P0442	STM GEN 3 STM OUT 3 P	PSIG	
U0474	STM GEN 4 STM P 1/2/3 AVG	PSIG	** ##
P0460	STM GEN 4 STM OUT 1 P	PSIG	
P0461	STM GEN 4 STM OUT 2 P	PSIG	
P0462	STM GEN 4 STM OUT 3 P	PSIG	
T0418	S/G 1A FEEDWATER IN TEMP	DEGF	##
T0438	S/G 1B FEEDWATER IN TEMP	DEGF	##
T0458	S/G 1C FEEDWATER IN TEMP	DEGF	##
T0478	S/G 1D FEEDWATER IN TEMP	DEGF	##
U0051	CONT ROD BANK C STEP COUNT	STEPS	**
U0052	CONT ROD BANK D STEP COUNT	STEPS	**
U0490	AVERAGE FEEDWATER TEMP	DEGF	**
U8020	S/G 1A RAW FW DP FT-510	INWC	** ##
U8021	S/G 1A RAW FW DP FT-511	INWC	** ##
U8022	S/G 1B RAW FW DP FT-520	INWC	** ##
U8023	S/G 1B RAW FW DP FT-521	INWC	** ##
U8024	S/G 1C RAW FW DP FT-530	INWC	** ##
U8025	S/G 1C RAW FW DP FT-531	INWC	** ##
U8026	S/G 1D RAW FW DP FT-540	INWC	** ##
U8027	S/G 1D RAW FW DP FT-541	INWC	** ##
U1150	PWR RNG NUCL CHANNEL AVG T1MQ	PC	##
Q2800	GEN MW	MW	

** These inputs are also used to determine the prerequisites
These inputs affect QUALITY of Final Output of Calorimetric

APPENDIX B

(Page 3 of 3)

CALORIMETRIC PROGRAM INPUTS

POINT ID	DESCRIPTION	UNITS	NOTES
P0403	S/G 1A FW IN PRESSURE	PSIG	##
P0423	S/G 1B FW IN PRESSURE	PSIG	##
P0443	S/G 1C FW IN PRESSURE	PSIG	##
P0463	S/G 1D FW IN PRESSURE	PSIG	##
K8120	S/G 1A FT-510 FULL SCALE VALUE	IN.WTR	##
K8121	S/G 1A FT-511 FULL SCALE VALUE	IN.WTR	##
K8122	S/G 1B FT-520 FULL SCALE VALUE	IN.WTR	##
K8123	S/G 1B FT-521 FULL SCALE VALUE	IN.WTR	##
K8124	S/G 1C FT-530 FULL SCALE VALUE	IN.WTR	##
K8125	S/G 1C FT-531 FULL SCALE VALUE	IN.WTR	##
K8126	S/G 1D FT-540 FULL SCALE VALUE	IN.WTR	##
K8127	S/G 1D FT-541 FULL SCALE VALUE	IN.WTR	##
K8100	FW VENTURI DESIGN CONSTANT		##
K8130	S/G 1A FW FLOW CALIB MULTIPLIER		##
K8131	S/G 1B FW FLOW CALIB MULTIPLIER		##
K8132	S/G 1C FW FLOW CALIB MULTIPLIER		##
K8133	S/G 1D FW FLOW CALIB MULTIPLIER		##
K8140	BAROMETRIC PRESSURE (NOMINAL)	PSIA	##
K8141	STM GEN STEAM QUALITY	FRACTION	##
K8142	RCS PUMP + MISC HEAT (NOMINAL)	MWT	##
K8143	STM GEN BLOWDOWN STATIC HEAD	PSIA	##
K8144	RX RATED THERMAL POWER	MWT	##

Note: The current values for the K81xx points above are also contained in the Operator Aid, Feedwater Flow Constants. This table is updated as required by BwVP 850-20, "Feedwater Venturi Calibration".

** These inputs are also used to determine the prerequisites.

These inputs affect QUALITY of Final Output of Calorimetric.

APPENDIX C
REVIEW OF MANUALLY ENTERED POINT VALUES

This appendix outlines the steps to be taken at the HMI computer to call up a list of all values that are manually entered into the Plant Process Computer.

This review is required only when the QUALITY of the calorimetric final output has an assigned code of "S" (SUSPECT) to verify that the "S" is not the result of an inadvertent manual input.

An "S" code assigned to the calorimetric output that is NOT the result of a manually entered value is fully acceptable. An "S" code assigned to the calorimetric output that is the result of a known acceptable manually entered input is also fully acceptable.

To obtain a list of all manually entered values for the Plant Process Computer, perform the following:

1.   SELECT OPCON PAGE:

   O   VERIFY OPCON page showing at top center of computer.
   O   SELECT "Other" under "Page Section" section at the left center of computer screen.

2.   POSITION mouse cursor to within the black background area to enable keyboard function.

3.   DEPRESS "F3" to select point review menu.

4.   From "MENU OF POINT REVIEW FUNCTIONS", SELECT:

Review Type:	8	(Entered Values)
Point Type:	1	(All)
System:	1	(All)
Device:	1	(This CRT) or 2 (Trend Typer)
Start:	1	(Beginning)
Stop:	1	(End)

5.   DEPRESS "EXECUTE" (the report will take from 5 to 20 minutes).

6.   REVIEW the report against the list of Calorimetric Program Inputs provided in Appendix B.

7.   VERIFY that any manually entered values that affect the Calorimetric are correct for present plant conditions and that the value is supposed to be manually entered.

8.   VERIFY that a minimum of 15 minutes has elapsed from the time any manual entry was made to the time of initiation of the calorimetric.

(Final)

18

UNIT ONE
COMPUTER CALORIMETRIC DATA SHEET

1. Date: _TO/DA/Y_ Time: _(10 minutes ago)_

2. MWe (gross): _1257.0_   Control Bank Positions:

C1	_228_	steps
C2	_228_	steps
D1	_215_	steps
D2	_215_	steps

ALL prerequisites have been satisfactorily addressed?:

NSO Signature: _Joe Operator_

	3. INITIAL NIS Drawer Front Panel Meter Power	−	10. Calculated Calorimetric Power (From Printout)	=	11. Calculate Power Difference	12. Is an adjustment required? ["YES" if F.11 ≥ 2% (+ or -) or is negative when above P-8]
NR-41	_100.5_	−	_100.0_	=	_0.5_	
NR-42	_101.2_	−	_100.0_	=	_1.2_	☐ YES ☒ NO
NR-43	_100.1_	−	_100.0_	=	_0.1_	☐ YES ☒ NO
NR-44	_99.7_	−	_100.0_	=	_−0.3_	☐ YES ☒ NO
						☒ YES ☐ NO

	13. PRESENT NIS Drawer Front Panel Meter Power	−	14. Calculated Power Difference (F.11)	=	15. Power to Adjust NIS Channel to	16. Review Authorization	19. Was NIS Channel Satisfactorily Adjusted?
NR-41	_NA_	−	_NA_	=	_NA_		
NR-42	_NA_	−	_NA_	=	_NA_		
NR-43	_NA_	−	_NA_	=	_NA_	_____	☐ YES ☐ NO
NR-44	_99.7_	−	_−0.3_	=	_99.4_		☐ YES ☐ NO

22. a. Printout reviewed by Shift Manager or Designee?
     b. Printout attached on next data sheet?

☐ YES	☐ NO
☐ YES	☐ NO
☐ YES	☐ NO
☐ YES	☐ NO

D-2

#1

BRAIDWOOD UNIT 1

TIME: 10 MINUTES AGO   TEN MINUTE AVERAGE CALORIMETRIC   DATE: TODAY

GROSS GENERATION: 1257.0   AVE NIS PR(%)   100.3

AVERAGE FEED WATER (DEGF)   443.21

	STEAM PRESS (PSIG)	NET FEEDWATER FLOW (KBH)	BLOWDOWN FLOW (GPM)	TEMPERING FLOW (KBH)	INITIAL NIS POWER(%)	LOOP THERMAL POWER (KBTU/HR)
LOOP 1:	998.1	4008.89	58.26	41.31	100.3	3055.8
LOOP 2:	997.6	4020.04	58.18	41.06	99.1	3064.4
LOOP 3:	997.2	4021.15	58.18	41.85	100.1	3065.3
LOOP 4:	998.5	4004.22	58.29	41.97	99.6	3052.1

SUM LOOP THERMAL POWER (KBTU/HR):   .1224E 05

PERCENT POWER (%):   100.0

BRAIDWOOD UNIT 1

CALORIMETRIC PAGE #2

PREREQUISITE	TIME	TOLERANCE	AVERAGE	DEVIATION	SATISFIED?
#1 REACTOR POWER	5 MIN	+/- 0.5%	100.3	.0	YES
#2 SG 1A LEVEL	5 MIN	+/- 1.5%	60.0	.0	YES
#2 SG 1B LEVEL	5 MIN	+/- 1.5%	60.0	.0	YES
#2 SG 1C LEVEL	5 MIN	+/- 1.5%	60.0	.0	YES
#2 SG 1D LEVEL	5 MIN	+/- 1.5%	60.0	.0	YES
#3 SG 1A PRESS	5 MIN	+/- 1.0%	998.1	.0	YES
#3 SG 1B PRESS	5 MIN	+/- 1.0%	997.6	.0	YES
#3 SG 1C PRESS	5 MIN	+/- 1.0%	997.2	.0	YES
#3 SG 1D PRESS	5 MIN	+/- 1.0%	998.5	.0	YES
#4 NO ROD MOTION C	5 MIN	+/- 0.2%	228.0	0.0	YES
#4 NO ROD MOTION D	5 MIN	+/- 0.2%	216	0.0	YES
#5 S/G 1A BLWD FLOWS	5 MIN	+/- 10%	58.3	.0	YES
#5 S/G 1B BLWD FLOWS	5 MIN	+/- 10%	58.2	.0	YES
5 S/G 1C BLWD FLOWS	5 MIN	+/- 10%	58.2	.0	YES
#5 S/G 1D BLWD FLOWS	5 MIN	+/- 10%	58.3	.0	YES

S-42 (7/3/01)
ZD73EXAM

BRAIDWOOD UNIT 1

CALORIMETRIC PAGE #3

#6 FEEDWATER FLOW

SG 1A TAP SET	1	5 MIN	+/- 5.0%	488.2	.0	YES
SG 1A TAP SET	2	5 MIN	+/- 5.0%	487.6	.0	YES
SG 1B TAP SET	1	5 MIN	+/- 5.0%	491.0	.0	YES
SG 1B TAP SET	2	5 MIN	+/- 5.0%	489.1	.0	YES
SG 1C TAP SET	1	5 MIN	+/- 5.0%	487.2	.0	YES
SG 1C TAP SET	2	5 MIN	+/- 5.0%	485.9	.0	YES
SG 1D TAP SET	1	5 MIN	+/- 5.0%	477.2	.0	YES
SG 1D TAP SET	2	5 MIN	+/- 5.0%	481.9	.0	YES

#7 FEEDWATER TEMPERATURE

SG 1A	5 MIN	+/- 0.5%	443.2	.0	YES
SG 1B	5 MIN	+/- 0.5%	443.2	.0	YES
SG 1C	5 MIN	+/- 0.5%	443.2	.0	YES
SG 1D	5 MIN	+/- 0.5%	443.2	.0	YES

S-12 (7/3/01)

BRAIDWOOD UNIT 1

CALORIMETRIC PAGE #4

TIME: 10 MINUTES AGO   CALORIMETRIC INPUT SCAN STATUS

0 OF 88 CALORIMETRIC INPUTS ARE OFF SCAN

TASK TITLE: **Review a QPTR Calculation**

JPM No.: **8-02QPTR**   REV: 0

TPO No.: IV.C.RK-01   K&A No.: 2.1.33

TASK No.:   K&A IMP: 4.0

TRAINEE:_____

EVALUATOR:_____   DATE:_____

The Trainee: PASSED _____ this JPM.   TIME STARTED: _____

              FAILED _____   TIME FINISHED: _____

CRITICAL ELEMENTS: (*)7   JPM TIME:_____ MINUTES

CRITICAL TIME: **NA**   APPROX COMPLETION TIME **15 MINUTES**

EVALUATION METHOD: LOCATION:
          X   PERFORM   _____ IN PLANT
          _____ SIMULATE   **X** SIMULATOR

GENERAL REFERENCES:

    1.   1BwOSR 3.2.4.1, Rev. 2, Unit One Quadrant Power Tilt Ratio (QPTR) Calculation.
    2.   Operator Aid for 100% Power NIS Detector Currents.

MATERIALS:

    1.   1BwOSR 3.2.4.1
    2.   Operator Aid for current values to be used in QPTR Calculation.

TASK STANDARDS:

    1.   Review QPTR Surveillance (1BwOSR 3.2.4.1)

TASK CONDITIONS:

    1.   You are the Unit Supervisor.
    2.   The Unit is at 100% power.

INITIATING CUES:

    1.   The NSO has completed and handed you a copy of 1BwOSR 3.2.4.1 for you to review. The process computer and PDMS were inoperable for the purpose of this surveillance.

NOTE: Hand examinee completed QPTR surveillance 1BwOSR 3.2.4.1 (D-3).

PERFORMANCE CHECKLIST	STANDARDS	SAT	UNSAT	N/A

RECORD START TIME _____

Note: This JPM is performed by having the examinee review the Data Sheet D-3, Unit 1 QPTR calculation using NIS meters. The data sheet is complete but has one mistake in the calculation for Upper detector QPTR on N-42. The examinee must locate the error and determine the QPTR for channel N-42 is outside the acceptance criteria.

1. Open and refer to 1BwOSR 3.2.4.1, QPTR Calculation.

   (CUE: **Ensure completed D-3 data sheet is handed to examinee.**

   All prerequisites, Limitations and actions were met for the performance of this surveillance.

   The NIS Power Range Tilts alarm is OPERABLE.

   PDMS is inoperable. Surveillance is performed as a normal weekly.

   Open and refer to the provided copy of 1BwOSR 3.2.4.1.

   Review the applicable surveillance frequency for performance of this surveillance is once per 7 days:

   • PDMS is INOPERABLE
   • Rx Power is >50%
   • NIS Power Range Tilts alarm is OPERABLE
   • QPTR has been within limits (<1.02)

   □   □   □

2. Review completed data sheet D-3

   (CUE: **If asked, the Unit has NO LOCARs in progress at this time.**

   Review data sheet D-3 for completeness/errors

   • Being completed once per normal interval
   • Date (Today)
   • Time (Now)
   • Channel reliable? (Y)
   • Instrument Readings properly recorded (100%)

   □   □   □

3. Review Data sheet for present and 100% detector currents

   (CUE: **All present and 100% values of Upper and Lower Detector currents are accurate.**

   Review Data sheet to ensure all present Upper and Lower Detector Currents are recorded as well as all 100% detector Upper and Lower currents.

   □   □   □

2

PERFORMANCE CHECKLIST	STANDARDS	SAT	UNSAT	N/A
4. Review the calculations to obtain the normalized detector currents and compare them to the calculated values on the data sheet.	Review the Normalized Detector Currents for each detector by dividing its present detector current reading by the 100% detector current value • Each Upper • Each Lower	☐	☐	☐
5. Calculate and review the average normalized currents and compare them to the data sheet.	Review the Average Normalized Current by summing the upper (lower) normalized detector currents and dividing by 4 and compare this value to the Data Sheet: • Upper Average • Lower Average	☐	☐	☐
6. Calculate and review the QPTR for each detector and compare them to the QPTR listed on the data sheet.	Review the QPTR for each detector by dividing each Normalized Detector Current by the Average Normalized Current and and compare this value to the data sheet: • Each Upper • Each Lower	☐	☐	☐
*7. Identify N42 Upper Detector QPTR is unacceptable. (CUE: As SM acknowledge the required initiation of LCO 3.2.4.)	Identify N42 Upper Detector QPTR is >1.02 and is unacceptable. • Initiate LCO 3.2.4. o Inform SM of LCO entry requirement	☐	☐	☐

(CUE:) THIS COMPLETES THIS JPM.

RECORD STOP TIME _____

COMMENTS:

3

TASK CONDITIONS:

    1.   You are the Unit Supervisor.
    2.   The Unit is at 100% power.

INITIATING CUES:

    1. The NSO has completed and handed you a copy of 1BwOSR 3.2.4.1 for you to review. The process computer and PDMS were inoperable for the purpose of this surveillance.

4

SIMULATOR SETUP INSTRUCTIONS

JPM NO: S-02QPTR

REQUIRED SIMULATOR MODE(S): NA

MALFUNCTION #'S: N/A

COMMENTS: Key (Page 6) should be reviewed. Upper half date of this sheet (Data sheet D-3) is given to the operators as is to review. This contains the calculation error for N42 upper detector.

The lower half data contains the correct calculations **in bold type** with the error that must be discovered for N42 upper detector.

5

(KEY)   **(KEY)**

Being performed once per:

☒ 7 Days (normal interval) ☐ Shiftly
☐ 12 Hours (with BwVSR 3.2.4.2.) ☒ Other: _PDMS inoperable_

Date: TODAY	Time: NOW (Data sheet given to SRO for review)			
Channel	N41	N42	N43	N44
Is the channel operable?	☒ Y ☐ N	☒ Y ☐ N	☒ Y ☐ N	☒ Y ☐ N
Instrument reading	100%	100%	100%	100%
UPPER DETECTORS (A)				
Present upper detector current	192	187	190	185
100% upper detector current	194	181	192	186
Normalized detector current	.990	1.01	.990	.995
Average normalized current	.996			
Upper power tilt ratio (¢≤1.02)	¢ .994	¢ 1.01	¢ .994	¢ .999
LOWER DETECTORS (B)				
Present lower detector current	170	150	165	165
100% lower detector current	170	153	165	168
Normalized detector current	1.00	.980	1.0	.982
Average normalized current	.991			
Lower power tilt ratio (¢≤1.02)	¢ 1.01	¢ .989	¢ 1.01	¢ .991

Date:	Time: (Data sheet with correct calculations – error on N-42)			
Channel	N41	N42	N43	N44
Is the channel operable?	☒ Y ☐ N	☒ Y ☐ N	☒ Y ☐ N	☒ Y ☐ N
Instrument reading	100%	100%	100%	100%
UPPER DETECTORS (A)				
Present upper detector current	192	187	190	185
100% upper detector current	194	181	192	186
Normalized detector current	.990	1.03	.990	.995
Average normalized current	1.00			
Upper power tilt ratio (¢≤1.02)	¢ .990	¢ 1.03	¢ .990	¢ .995
LOWER DETECTORS (B)				
Present lower detector current	170	150	165	165
100% lower detector current	170	153	165	168
Normalized detector current	1.00	.980	1.00	.982
Average normalized current	.991			
Lower power tilt ratio (¢≤1.02)	¢ 1.01	¢ .989	¢ 1.01	¢ .991

Attach additional copies of this page as necessary.

N-18 6/26/01

UNIT ONE
QUADRANT POWER TILT RATIO (QPTR) CALCULATION

A.   STATEMENT OF APPLICABILITY

This procedure outlines the steps necessary to verify the QUADRANT POWER TILT RATIO is ≤ 1.02. It is applicable in MODE 1 above 50% RATED THERMAL POWER when the Power Distribution System (PDMS) is inoperable and shall be performed:

1.   Once per 7 days.

2.   Once per shift when the NIS Power Range Tilts alarm is INOPERABLE as directed by 1BwOL 3.2.4 and 1BwOSR 0.1-1,2,3.

3.   Once per 12 hours when QUADRANT POWER TILT RATIO is not within limits as directed by LCOAR 1BwOL 3.2.4.

B.   REFERENCES

1.   Tech Spec LCO 3.2.4.

2.   Tech Spec Surveillance Requirements:

    a.   3.2.4.1.

    b.   3.2.4.2.

3.   TRM TLCO 3.3.h.

4.   Station Procedures:

    a.   1BwOSR 0.1-1,2,3, Unit One MODES 1, 2 & 3 Shiftly & Daily.

    b.   1BwOL 3.2.4, LCOAR - Power Distribution Limits - QPTR.

    c.   1BwOL TRM 3.3.h, Technical Requirements Manual (TRM) LCOAR - Power Distribution Monitoring System (PDMS)

    d.   BwVSR 3.2.4.2, QPTR Checkout Using Incores.

B.   5.   Station Commitments:

a.   456-200-87-38101, limitation to check the operability of the QPTR Alarm anytime QPTR exceeds 1.02.

b.   456-130-98-3.2.4-0100 "Specific SAR Commitment" (Regarding shiftly surveillance interval when the power range tilts alarm is inoperable).

C.   PREREQUISITES

1.   Receive permission to perform this surveillance from the Shift Manager or designee prior to performance by having the Data Package Cover Sheet signed and dated.

2.   Reactor power should be constant while recording NIS data.

3.   The latest 100% Power NIS Detector Currents are available (from Station Nuclear Engineer or Operator Aid).

D.   PRECAUTIONS

None.

E.   LIMITATIONS AND ACTIONS

1.   As stated in Tech Spec LCO 3.2.4.

2.   In the event the Acceptance Criteria (¢) is not met during the performance of this surveillance, IMMEDIATELY notify the Shift Manager or designee to initiate LCOAR 1BwOL 3.2.4.

3.   Anytime the calculated QPTR exceeds 1.02, the NIS Power Range Tilts alarm OPERABILITY should be reviewed. If the alarm is not illuminated the required frequency of this surveillance shall be increased from once per 7 days to once per shift in accordance with 1BwOL 3.2.4.

4.   The process computer point calculation is the most accurate method of calculating QPTR and should normally be used. During the performance of AFD calibrations on the excore detectors the process computer point method will not be correct until ALL drawers are calibrated. During this calibration period QPTR MUST be calculated using the NIS meter method.

5.   If the Power Range channel is inoperable but individual detector current indication is reliable, performance of BwVSR 3.2.4.2 is not required. Detector current indication can be considered reliable if detector degradation or failure is not indicated, the detector signal cable is attached to the 1PM07J drawer, and proper high voltage is applied to the detector. In this condition, the QPTR alarm may be inoperable but the neutron flux input to QPTR is available. QPTR can be calculated using the individual detector current meter indications.

3

F.   **MAIN BODY**

1.   VERIFY all applicable Prerequisites, Precautions, and Limitations and Actions are satisfactorily addressed.

2.   INDICATE the applicability of this surveillance on the appropriate Data Sheet (REFER to Statement of Applicability):

   a.   Being performed once per 7 days.

   b.   Being performed once per shift.

   c.   Being performed once per 12 hrs with BwVSR 3.2.4.2.

   d.   Other (Specify).

3.   RECORD the Date and Time.

NOTE

With one Power Range Channel INOPERABLE and THERMAL POWER is > 50% but ≤ 75%, the QPTR may be calculated using the three OPERABLE channels. With one Power Range channel input to QPTR INOPERABLE with THERMAL POWER > 75%, the QPTR shall be calculated using the three OPERABLE channels taking data when directed by System Engineering during performance of BwVSR 3.2.4.2. RECORD "N/A" for the INOPERABLE Power Range channel data.

---

4.   RECORD the OPERABILITY status and indicated Reactor Power from the NIS drawer front panel PERCENT FULL POWER meters on the appropriate Data Sheet.

```
┌─────────────────────────────────────────────────────────────┐
│                          NOTE                                │
│  Step F.5 and F.6 are independent of each other.  Perform the│
│  applicable step.                                            │
│  Step F.5 will use the process computer to determine the QPTR.│
│  Step F.6 will use installed NIS Meters or DVMs to determine QPTR.│
└─────────────────────────────────────────────────────────────┘
```

F.   5.   DETERMINE the QPTR using process computer points as follows (N/A if determined with the NIS meters):

a.   RECORD present computer point reading.

b.   DIVIDE the sum of the computer points by the number of operable channels to obtain the average computer point reading.

$$\text{Average Computer Point Reading} = \frac{\text{Sum of Computer Points}}{\text{Number of Operable NIS Channels}}$$

c.   DIVIDE the Computer Point Reading by the Average Computer Point Reading to determine the Quadrant Power Tilt Ratio.

$$\text{Power Tilt Ratio} = \frac{\text{Computer Point Reading}}{\text{Average Computer Point Reading}}$$

F.   6.0   <u>DETERMINE the QPTR using installed NIS Meters or DVMs</u>

NOTE

Step 6.a will install DVMs, N/A step if using installed NIS Meters.
Step 6.b will determine the QPTR using installed NIS Meters or DVMs.
Step 6.c will remove DVMs, N/A step if using installed NIS Meters.

NOTE

The following annunciator(s) may actuate during connection of the DVMs. This list is not all inclusive but if the annunciator(s) does not reset when the DVM is disconnected, investigate the cause before going to the next drawer.

10A04 PWR RNG UPPER DET FLUX DEV HIGH
10B04 PWR RNG LOWER DET FLUX DEV HIGH
10C04 PWR RNG CHANNEL DEV
10B05 PWR RNG FLUX HIGH ROD STOP

CAUTION

To minimize the effect of meter loading to the drawer, Fluke 8840A DVMs shall be used. If there are not enough 8840As available, Fluke 8505A and Fluke 8502 may be substituted. Other DVM may also be used with the consent of NIS System Engineer or backup. In addition, shielded test leads shall be used to avoid EMF induction to the reactor protection system circuitry.

CAUTION

A Reactor Trip could occur if a 2 of 4 coincidence is made up due to a channel trip on the power range detector being measured. The DVM <u>MUST</u> be initially set to the millivolt range for detector current readings to prevent a channel trip.

If the current as seen on the face meter is low (at low powers), it is permissible to down range the detector meter current selector switch for better resolution.

CAUTION

Ensure that the DVM leads to be used have no flaws in
their insulation. Also ensure that any contact points
between the leads and the drawer are properly protected
to ensure that chafing of the leads' insulation does not
occur. If the DVM leads become shorted to ground after
connection, the associated power range channel will be
made inoperable.

CAUTION

Power range cables can become snagged while opening
the drawers. Open the rear cabinet doors to 1PM07J
and station a person at the rear of the drawers to ensure
that all cables are free while opening the drawer.
Minimize motion of the cables, since the cable may
become disconnected from its connector if excessive
motion occurs. This could make the drawer inoperable.

F. 6. a. NOFITY IMD to perform the following for each Power Range "B" drawer:

1) CAREFULLY OPEN the Power Range Nuclear Instrumentation
Channel "B drawer.

2) CONNECT a DVM between the red and black test jacks of the
detector current meter for each of the eight Power Range detectors.

3) ROLL the Power Range "B" drawers carefully as far into the
1PM07J panel as possible. Avoid crimping or damaging the DVM
leads. If possible, slightly engage the seismic screws on the front
of the drawers.

4) SECURE the DVM leads to 1PM07J.

F.   6.   b.   DETERMINE the QPTR using NIS meters or DVM as follows (N/A if determined with the computer points):

1)   RECORD each present detector current.

2)   RECORD the latest 100% Power NIS detector current (from the Station Nuclear Engineer or the Operator Aid).

3)   DIVIDE the present detector current by the 100% detector current to obtain the normalized detector current.

$$\text{Normalized Detector Current} = \frac{\text{Present Detector Current}}{\text{100\% Detector Current}}$$

4)   DIVIDE the sum of the normalized detector currents by the number of operable channels to obtain the average normalized current.

$$\text{Average Normalized Current} = \frac{\text{Sum of Normalized Detector Currents}}{\text{Number of Operable NIS Channels}}$$

5)   DIVIDE the Normalized Detector Current by the Average Normalized Current to determine the Quadrant Power Tilt Ratio.

$$\text{Power Tilt Ratio} = \frac{\text{Normalized Detector Current}}{\text{Average Normalized Current}}$$

F.   6.   c.   PERFORM the following to RESTORE each Power Range "B" Drawers:

NOTE

The following steps are applicable if DMVs are to be used to indicate detector current. Mark this section N/A if current meters installed in the drawers are to be used.

CAUTION

Power Range cables can become snagged while opening the drawers. Open the rear cabinet doors to 1PM07J and station a person at the rear of the drawers to ensure that all cables are free while opening the drawer. Minimize motion of the cables, since the cable may become disconnected from its connector if excessive motion occurs. This could make the drawer inoperable.

---

1)   CAREFULLY OPEN the Power Range "B" drawers.

2)   REMOVE the DVM leads.

3)   CAREFULLY CLOSE and SECURE the Power Range "B" drawers.

4)   REMOVE all material installed to secure equipment.

G.   <u>ACCEPTANCE CRITERIA</u>

No Quadrant Power Tilt Ratio shall exceed <u>1.02</u>.

UNIT ONE
QUADRANT POWER TILT RATIO CALCULATION
COMPUTER POINTS

NOTE

The process computer point calculation is the most accurate method of calculating QPTR and should normally be used. During the performance of AFD calibrations on the excore detectors the process computer point method will not be correct until ALL drawers are calibrated. During this calibration period QPTR MUST be calculated using the NIS meter method.

Being performed once per:
- ☐ 7 Days (normal interval)
- ☐ 12 Hours (with BwVSR 3.2.4.2)
- ☐ Shiftly
- ☐ Other: _____

Date:	Time:			
Channel	N41	N42	N43	N44
Is the channel operable?	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N
Instrument reading	%	%	%	%
Upper Detectors (A)				
Computer point	N0041	N0043	N0045	N0047
Present computer point reading				
Average computer point reading				
Upper power tilt ratio (≤1.02)	¢	¢	¢	¢
Lower Detectors (B)				
Computer point	N0042	N0044	N0046	N0048
Present computer point reading				
Average computer point reading				
Lower power tilt ratio (≤1.02)	¢	¢	¢	¢

Date:	Time:			
Channel	N41	N42	N43	N44
Is the channel operable?	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N
Instrument reading	%	%	%	%
Upper Detectors (A)				
Computer point	N0041	N0043	N0045	N0047
Present computer point reading				
Average computer point reading				
Upper power tilt ratio (≤1.02)	¢	¢	¢	¢
Lower Detectors (B)				
Computer point	N0042	N0044	N0046	N0048
Present computer point reading				
Average computer point reading				
Lower power tilt ratio (≤1.02)	¢	¢	¢	¢

ATTACH additional copies of this page as necessary.

N/A

UNIT ONE
QUADRANT POWER TILT RATIO CALCULATION
NIS METERS

Being performed once per:
- ☒ 7 Days (normal interval)   ☐ Shiftly
- ☐ 12 Hours (with BwVSR 3.2.4.2)   ☐ Other: _____

Date: TODAY	Time: NOW			
Channel	N41	N42	N43	N44
Is the channel indication reliable?	☒ Y ☐ N	☒ Y ☐ N	☒ Y ☐ N	☒ Y ☐ N
Instrument reading	100.0 %	100.0 %	100.0 %	100.0 %
Upper Detectors (A)				
Present upper detector current	192	187	190	185
100% upper detector current	194	181	192	186
Normalized detector current	.990	1.01	.990	.995
Average normalized current	.996			
Upper power tilt ratio ($\not\leq$1.02)	¢ .994	¢ 1.01	¢ .994	¢ .999
Lower Detectors (B)				
Present lower detector current	170	150	165	165
100% lower detector current	170	153	165	168
Normalized detector current	1.00	.980	1.00	.982
Average normalized current	.991			
Lower power tilt ratio ($\not\leq$1.02)	¢ 1.01	¢ .989	¢ 1.01	¢ .991

Date:	Time:			
Channel	N41	N42	N43	N44
Is the channel indication reliable?	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N
Instrument reading	%	%	%	%
Upper Detectors (A)				
Present upper detector current				
100% upper detector current				
Normalized detector current				
Average normalized current				
Upper power tilt ratio ($\not\leq$1.02)	¢	¢	¢	¢
Lower Detectors (B)				
Present lower detector current				
100% lower detector current				
Normalized detector current				
Average normalized current				
Lower power tilt ratio ($\not\leq$1.02)	¢	¢	¢	¢

ATTACH additional copies of this page as necessary.

UNIT ONE
DVM CALIBRATION TABLE

DVM		QA#	Cal Date	Due Date	Initials	IV
N41	Top					
	Bottom					
N42	Top					
	Bottom					
N43	Top					
	Bottom					
N44	Top					
	Bottom					

DVM		Leads Installed Name/Date	IV Name/Date	Leads Removed Name/Date	IV Name/Date
N41	Top				
	Bottom				
N42	Top				
	Bottom				
N43	Top				
	Bottom				
N44	Top				
	Bottom				

N/A

(Final)

PERFORMANCE CHECKLIST	STANDARDS	SAT	UNSAT	N/A

JOB PERFORMANCE MEASURE

TASK TITLE: Approve BDPS First Hang

JPM No.: S-02BDPS   REV: 0

TPO No.:   K&A No.: 2.1.33

TASK No.:   K&A IMP: 3.8

TRAINEE:_____

EVALUATOR:_____   DATE:_____

The Trainee: PASSED _____ this JPM.   TIME STARTED: _____

           FAILED _____   TIME FINISHED: _____

CRITICAL ELEMENTS: (*)5   JPM TIME:_____ MINUTES

CRITICAL TIME: NA   APPROX COMPLETION TIME 11 MINUTES

EVALUATION METHOD: LOCATION:
    X PERFORM   _____ IN PLANT
    _____ SIMULATE   **X** SIMULATOR

GENERAL REFERENCES:

    1.   1BwOSR 3.9.2.1 Refueling BDPS Monthly Surveillance
    2.   1BwOL 3.3.9 BDPD Tech Spec - Modes 3,4 or 5

MATERIALS:

    Copy of BDPS First Hang Clearance Order

TASK STANDARDS:

    1.   Perform review of First Hang Clearance Order
    2.   Determine if Clearance Order is complete and ready to hang

TASK CONDITIONS:

    1.   You are the Unit Supervisor.
    2.   Unit 1 is in Mode 5.
    3.   Preparations are being made for Mode 6 entry next shift.
    4.   RWST boron concentration is 2350ppm.

INITIATING CUES:

    1.   The Shift Manager has assigned you the review and 2nd approver task for the BDPS First Hang Clearance Order for BDPS.

    Note: When performing this JPM in the simulator, access to EWCS is not available. Normally, approvals are electronic via EWCS. This JPM will simulate the process.

1

TASK TITLE: **Review a Liquid Release Package.**

JPM No.: **S-41**   REV: <u>1</u>

TPO No.: VIII.C.HP-001   K&A No.: (G2.3.6)

TASK No.: S-HP-001   K&A IMP: 2.1 / 3.1

TRAINEE:_____

EVALUATOR:_____   DATE:_____

The Trainee: PASSED _____ this JPM.   TIME STARTED: _____

            FAILED _____   TIME FINISHED: _____

CRITICAL ELEMENTS: (*) 3   JPM TIME:_____ MINUTES

CRITICAL TIME: **N/A**   APPROX COMPLETION TIME **10** MINUTES

EVALUATION METHOD: LOCATION:
        X   PERFORM   _____ IN PLANT
        _____ SIMULATE   **X**   SIMULATOR

GENERAL REFERENCES:

   1.   BwOP WX-501T1,Rev. 19, "Liquid Release Tank 0WX01T release Form."

MATERIALS: Copy of BwOP WX-501T1 (filled in through step E.11).

TASK STANDARDS:

   1.   Complete review of Operations section E of BwOP WX-501T1.
   2.   Demonstrates the use of good Core Work Practices.

TASK CONDITIONS:

   1.   You are the Control Room Supervisor.
   2.   All plant systems and controls are normal for the current plant conditions.

INITIATING CUES:

   1.   Liquid Release package paperwork L-02-049 is complete through step E.11, and is ready for your review.
   2.   The SM has directed you to review and sign section E as applicable, and inform him of the results of your review.

Note: Hand Section E of the partially completed package to the examinee.

1

PERFORMANCE CHECKLIST	STANDARDS	SAT	UNSAT	N/A

Note: Hand BDPS first hang clearance order to examinee

RECORD START TIME _____

1.	Refer to completed First Hang Checklist (001) (#99006844)	Review First Hang for completeness/errors • Prepared By • 1st Approver • Special Instructions	□	□	□
2.	Refer to Tech Spec 3.3.9 for applicability review	Locate and Open Tech Spec 3.3.9 • Review applicability for performing this First Hang • Applicable in Mode 6	□	□	□
2.	Refer to Tech Spec 3.3.9 Basis document	Locate and Open Tech Spec 3.3.9 Basis. Review for valves to be included and required valve positions.	□	□	□
3.	Review Basis document for 3.3.9.	Determine the following valves are applicable and must be secured in the closed position • 1CV111B • 1CV8428 • 1CV8441 • 1CV8435 • 1CV8439	□	□	□
*5.	Review First Hang for completeness and accuracy	• Determine the First Hang to be incomplete.	□	□	□

(Cue: **After examinee identifies the clearance order is incomplete, ask what is missing if not provided by examinee.**

After the missing valves are identified, hand the missing sheet (page 2) to the examinee.

• As US do NOT sign as 2nd Approver

• Determine the following valves have not been included in the First Hang for BDPS
  • 1CV8441
  • 1CV8435

2

PERFORMANCE CHECKLIST	STANDARDS	SAT	UNSAT	N/A
*6. Approve the BDPS First Hang	Determine First Hang is now accceptable and verbalize approval.	☐	☐	☐

(CUE:) THIS COMPLETES THIS JPM.

RECORD STOP TIME _____

COMMENTS:

TASK CONDITIONS:

    1.   You are the Unit Supervisor.
    2.   Unit 1 is in Mode 5
    3.   Preparations are being made for Mode 6 entry next shift

INITIATING CUES:

    1.   The Shift Manager has assigned you the review and 2nd approver task for the First Hang Clearance Order for BDPS.

N-

HANG SE.	HANG POS	HANG BY	HANG VER	ISOLATION POINT LOCATION & DESCRIPTION		LIFT SEQ	LIFT POS	LIFT BY	LIFT VER
HANG 004	C/O-RD L/C			1CV8441 EMERGENCY BORATION LINE FLUSHING WTR ISOL VLV VCT VLV AISLE					
ECODE:0000043854					426 16 Q AUX	ECODE:		1044	
HANG 004	C/O-RD L/C			1CV8435 CV CHEM MIXING TNK OUTLET VCT VLV AISLE					
ECODE:0000043850					426 16 Q AUX	ECODE:		1042	

**** END OF ISOLATION POINTS ****

SIMULATOR SETUP INSTRUCTIONS

JPM NO: N-27B

REQUIRED SIMULATOR MODE(S): NA

MALFUNCTION #'S: N/A

COMMENTS:

N-

TAG:		ALT TAG:		NAME: BDPS ADMIN					
ASMBLY/EQUIP:				WORK DESC: BDPS ADMIN CONTROL PER TS 3.3.9					

MC LOC: 01 A 24
PREPARED BY: D R MLADIC
1ST APPR: V R GUINTO
2ND APPR:

AUTH BY:

SPECIAL INST: PER 1BWOSR 3.9.2.1 REFUELING DILUTION PREVENTION VALVE
POSITION MONTHLY SURVEILLANCE
APPLICABLE IN MODE 6 AND IS PERFORMED MONTHLY OR AS REQD
BY LCOAR 1BWOL 3.3.9 IN MODES 3, 4, OR 5.

TECH SPEC :

HANG SEQ	HANG POS	HANG BY	HANG VER	ISOLATION POINT LOCATION & DESCRIPTION		LIFT SEQ	LIFT POS	LIFT BY	LIFT VER
HANG 001	NO-CARD N/A			SPECIAL INSTRUCTIONS REVIEWED/COMPLETED					
ECODE:								ECODE:	
HANG 002	C/O-CD CLOSED			1PM05J-B2-254 AB BLENDER INJECTION VLV TO VCT 1PM05J	1CV111B C/S				
ECODE:0000390340						451	10 L	AUX MCR	ECODE:
HANG 003	C/O-RD CLOSED			1CV111B-I/A 1CV111B I/A SUPPLY ISOL VLV VCT VLV AISLE	1CV111B I/A				
ECODE:0000042900						426	16 Q	AUX	ECODE:
HANG 004	C/O-RD L/C			1CV8428 BA BLENDER TO CHG PMPS ISOL VLV					
ECODE:0000043843						426	16 Q	AUX CVVLV	ECODE:
HANG 004	C/O-RD L/C			1CV8439 BA FCV TO VCT OUTLT HDR ISOL VLV VCT VLV AISLE					
ECODE:0000043852						426	16 Q	AUX CVVLV	ECODE: 1043

COMPLETED BY:	DATE:	TIME:

CLEARANCE ORDER HOLDERS:

Holder	Holder Name	Discipline	--Accepted---	----Released-----	Auth. By	Extension
BRWHS	SHEAR W B	OP				2098

* * * * END OF REPORT * * * *

PERFORMANCE CHECKLIST	STANDARDS	SAT	UNSAT	N/A

RECORD START TIME _____

		SAT	UNSAT	N/A
1. Refer to partially completed BwOP WX-501T1, Section E.12. (CUE:	Reads Step E.12, notices no signature (yet) and turns back to beginning of section E (page 19).	☐	☐	☐
2. Reviews steps E.1-7. (CUE: Daily channel checks are completed)	Reviews steps E.1-7: • Step 1 time and date. • Step 2 signed and dated by CRS. • Steps 3 initialed • Steps 4 initialed and Low Flow circled • Steps 5&6 initialed and values filled in for alarm setpoints. • Step 7 initialed.	☐	☐	☐
*3. Determines step E.8 should be completed and is not. (CUE: As SM, ask what is wrong with the paperwork. After the examinee states the interlock check for the low flow release path was not performed correctly, conclude the JPM.	Review steps E.8 and E.9 Determines release may not be performed: • Step E.8 is NOT performed as required for Low Flow releases. o Step E.9 IS performed but should not be. o Steps E.8 and E.9 are swapped. Interlock checks performed on wrong component(s) for Low Flow release. • Informs SM release paperwork was not performed properly. • Does NOT sign step E.12.	☐	☐	☐

(CUE:) THIS COMPLETES THIS JPM.

RECORD STOP TIME _____

====================================

COMMENTS:

S-41 (7/2/01)
ZD73EXAM

TASK CONDITIONS:

1. You are the Control Room Supervisor.
2. All plant systems and controls are normal for the current plant conditions.

INITIATING CUES:

1. Liquid Release package paperwork L-02-049 is complete through step E.11, and is ready for your review.
2. The SM has directed you to review and sign section E as applicable, and then inform him of the results of your review.

SIMULATOR SETUP INSTRUCTIONS

JPM NO: S-41

REQUIRED SIMULATOR MODE(S): 1.

MALFUNCTION #'S: N/A

COMMENTS:

1) The alarm setpoints and background values in the release package paperwork may be different than the numbers in the simulator. If they are and will invalidate this JPM, then an IC must be made that has the numbers the same as the paperwork. The numbers of concern are:

Page	Rad monitor	# on paperwork	Sim #
12.D.4	ORE-PR001	2.01E-5	1.60E-7
12.D.5	''	''	
15.D.7.a	''	''	1.60E-7
15.D.7.a	High stpt	1.31E-4	6.38E-4
15.D.7.a	Alert stpt.	6.56E-5	3.19E-4
15.D.7.b	chan 9 hi	1.31E-4	6.38E-4
15.D.7.b	chan 10 Al	6.56E-5	3.19E-4
16.D.8.a	OPR010 cur	8.12E-7	9.99E-7
16.D.8.a	High stpt	8.19E-6	1.20E-5
16.D.8.a	Alert stpt.	5.73E-6	5.8E-6
16.D.8.b	chan 9 hi	8.19E-6	1.20E-5
16.D.8.b	chan 10 Al	5.73E-6	5.8E-6
18.E.3.a	chan 9 Hi	8.19E-6	1.20E-4
18.E.3.b	chan 10 Al	5.73E-6	5.8E-6
18.E.4.a	chan 9 Hi	1.31E-4	6.38E-4
18.E.4.b	chan 10 Al	6.56E-5	3.19E-4

2) Ensure step E.8 filled out, and E.9 is N/A'd on copy given to examinee.

LIQUID RELEASE TANK 0WX01T RELEASE FORM

Release Number L - _O2_ - _O49_

A. **OPERATING DEPARTMENT RESPONSIBILITY-RADWASTE OPERATOR**

> **NOTE**
>
> Desired level is 85% to 90% for Release Package initiation, however, a Release Package may be initiated anytime 0WX01T level is ≥ 50%. The mixer should not be run when level is < 70%. Consideration should be given future water management needs when initiating a package with level < 85%.

1. VERIFY 0WX01T is Recirculating per BwOP WX-171.

   Tank Recirculation Started   4-20-01 0225
   Date   Time

2. RECORD 0WX01T Tank Level.

   0WX01T Tank Level _84_ %

3. COMPLETE the entries in the Liquid Release Log in the RWCR.

> **NOTE**
>
> If a release is in progress for tank 0WX26T, Step A.4., it may be marked "N/A". It is checked again in Section D.

4. If 0PR01J is **NOT** required for sampling of 0WX26T, VERIFY that the 0PR01J return is lined up to 0WX01T by performing the following valve lineup:

   a.   VERIFY/OPEN "NO EPN", 0PR01J return to 0WX01T.

   b.   VERIFY/CLOSE "NO EPN", 0PR01J return to 0WX26T.

5. RECORD the Release Number from the Liquid Release Log in the space provided on page 1.

NOTE

The minimum mixing time required for an accurate sample is
5 minutes, if recirculating with the mixer ON or 60 minutes, if
recirculating with the mixer OFF. After meeting time requirements,
Chemistry can be called for a sample.

A _____ 6. WHEN the minimum mixing time requirements have been satisfied, NOTIFY
Chemistry that a Release Package in progress requires 0WX01T sampling.

NOTE

If more than 25% of the volume in the Release Tank is water that
was drained or processed out of one or more systems to support
Refueling or Forced Outage activities, it is "Outage Water".

_____ 7. Is the water in this tank considered to be outage water?

☑ YES   ☐ NO

_____ 8. Is 0WX01T level greater than 80% (From Step A.2.)?

☒ YES (GO TO STEP A.9.)   ☐ NO (MARK STEP A.9. "N/A".)

NOTE

If more than 55 gallons of caustic has accumulated at the Release
Tank Chemical Addition area (426' by 1A FW Pp), a caustic add
should be performed unless directed otherwise by the Shift
Supervisor based on release priority.

_____ 9. Is it desired to add caustic to 0WX01T?

☐ YES   ☒ NO

_____ 10. VERIFY/DELIVER this release package to the non-outage Unit Supervisor.

2

B. OPERATING DEPARTMENT RESPONSIBILITY – UNIT SUPERVISOR

NOTE

Kankakee River Flow rate is normally obtained via the internet site for the US ARMY CORPS OF ENGINEERS, WILMINGTON DATA (from the appropriate Unit Supervisor). If data is unavailable, RECORD most recent data from the Unit Supervisor turnover.

_____1. OBTAIN and RECORD current (within the last 24 hrs.) Kankakee River flow data:

Stream Flow: __7580__ CFS at Date: __04__ / __20__ / __02__ at Time: __0745__

_____2. RECORD the START AFTER time from BwOP WX-501T2, Release Time Table, for the flow rate recorded in Step B.1.

Release can start after __1100__

NOTE

A TSS analysis is required on ALL tanks released on the first day of the sampling week, that releases are performed. The first release tank of the month requires Oil and Grease analysis. These sample analysis add 4-5 hours to the processing time. All chemistry analysis calculations require second verification (If there is only one Chem Tech Available, the verification occurs the following shift). A release package can process through Chemistry in as little as three hours if there are two Chem Techs, there are no higher priorities, no caustic add is required, and 0PR01J is operable.

_____3. EVALUATE the expected time of release so that both biocide treatment and the release can be accommodated considering:

- CW Biocide treatment requires associated Unit CW blowdown isolated.

- At least 8000 GPM CW blowdown flow is required for the Liquid release.

_____4. RECORD the Kankakee River flow rate obtained in step B.1. in the Unit Supervisor Turnover.

3

B.   5.   AAR 0BwOS RETS 2.1-1a in effect for:

- ORE-PR001   ☐ YES   ☒ NO

  VERIFICATION _Clw_

- ORE-PR010   ☐ YES   ☒ NO

  VERIFICATION _Clw_

NOTE

Prior to forwarding this Release Package to the Chemistry Department, Step E.1. and E.2. may be performed if operating conditions permit.

---

6.   OPS Supervisor: I have reviewed Parts A and B and have verified them accurate and complete.

_____   / 4-26-02 / 940
OPS Supervisor   Date   Time

7.   NOTIFY the RADWASTE OPERATOR that his release package is ready for prompt delivery to Chemistry.

C. CHEMISTRY DEPARTMENT RESPONSIBILITY

> **NOTE**
> 100% level for the 0WX01T release tank is 32,900 gallons.

> **NOTE**
> If 0RE-PR001 is inoperable under AAR 0BwOS RETS 2.1-1a, analyses other than isotopic required in this package, i.e., Tritium, Boron, O & G (if required), and TSS (if required) must be run and the numbers reported on one of two samples that meet the 30% acceptance criteria.

1. To verify a request has been made to add caustic to 0WX01T Release Tank, verify yes applies to all statements specified in step A.8 and A.9.

    O   All statements are yes, a chemical addition has been requested, proceed to step C.2.

    ●   Not all statements apply. A chemical addition will not be performed, proceed to step C.3.

2. Caustic addition to 0WX01T.

    a.   Sample and analyze 0WX01T for boron concentration.

         Sampled by ___N/A___   Time/Date ___NA/___

         Results ___NA___ ppm   (Record boron value in step C.9).

    b.   Submit a chemical addition using BwCP 340-1T4 for caustic to 0WX01T based on the following chart.

PPM BORON	GALLONS OF CAUSTIC
≤200	0
>200 ≤ 600	≤5
>600 ≤ 1000	≤10
>1000 ≤ 1500	≤15
>1500	≤20

C.   2.   c.   Chemical Addition for _NA_ gallons caustic submitted by
_____ Time/Date ___/___. Proceed to step C.2.d.

OR

OPS Supervisor notified that no caustic is to be added based on boron concentration. OPS Supervisor notified:

_____ Time/Date ___/___ by Chem Tech

_____. Proceed to step C.3.

d.   After receiving notification that the caustic addition to 0WX01T is complete proceed to step C.3.

Time/Date notified that add was completed ___/___.

3.   Sampling the Release Tank Effluent.

NOTE

After obtaining a sample of the Release Tank, the analysis listed in Section C (Excluding sections C.1 and C.2). can be performed in any order necessary to perform the analysis in a safe and timely fashion. It is not necessary to complete one analysis before starting another. The sequence of performing the analysis is left to the discretion of individual performing the tasks.

| | 1st Set | | 2nd Set (If Required) | |
	1st Sample	2nd Sample (If Required)	1st Sample	2nd Sample (if Required)
Sampled by	JRW			
Date	4/20/02			
Sample Time	1051			

a.   One liter in a poly bottle for isotopic analysis (per BwCP 210-11), tritium analysis (per BwCP 220-2), boron analysis (per BwCP 103-10) and 250 ml for the "monthly save" (monthly composites).

b.   For the first release package of the month, analyze for Oil and Grease analysis as directed per BwCP 323-18.

6

NOTE

Additional release packages sampled on the same day as those
analyzed in Step C.3.c. will require TSS samples also.

C. 3. c. For the day of the first release package of the week, obtain a sample for
Total Suspended Solids (TSS) analysis for <u>ALL</u> releases as directed per
BwCP 323-18.

4. <u>ISOTOPIC SAMPLING CHECK</u>

a. If Radwaste Effluent Process Monitor, 0RE-PR001 <u>is operable</u> per
AAR 0BwOS RETS 2.1-1a (see Step B.5.) then N/A Step C.5.

b. If Radwaste Effluent Process Monitor, 0RE-PR001 <u>is not operable</u> per
AAR 0BwOS RETS 2.1-1a (see Step B.5.) then perform Step C.5.

NOTE

If an Isotopic Verification is to be performed then an independent
sample of sufficient volume for an Isotopic must be taken by an
independent qualified individual. Fill in Table on page 6.

N/A 5. <u>ISOTOPIC VERIFICATION</u>

a. VERIFY that Cobalt 58 (Co-58) activities, obtained from the Weighted
Mean Decay Corrected Table, are within <u>30</u>% of each other by performing
the following calculation:

A/B $\leq$ 1.30

Where:

A = The Larger Co-58 activity, μCi/g = _____.
B = The Smaller Co-58 activity, μCi/g = _____.
A/B = _____.

If the activities are within <u>30</u>% of each other, N/A Steps C.5.b. through
C.5.f. and proceed to Step C.6.

C N/A 5.

b.   If the activities were not within 30% of each other, perform the following:

1)   DISCARD any results obtained for O & G, TSS, boron, and tritium on these samples.

2)   INFORM OPS Supervision.

3)   OBTAIN another set of INDEPENDENT samples.

4)   PERFORM an isotopic analysis on each of the second set of samples.

5)   VERIFY that Cobalt 58 (Co-58) activities, obtained from the Weighted Mean Decay Corrected Table, are within 30% of each other by performing the following calculation:

$A/B \leq 1.30$

Where:

A = The Larger Co-58 activity, $\mu Ci/g$ = _____.
B = The Smaller Co-58 activity, $\mu Ci/g$ = _____.
A/B = _____.

c.   A second INDEPENDENT set of samples has been obtained, analyzed and the Co-58 activities verified to be within 30% of each other.

☐   YES, PROCEED to Step C.6.

☐   NO, INFORM OPS Supervision and Chemistry Supervision immediately. Save other analysis results, i.e., Tritium, boron, O & G (if required) and TSS (if required) obtained on the second set of samples.

_____/_____
Signature   Date

```
                           NOTE
Chemistry and OPS Supervision will attempt to resolve the activity
mismatch.  Further INDEPENDENT sampling and isotopic analyses
may be necessary.  Radiation Protection Supervision may need to
be consulted to re-evaluate the 30% acceptance criteria.
```

CN/A 5.   d.   Radiation Protection has waived 30% acceptance criteria.

_____/____/____
Rad. Protection Supervisor   Date Time

_____/____/____
OPS Supervisor   Date Time

e.   If Radiation Protection waives the 30% acceptance criteria, report analysis
     results for Tritium, boron, O & G (if required) and TSS (if required)
     obtained on the second set of samples.

f.   If Radiation Protection does not waive the 30% acceptance criteria,
     discard analysis results for Tritium, boron, O & G (if required) and TSS (if
     required) obtained on the second set of samples. Notify OPS Supervisor
     that this package is terminated and return to him. Chemistry Supervision
     will begin an investigation to determine the difference.

MP 6.   Radionuclide Analysis Performed (Isotopic report(s) attached)

JRW 7.   ANALYZE sample for tritium per BwCP 220-2, and RECORD the results from the
         completed BwCP 220-2T1.

PARAMETER	FREQUENCY	LIMIT	RESULTS
Tritium	Each Batch	None	0.0913 µCi/g

JRW 8.   Composite sample drawn, labeled with sample time, date and assigned release
         number and placed in designated sample storage area.

JRW 9.   ANALYZE sample for boron concentration, if not previously obtained in step C.2,
         per BwCP 103-10 and RECORD the results below.

PARAMETER	FREQUENCY	POST DILUTION DISCHARGE LIMIT	TANK CONCENTRATION
Boron	Each Batch	≤ 1 ppm	293.46 ppm

9

JPW

C____10.   Maximum Discharge Rate based on Water Quality Chemical Analysis

PERFORM the following calculation for each analysis:

$$\frac{A \quad x \quad B}{C \text{ (gpm)}} = \text{MAXIMUM DISCHARGE RATE}$$

A = Kankakee River Flowrate = 91,392 gpm.
B = Parameter Limit = 1 ppm
C = Tank Concentration (from Step C.9.)

Maximum Discharge Rate _____311_____ gpm
                    (not to exceed 500 gpm)

NOTE

All required NPDES LIMITS must be satisfied in the release tank prior to a release.

N/A 11.   ANALYZE sample as required by the NPDES Permit for Total Suspended Solids per CY-AA-130-9140 and Oil and Grease per BwCP 100-10. RECORD the results from the completed appropriate T-sheets below and on BwCP 323-18T1. N/A this Step if NPDES sampling has been satisfied.

PARAMETER	FREQUENCY	LIMIT	RESULTS
Total Suspended Solids	Per Current NPDES Permit	≤ 30 ppm	_____ ppm
Oil and Grease	Per Current NPDES Permit	≤ 20 ppm	_____ ppm

C. 12. Is the Release Tank within all specified NPDES limits as determined in step C.11?

■ YES a. The release tank is approved for Chemical Release.

b. Perform Step C.13., then forward this procedure to the Health Physics Department or back to the Operating Department for Step E.1.

☐ NO a. IMMEDIATELY NOTIFY the OPS Supervisor

OPS Supervisor notified:

_____ / ____ / _____
(Print Name)   Date Time

b. RETURN this procedure to Health Physics for release cancellation.

13. Chemistry Department: I have reviewed Part C and have verified it is accurate and complete.

_James R. Welch_____ , _4/20/0_ _13 00_
Chemistry Department   Date Time

_____OA_____ _4/20/04_ _1305_
Verification   Date Time

_JRW__ 14. PROMPTLY DELIVER this release package to Health Physics for processing (ENSURE receipt is acknowledged).

D.   HEALTH PHYSICS DEPARTMENT RESPONSIBILITY

RADIONUCLIDE ANALYSIS

> **NOTE**
> If 0RE-PR001 (Liquid Radwaste Release Monitor) is out-of-service two release tank samples must be obtained and analyzed. For all release calculations the **average** concentrations of each isotope (from the two analyses) SHALL be used. If an isotope appears on only one of the two analyses, then use that value for the isotope.

1.   Obtain the following and attach to this release form:

a.   Isotopic(s) for the tank to be released.

2.   CALL the Unit Supervisor and VERIFY that there are no "Liquid Release in Progress" placards on panel 0PM01J.   *Fiau Sup 5 CT*

> **NOTE**
> Steps D.3, D.4, and D.5 are not required if 0RE-PR001 is inoperable and AAR 0BwOS RETS 2.1-1a has been initiated.

3.   Call the OPS Supervisor for the following: *Fild Sup = JCT*

a.   Verify no 0WX026T release package (BwOP WX-526T1) is in progress past Step D.2 and prior to Step I.1.

b.   Verify that the backflush of the 0RE-PR001 was completed more than 30 minutes ago.

c.   Verify that the 0PR01J return is lined up to 0WX01T by either

1)   Checking Placard on Radwaste Control Panel OR

2)   Performing the following valve lineup:

a)   OPEN "No EPN", 0PR01J return to 0WX01T.

b)   CLOSE "No EPN", 0PR01J return to 0WX26T.

D _____ 4. Call the NSO and Request the 3 most recent <u>10</u> minute average readings from RM-11 for the ORE-PR001 (OPS101). *NSO: SK*

Date: _4-20-02_ Time: _1530_

#1 _6.80E-5_ μCi/ml
#2 _6.79E-5_ μCi/ml
#3 _6.84E-5_ μCi/ml

5. Record the maximum background for ORE-PR001 obtained from 3 average readings in Step D.4. above = _6.86 E-5_ μCi/ml

---

NOTE

If a computerized release program is available, you may attach the printout to this form and indicate "see attached" in the calculation spaces in Step D.6.a. below. If no quantifiable peaks are found in the radionuclide analysis, write "NQPF" in the Table in Step D.6.a. Actual release data will be completed in Section I.

_____ 6. RADIOACTIVE RELEASE RATE DETERMINATION:

a. To ensure compliance of the planned release with 10CFR20 limits and BwRP 6110-12, COMPLETE the table below. If an isotope is not present, you may leave the space blank.

D.　6.　a.

NOTE

DWC values are listed in 10CFR20, Appendix B Table 2, Column 2. For Tech Spec Limit take ten times the DWC value for each isotope listed for column 3. (i.e. the DWC value for Co-58 is 2E-5 μCi/ml. The value listed in column 3 below would be 2E-4 μCi/ml.) The Tech Spec Limit for noble gas isotopes is 2E-4 μCi/ml per ODCM Radioactive Effluent Technical Standard 12.3.1.A.

#1 Isotope	#2 Analyzed Tank Activity (μCi/ml)	#3 Tech Spec Limit (μCi/ml)	#4 Tank Activity (μCi/ml) / Tech Spec Limit (μCi/ml)	#5 (This Column Not Completed until Step D.6.a.1. Unrestricted Area DWC Fraction
Na-24		5.0 E-4		
Cr-51		5.0 E-3		
Mn-54		3.0 E-4		
Co-57		6.0 E-4		
Co-58		2.0 E-4		
Fe-59		1.0 E-4		
Co-60		3.0 E-5		
Zn-65		5.0 E-4		
Br-82		4.0 E-4		
Kr-85		2.0 E-4		
Sr-92		4.0 E-4		
Nb-95		3.0 E-4		
Zr-95		2.0 E-4		
Zr-97		9.0 E-5		
Ag-110m		6.0 E-5		
Tc-99m		1.0 E-2		
Sn-113		3.0 E-4		
Sb-122		1.0 E-4		
Sb-124		7.0 E-5		
Sb-125		3.0 E-4		
Sb-126		7.0 E-5		
Cs-136		6.0 E-5		
I-131		1.0 E-5		
I-133		7.0 E-5		
Xe-133		2.0 E-4		
Xe-133m		2.0 E-4		
Cs-134		9.0 E-6		
Xe-135		2.0 E-4		
Cs-137		1.0 E-5		
Cs-138		4.0 E-3		
Ba-140		8.0 E-5		
La-140		9.0 E-5		
Ce-144		3.0 E-5		
H-3		1.0 E-2		
Total		Total		

(2)　Sum of column #2 does NOT include Tritium
(4)　Sum of column #4 DOES include Tritium

D _BW_ 6.   b.   VERIFY that the total tank curies excluding noble gas and tritium, are less than the administrative limit. If exceeded, receive permission from the OPS Supervisor to release the tank.

_____ / _____ / _____ .
OPS Supervisor Contacted (print) or N/A   Date   Time

c.   Circulating Water Blowdown. = 8,000 GPM.

_BW_   d.   RADIOACTIVE RELEASE RATE

$$Radioactive\ Release\ Rate = \left[\frac{Circulating\ Water\ Blowdown\ Rate\ (8,000\ gpm)}{Total\ of\ Column\ 4} \right] / 2$$

= ___416___ GPM   Date: _4-20-02_   Time: _1535_
(not to exceed 500 gpm)

_BW_   e.   MAXIMUM RELEASE RATE DETERMINATION:

CHOOSE the most limiting (smallest) release rate, either the Chemistry release rate from Step C.10 or the Radioactive Release Rate in Step D.6.d. above.

MAXIMUM RELEASE RATE ___311___ **GPM**

_BW_   f.   Calculate the minimum release duration using formula below.

Minimum
Release = [Tank Volume (Gal) - 3300] = ___28___ Min
Duration   Max. Release Rate (GPM)

_BW_   g.   UNRESTRICTED AREA DWC FRACTION (Verification):

1)   COMPLETE column #5 of Step D.6.a. using the following equation on a radionuclide basis:

$$DWC\ Fraction = \left[\frac{Analyzed\ Tank\ Activity\ (\mu Ci/ml) \times Max.\ Release\ Rate\ (gpm)}{Max.\ Release\ Rate\ (gpm) + Circ\ Water\ Blowdown\ Rate\ (8,000\ (gpm)} \right] / Tech\ Spec\ Limit$$

2)   VERIFY the sum of column #5 is less than 0.5. If not, NOTIFY the OPS Supervisor and CANCEL this release form.

> **NOTE**
> Step D.7. is not required if 0RE-PR001 is inoperable and AAR
> 0BwOS RETS 2.1-1a has been initiated.

D⟋‍7. **RADWASTE EFFLUENT MONITOR SETPOINT:**

    a. DETERMINE the Alert Alarm and High Alarm setpoints for the Liquid
       Radwaste Effluent Monitor (0RE-PR001) using the following equation:

       0RE-PR001 maximum background from Step D.5.

             __6.86E-6__ μCi/ml

       Calculated 0RE-PR001 setpoint = [(Total Analyzed Tank activity*) x 1.5]
       + (Max. 0RE-PR001 Bkg).
       * sum of column 2 Step D.6.a.

       RECORD the calculated 0RE-PR001 setpoint __6.83E-5__ μCi/ml

       COMPARE the calculated 0RE-PR001 setpoint to each of the current
       0RE-PR001 monitor setpoints. These setpoints are:

       1.31E-4 μCi/ml for the **HIGH** setpoint
       6.56E-5 μCi/ml for the **ALERT** setpoint

       If the calculated value is less than the current monitor setpoint, RECORD
       the current monitor setpoint as the Release setpoint. If the calculated
       value is greater than the current monitor setpoint, RECORD the calculated
       value as the Release setpoint.

    b. RECORD 0RE-PR001 Monitor Liquid Release setpoints:

       Chan Item 9 (HIGH Alarm Setpoint) __1.31E-4__ μCi/ml

       Chan Item 10 (ALERT Alarm Setpoint) __6.83E-5__ μCi/ml

> **NOTE**
> Step D.8. is not required if 0RE-PR010 is inoperable and AAR
> 0BwOS RETS 2.1-1a has been initiated.

D. 8. STATION BLOWDOWN MONITOR SETPOINT:

    a. DETERMINE the ALERT Alarm and HIGH Alarm setpoints for the Station Blowdown Process Monitor 0RE-PR010 using the following equation:

$$\begin{matrix} \text{0RE-PR010} \\ \text{Setpoint} \end{matrix} = \begin{matrix} \text{0RE-PR010} \\ \text{current} \\ \text{reading} \end{matrix} + \frac{1.25 \times \text{Total Analyzed Tank Activity* } \times \text{ Max Release Rate}}{\text{Circ. Water Blowdown Rate of } \underline{8,000} \text{ gpm} + \text{Max Release Rate}}$$

*Sum of column #2, Step D.6.a.

(initial) 0RE-PR010 current reading ___2.67E6___ µCi/ml

(initial) Calculated 0RE-PR010 setpoint ___4.18E-6___ µCi/ml

COMPARE the calculated 0RE-PR010 Setpoint to each of the current monitor setpoints. These setpoints are:

        8.19E-6 µCi/ml for the **HIGH** setpoint
        5.73E-6 µCi/ml for the **ALERT** setpoint

If the calculated value is less than the current monitor setpoint, RECORD the current monitor setpoint as the Release setpoint. If the calculated value is greater than the current monitor setpoint, RECORD the calculated value as the Release setpoint.

    b. RECORD 0RE-PR010 Monitor Liquid Release setpoints:

(initial) Chan Item 9 (HIGH Alarm Setpoint) ___8.19E-6___ µCi/ml

(initial) Chan Item 10 (ALERT Alarm Setpoint) ___5.73E-6___ µCi/ml

D. 9. APPROVAL FOR RADIOLOGICAL RELEASE:

Radiation Protection: I have reviewed Part D and have verified it is accurate and complete.

_____   _____ _____
Radiation Protection   Date   Time

NOTE

Verification is required for Step D.9. if 0RE-PR001 is inoperable and AAR 0BwOS RETS 2.1-1a has been initiated.

RP or Chem: I have verified that Part D is accurate and complete.

VERIFICATION _____ Date: _____ Time: _____

10. Forward Release Package to the OPS Supervisor, or Contact OPS Supervisor for instructions to forward this package.

E. **OPERATING DEPARTMENT RESPONSIBILITY**

NOTE

A Check Source Check is a verification of Detector Response. Even if Detector response is immediately evident when a "Hot" Release Tank is first lined up to 0PR01J, ODCM RETS 2.1.B-1 requires a Source Check. If a Check Source Test fails when High Activity is present, it is caused by the program function of 0PR01J. To pass the Check Source Test, the Activity has to stabilize or be missed, and repeated attempts may have to be performed until successful.

NOTE

Step E.1. is not required if 0RE-PR001 is inoperable and AAR 0BwOS RETS 2.1-1a has been initiated.

---

1. Perform 0BwOS RETS 2.1.B-1, "Unit Common Pre-Release Source Check of Liquid Effluent Monitor 0PR01J."

   Time: 1547   Date: 4/20/02

2. Control Room Supervisor: I have verified that either the 0BwOS RETS 2.1.B-1 Acceptance Criteria has been met, or 0RE-PR001 is inoperable.

   _____   /4-20-02
   Control Room Supervisor   Date

NOTE

Generally, a low flow release rate should be considered as <130 gpm. Contact OPS Supervisor for determination of which release flow path to use based on current conditions, equipment availability, etc.

---

3. CONTACT OPS Supervisor for release flow rate path.

4. CIRCLE release flow rate path. (Low Flow) / High Flow.

> **NOTE**
>
> Step E.5. is not required if 0RE-PR010 is inoperable and AAR 0BwOS RETS 2.1-1a has been initiated.

E. 5.   OBTAIN and RECORD the values of the following CHAN ITEMS for the 0RE-PR010 (0PS110) from its CHAN ITEM Display on the RM-11 Console. (DEPRESS Grid 1 key, key in 110, DEPRESS SEL key and then DEPRESS CHAN ITEMS key).

   a.   Chan Item 9 (HIGH Alarm Setpoint) __8.19 E-06__ µCi/ml

   b.   Chan Item 10 (ALERT Alarm Setpoint) __3.73 E-06__ µCi/ml

> **NOTE**
>
> Step E.6. is not required if 0RE-PR001 is inoperable and AAR 0BwOS RETS 2.1-1a has been initiated.

6.   OBTAIN and RECORD the values of the following CHAN ITEMS for the 0RE-PR001 (0PS101) from its CHAN ITEM display on the RM-11 Console. (DEPRESS GRID 1 key, key in 101, DEPRESS SEL key and then DEPRESS CHAN ITEMS key).

   a.   Chan Item 9 (HIGH Alarm Setpoint) __1.31 E-04__ µCi/ml

   b.   Chan Item 10 (ALERT Alarm Setpoint) __6.56 E-05__ µCi/ml

E. 7. VERIFY 0BwOSR 0.1-0 daily channel check is complete on:

NOTE

Step E.7.a. is not required if 0RE-PR001 is inoperable and AAR 0BwOS RETS 2.1-1a has been initiated.

---

a. Rad Monitor 0RE-PR001: Liquid Radwaste Effluent.

NOTE

Step E.7.b. is not required if 0RE-PR010 is inoperable and AAR 0BwOS RETS 2.1-1a has been initiated.

---

b. Rad Monitor 0RE-PR010: Station Blowdown.

NOTE

Step E.7.c. is not required if 0UR-CW032 is inoperable and AAR 0BwOS RETS 2.1-1a has been initiated.

---

c. Station Blowdown Line Monitor Loop 0UR-CW032.

NOTE

Steps E.8. and E.9. are not required if 0RE-PR001 is inoperable and AAR 0BwOS RETS 2.1-1a has been initiated.

NOTE

For a release through the low flow rate path COMPLETE Step E.8 and mark step E.9 N/A. If a high flow rate release, PROCEED to Step E.9 and mark step E.8 N/A.

NOTE

If the 0PR01J is in High Alarm at this point in the procedure due to high background, it will be necessary to reset the HIGH alarm setpoint to a value higher than the background. This will allow the 0AOV-WX896 to open to test the interlock function. Otherwise, Step E.8.f. is not required.

NOTE

Upon receipt of a high radiation signal at 0PR01J, the Release Tank Discharge Valves, 0WX353 and 0WX896 will remain closed until the high radiation signal seal-in is reset at 0PL01J.

E. 8.   VERIFY valve 0AOV-WX896, Release Tank Disch Isolation Valve, automatically closes on high radiation by PERFORMING the following Steps:

_N/A_   a.   VERIFY sufficient blowdown flow is established.

_N/A_   b.   VERIFY/CLOSE 0AOV-WX897, Flow Control Radwaste Effluent Discharge Valve.

_N/A_   c.   VERIFY/CLOSE 0AOV-WX890, Release Tk Pp 0WX53P Dsch Isol.

_N/A_   d.   VERIFY/OPEN 0AOV-WX889, Release Tk Pp 0WX01P Dsch Isol.

_N/A_   e.   VERIFY/START 0WX01P, Release Tank Pump.

E___8   f.   IF the 0PR01J is in HIGH alarm, CHANGE the HIGH alarm setpoint to a value higher than background. This will allow the RELEASE TANK DISCHARGE HEADER RADIATION HIGH alarm (Window 77A09 on 0PL01J) to be reset, and the 0AOV-WX896 valve to be opened after its seal-in has been reset. This can be accomplished as follows:

> ### CAUTION
> Some actions possible in the Supervisor Mode may have serious detrimental effects on system operation. Therefore use caution when in this mode and do not leave the RM-11 console unattended when it is in this mode.

1)   PLACE the RM-11 Console in SUPERVISOR MODE.

2)   SELECT the HIGH alarm setpoint (channel item 9) to be changed on the 0RE-PR001 (0PS101) CHAN ITEMS display by KEYING in 9 and DEPRESSING the SEL key. (Following this CHAN ITEM 9 should be displayed in reverse characters.)

3)   ENTER the HIGH alarm setpoint USING The format XYZ ± AB (i.e. a value of 3.76E-10 would be entered as 376-10) and DEPRESS the ENTER key. The new value will be displayed after a short delay.

_____   g.   VERIFY/CLEAR RELEASE TANK DISCHARGE HEADER RADIATION HIGH Annunciator (Window 77A09 on 0PL01J).

> ### NOTE
> Upon receipt of a high radiation signal at 0PR01J, the Release Tank Discharge Valves, 0WX353 and 0WX896 will remain closed until the high radiation signal seal-in is reset at 0PL01J.

_____   h.   OPEN 0AOV-WX896, Release Tank Disch Isolation Valve.

E. 8. i. AUTO CLOSE valve 0AOV-WX896, Release Tank Disch Isolation Valve, by LOWERING the Liquid Radwaste Effluent monitor 0RE-PR001 HIGH alarm setpoint to a value below the current activity as follows:

   1) PLACE the RM-11 Console in SUPERVISOR MODE.

   2) SELECT the HIGH alarm setpoint (channel item 9) to be changed on the 0RE-PR001 (0PS101) CHAN ITEMS display by KEYING in 9 and DEPRESSING the SEL key. (Following this CHAN ITEM 9 should be displayed in reverse characters.)

   3) RECORD the current activity reading. _____

   4) ENTER a new HIGH alarm setpoint below the current activity value (from the upper right corner of the display) USING the format XYZ ± AB for XYZ E ± AB (i.e. a value of 3.76E-10 would be entered as 376-10).

   5) RECORD the new HIGH alarm setpoint that was entered. (channel item 9) _____

   6) DEPRESS the ENTER key.

   7) ACKNOWLEDGE the alarm at the RM-11 console.

   j. VERIFY 0AOV-WX896, Release Tank Disch Isolation Valve, Auto Closes.

   k. VERIFY RELEASE TANK DISCHARGE HEADER RADIATION HIGH alarm (Window 77A09 at 0PL01J) annunciates at 0PL01J and ACKNOWLEDGE.

   l. PLACE key locked switch for 0AOV-WX896, Release Tank Disch Isolation Valve, in CLOSE.

```
┌────────────────────────────────────────────────────────────────┐
│  ▼                    CAUTION                        ▼          │
│      Some actions possible in the Supervisor Mode may have      │
│      serious detrimental effects on system operation.           │
│      Therefore use caution when in this mode and do not         │
│      leave the RM-11 console unattended when it is in this       │
│      mode.                                                       │
└────────────────────────────────────────────────────────────────┘
```

E____8.   m.   VERIFY/ADJUST the ALERT Alarm and HIGH Alarm setpoints for 0RE-PR001 (0PS101) to the values specified by Health Physics in Step D.7.b. USING the instructions that follow.

VERIFICATION ____

1)   PLACE the RM-11 Console in SUPERVISOR MODE.

2)   SELECT the ALERT alarm setpoint (channel item 10) to be changed on the 0RE-PR001 (0PS101) CHAN ITEMS display by KEYING in 10 and DEPRESSING the SEL key. (Following this CHAN ITEM 10 should be displayed in reverse characters.)

3)   ENTER the new ALERT alarm setpoint USING the format XYZ ± AB (i.e. a value of 3.76E-10 would be entered as 376-10) and DEPRESS the ENTER key. The new value will be displayed after a short delay.

4)   SELECT the HIGH alarm setpoint (channel item 9) to be changed on the 0RE-PR001 (0PS101) CHAN ITEMS display by KEYING in 9 and DEPRESSING the SEL key. (Following this CHAN ITEM 9 should be displayed in reverse characters.)

5)   ENTER the new HIGH alarm setpoint USING the format XYZ ± AB (i.e. a value of 3.76E-10 would be entered as 376-10) and DEPRESS the ENTER key. The new value will be displayed after a short delay.

____   n.   VERIFY/CLEAR RELEASE TANK DISCHARGE HEADER RADIATION HIGH annunciator (Window 77A09 at 0PL01J).

NOTE

If the 0PR01J is in High Alarm at this point in the procedure due to high background, it will be necessary to reset the HIGH alarm setpoint to a value higher than the background. This will allow the 0AOV-WX353 to open to test the interlock function. Otherwise, Step E.9.f. is not required.

E.   9.   VERIFY valve 0WX353, Release Tank Disch Isolation Valve, automatically closes on high radiation by PERFORMING the following Steps for a release through the high flow rate path:

  a.   VERIFY sufficient blowdown flow is established.

  b.   CLOSE 0AOV-WX302, Flow Control Radwaste Effluent Discharge Valve.

  c.   VERIFY/CLOSE 0AOV-WX890, Release Tk Pp 0WX53P Dsch Isol.

  d.   VERIFY/OPEN 0AOV-WX889, Release Tk Pp 0WX01P Dsch Isol.

  e.   VERIFY/START 0WX01P, Release Tank Pump.

CAUTION

Some actions possible in the Supervisor Mode may have serious detrimental effects on system operation. Therefore use caution when in this mode and do not leave the RM-11 console unattended when it is in this mode.

---

f.   IF the 0PR01J is in HIGH alarm, CHANGE the HIGH alarm setpoint to a value higher than background. This will allow the RELEASE TANK DISCHARGE HEADER RADIATION HIGH alarm (Window 77A09 on 0PL01J) to be reset, and the 0AOV-WX353 valve to be opened after its seal-in has been reset. This can be accomplished as follows (N/A if 0PR01J is not in alarm):

  1)   PLACE the RM-11 Console in Supervisor Mode.

  2)   SELECT the HIGH alarm setpoint (channel item 9) to be changed on the 0RE-PR001 (0PS101) CHAN ITEMS display by KEYING in 9 and DEPRESSING the SEL key. (Following this CHAN ITEM 9 should be displayed in reverse characters.)

  3)   ENTER a HIGH alarm setpoint USING the format XYZ ± AB (i.e. a value of 3.76E-10 would be entered as 376-10) and DEPRESS the ENTER key. The new value will be displayed after a short delay.

g.   VERIFY/CLEAR RELEASE TANK DISCHARGE HEADER RADIATION HIGH Annunciator (Window 77A09 on 0PL01J).

NOTE

Upon receipt of high radiation signal at 0PR01J, the Release Tank Discharge Valves, 0WX353 and 0WX896 will remain closed until the high radiation signal seal-in is reset at 0PL01J.

---

h.   OPEN 0AOV-WX353, Release Tank Disch Isolation Valve. (The key to operate the 0AOV-WX353 valve control switch must be obtained from the OPS Supervisor or Shift Manager.)

E. 9. i. AUTO CLOSE valve 0AOV-WX353, Release Tank Disch Isolation Valve, by LOWERING the Liquid Radwaste Effluent monitor 0RE-PR001 HIGH alarm setpoint to a value below the current activity as follows:

1) PLACE the RM-11 Console in SUPERVISOR MODE.

2) SELECT the HIGH alarm setpoint (channel item 9) to be changed on the 0RE-PR001 (0PS101) CHAN ITEMS display by KEYING in 9 and DEPRESSING the SEL key. (Following this CHAN ITEM 9 should be displayed in reverse characters.)

3) RECORD the current activity reading ___7.14 E-05___

4) ENTER a new HIGH alarm setpoint below the current activity value (from the upper right corner of the display) USING the format XYZ ± AB for XYZ E ± AB (i.e. a value of 3.76E-10 would be entered as 376-10).

5) RECORD the new HIGH alarm setpoint that was entered. (channel item 9) ___1.31 E-05___

6) DEPRESS the ENTER key.

7) ACKNOWLEDGE the alarm at the RM-11 console.

j. VERIFY 0AOV-WX353, Release Tank Disch Isolation Valve, Auto Closes.

k. VERIFY RELEASE TANK DISCHARGE HEADER RADIATION HIGH alarm annunciates at 0PL01J and ACKNOWLEDGE.

l. PLACE key locked switch for 0AOV-WX353, Release Tank Disch Isolation Valve, in CLOSE.

CAUTION

Some actions possible in the Supervisor Mode may have serious detrimental effects on system operation. Therefore use caution when in this mode and do not leave the RM-11 console unattended when it is in this mode.

---

9.   m.   VERIFY/ADJUST the ALERT Alarm and HIGH Alarm setpoints for 0RE-PR001 (0PS101) to the values specified by Health Physics in Step D.7.b. USING the instructions that follow.

VERIFICATION

1)   PLACE the RM-11 Console in SUPERVISOR MODE.

2)   SELECT the ALERT alarm setpoint (channel item 10) to be changed on the 0RE-PR001 (0PS101) CHAN ITEMS display by KEYING in 10 and DEPRESSING the SEL key. (Following this CHAN ITEM 10 should be displayed in reverse characters.)

3)   ENTER the new ALERT alarm setpoint USING the format XYZ ± AB (i.e. a value of 3.76E-10 would be entered as 376-10) and DEPRESS the ENTER key. The new value will be displayed after a short delay.

4)   SELECT the HIGH alarm setpoint (channel item 9) to be changed on the 0RE-PR001 CHAN ITEMS display by KEYING in 9 and DEPRESSING the SEL key. (Following this CHAN ITEM 9 should be displayed in reverse characters.)

5)   ENTER the new HIGH alarm setpoint USING the format XYZ ± AB (i.e. a value of 3.76E-10 would be entered as 376-10) and DEPRESS the ENTER key. The new value will be displayed after a short delay.

n.   VERIFY/CLEAR RELEASE TANK DISCHARGE HEADER RADIATION HIGH annunciator (Window 77A09 at 0PL01J).

NOTE

Step E.10. is not required if 0RE-PR010 is inoperable and AAR 0BwOS RETS 2.1-1a has been initiated or if ALERT ALARM & HIGH ALARM setpoints have not changed from Step D.8.b.

E____ 10.   VERIFY/ADJUST the ALERT and HIGH setpoints for 0RE-PR010 to the values specified by Health Physics in Step D.8.b. using the instructions that follow.

VERIFICATION

a.   PLACE the RM-11 Console in Supervisor Mode.

b.   SELECT the ALERT alarm setpoint (channel item 10) to be changed on the 0RE-PR010 (0PS110) CHAN ITEMS display by KEYING in 10 and DEPRESSING the SEL key. (Following this CHAN ITEM 10 should be displayed in reverse characters.)

c.   ENTER the new ALERT alarm setpoint USING the format XYZ ± AB (i.e. a value of 3.76E-10 would be entered as 376-10) and DEPRESS the ENTER key. The new value will be displayed after a short delay.

d.   SELECT the HIGH alarm setpoint (channel item 9) to be changed on the 0RE-PR010 (0PS110) CHAN ITEMS display by KEYING in 9 and DEPRESSING the SEL key. (Following this CHAN ITEM 9 should be displayed in reverse characters.)

e.   ENTER the new HIGH alarm setpoint USING the format XYZ ± AB (i.e. a value of 3.76E-10 would be entered as 376-10) and DEPRESS the ENTER key. The new value will be displayed after a short delay.

f.   PLACE the RM-11 Console in the NORMAL MODE.

E.   11.   RECORD the following data in the space provided.

a.   Circulating Water Blowdown Rate _10,600_ gpm
(0UR-CW032 at PNL 0PM01J, or computer Point F2400)

b.   VERIFY CW BLOWDOWN RATE IS EQUAL TO OR GREATER THAN
8,000 gpm.

12.   Control Room Supervisor: I have reviewed Part E and have verified it is accurate
and complete.

_____   ____/____/____
Control Room Supervisor   Date Time

F. <u>Shift Manager OR SRO RESPONSIBILITY</u>

____1. VERIFY that Steps B.6., C.13., D.9. and E.12. are signed.

NOTE

Biocide treatment of CW requires isolation of CW blowdown. The expected time of release and release duration must be considered so that both biocide treatment and the release can be accommodated.

---

2. VERIFY that the actual Circulating Water Blowdown Rate is equal to or greater than <u>8,000</u> gpm (0UR-CW032 at PNL 0PM01J, or computer point F2400).

_____/_____
Shift Manager or SRO   Date

____3. PLACE a placard stating "Liquid Release in Progress" at 0PM01J.

4. APPROVAL FOR RELEASE   _____/_____/_____
                            Shift Manager or SRO   Date   Time

5. COMMENTS _____

_____

_____

_____

G. <u>OPERATING DEPARTMENT RESPONSIBILITY</u> - Discharging Release Tank 0WX01T to Circulating Water Blowdown Line.

NOTE

If during the release, Circ Water Blowdown flow (Computer point F2400) is reduced to <8,000 gpm, terminate the release. If during the release, Circ Water Blowdown flow is reduced to <7,000 gpm (low flow interlock setpoint), VERIFY the release is terminated. If Circ Water Blowdown flow can be re-established ≥8,000 gpm, the release may be restarted at step G.2 provided that the following conditions are met:

*Shift Manager permission is obtained.
*All applicable Steps are re-initialed/re-verified as necessary.
*No additions have been made to the Release Tank.
*Release totalizers have not been reset and the original totalizer readings are used to calculate the gallons released.

NOTE

If Station Blowdown Line Flow Monitor (CW-032) is inoperable, effluent releases via this pathway may continue for up to 30 days provided the flow rate is estimated at least once per 4 hours during actual releases.

NOTE

If this procedure is aborted before any effluent is released, perform Step G.27.a. through Step G.27.n. and realign the 0PR01J as directed by the OPS Supervisor, then perform Step G.28. and Step H. before exiting this procedure.

NOTE

The purpose of the release window is to minimize the interaction with the City of Wilmington Water Department intake periods.

---

1. OPS Supervisor performs the following:

_____ a. RECORD the START AFTER time from step B.2. and the START BEFORE time from BwOP WX-501T2, RELEASE TIME TABLE, using the River Flow Rate from step B.1. and the release duration from step D.6.f.:

Start After _____ Start Before _____

G. 1. b. VERIFY release will start within release start time window recorded in step G.1.a. If release cannot start within times recorded in step G.1.a. this step is N/A. Proceed to step G.1.c.

_____/_____/_____
OPS Supervisor   Date   Time

c. To start release outside of release start time window recorded in step G.1.a. VERIFY Authorization to Release Outside of Release Window, BwOP WX-501T3, is completed and retained with this package.

_____/_____/_____
OPS Supervisor   Date   Time

NOTE

If this procedure must be exited prior to its completion, the following temporary alteration must be restored per Step G.26. prior to exit.

---

2. PERFORM the following if AAR 0BwOS RETS 2.1-1a is in effect for 0RE-PR001 (refer to Step B.5.):

_____   a. OBTAIN Shift Manager or designee permission to perform the following Temporary Electrical Alteration.

SM/DESIGNEE VERIFICATION _____

SUPERVISOR VERIFICATION _____

_____   b. REMOVE Relay Block K1 at 0PR01J (inside the AC Power Panel) to allow opening of 0WX896/353, Release Tank Disch Isolation Valve.

SUPERVISOR VERIFICATION _____

_____   c. LOCALLY, at 0PR01J, place 2 placards stating "K1 RELAY REMOVED FOR LIQUID RELEASE":

●   ONE on the AC Power Panel for 0PR01J and,

●   ONE on the Rad Detector Cabinet for 0PR01J.

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G. 3. RECORD the following data in the space provided.

_____ a. Tank Level Start _____ %
(0LR-WX011 at PNL 0PL01J)

_____ b. VERIFY level in Step G.3.a. is ±5% OF LEVEL RECORDED IN Step A.2 (Page 1), or receive Supervisor approval to continue.

_____ c. RESET the Batch Totalizer reading to zero at PNL 0PL01J for the flowpath being used. (This step may be marked N/A if Batch Totalizer is inoperable.)

_____ d. RESET the Cumulative Totalizer reading to zero at PNL 0PL01J for the flowpath being used. (This step may be marked N/A if Cumulative Totalizer is inoperable.)

┌───┐
│ ▼   **CAUTION**   ▼ │
│ Failure to record and use the correct maximum   │
│ permissible release rate may result in violation of   │
│ NPDES and/or 10CFR20 release criteria.   │
└───┘

_____ e. Maximum Release Rate from Step D.6.e. (page 15) _____ GPM

SUPERVISOR VERIFICATION _____

_____ 4. STOP 0WX36M, Release Tank Mixer (if applicable)

┌───┐
│   **NOTE**   │
│ Step G.5. is not applicable if Steps E.1. and E.2. were not required. │
└───┘

_____ 5. VERIFY Steps E.1. and E.2. (page 19) have been completed within the previous **24** hrs (If NOT, RE-PERFORM Steps E.1. and E.2.).

┌───┐
│   **NOTE**   │
│ Verification is required in Steps G.6. through G.13. if 0RE-PR001 is │
│ inoperable and AAR 0BwOS RETS 2.1-1a has been initiated.   │
└───┘

_____ 6. VERIFY/CLOSE 0AOV-WX834, Release Tank Inlet Isolation Valve for Release Tank 0WX01T.

SUPERVISOR VERIFICATION _____

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G ___7.   VERIFY/CLOSE 0AOV-WX017, Release Tank Recycle Valve (Release Tank
Discharge to Turbine Building Equipment Drain Tank Isolation Valve).

SUPERVISOR VERIFICATION _____

_____8.   VERIFY/CLOSE 0AOV-WX910, Release Tank Pump Disch Valve (Release Tank
Discharge to Regeneration Waste Drain Tank).

SUPERVISOR VERIFICATION _____

_____9.   VERIFY/CLOSE 0AOV-WX302, Release Tank Discharge Control Valve/(High
Flow Path).

SUPERVISOR VERIFICATION _____

_____10.   VERIFY/CLOSE, 0AOV-WX897, Release Tank Discharge Flow Control
valve/(Low Flow Path).

SUPERVISOR VERIFICATION _____

_____11.   VERIFY/OPEN 0AOV-WX889, Release Tank Pump 0WX01P Discharge Isolation
Valve.

SUPERVISOR VERIFICATION _____

NOTE

For releases through the low flow rate path, $\leq$ 130 GPM or as
specified by OPS Supervisor, COMPLETE Step G.12 and mark step
G.13 "N/A". For releases through the high flow rate path, mark Step
G.12 "N/A" and PROCEED to Step G.13.

---

12.   Low Flow Release, PERFORM the following:

_____   a.   VERIFY Step E.8. (beginning on page 22) has been completed. (N/A if
0RE-PR001 is inoperable and AAR 0BwOS RETS 2.1-1a has been
initiated)

_____   b.   OBTAIN the key for 0AOV-WX896, Release Tank Outlet Valve.

> **NOTE**
>
> If Circ. Water Blowdown Flow Low and/or Release Tank Disch Header Radiation High alarms are lit, it may be necessary to reset the Rel. Tank Disch Header & Isolation Valves 0WX896 & 0WX353 by pressing their reset button prior to opening 0AOV-WX896.

> **NOTE**
>
> Upon receipt of a high radiation signal at 0PR01J, the Release Tank Discharge Valves, 0WX353 and 0WX896 will remain closed until the high radiation signal seal-in is reset 0PL01J.

G ___12.   c.   OPEN 0AOV-WX896, Release Tank Outlet Isolation Valve.

SUPERVISOR VERIFICATION _____

_____   d.   VERIFY/CLOSE 0AOV-WX015, Release Tank 0WX01T Pump Recirc Valve.

SUPERVISOR VERIFICATION _____

| _____   e.   SLOWLY OPEN 0AOV-WX897, Release Tank Discharge Flow Control Valve, (Low Flow Path) with controller 0FK-WX630, TO OBTAIN a maximum discharge flowrate of 50 GPM, or less than 50 GPM if required by Step D.6.e., for the first three (3) minutes of the release by checking at least one of the following:

O   Low Flow Totalizer increasing.

O   Low Flow Recorder increasing.

O   0WX01T Level Recorder decreasing.

O   Computer Point (F0002) for release rate increasing.

SUPERVISOR VERIFICATION _____

_____   f.   RECORD Release Start Time _____:_____ Date: _____

SUPERVISOR VERIFICATION _____

G ___12. g. SLOWLY OPEN 0AOV-WX897, Release Tank Discharge Flow Control Valve, with controller 0FK-WX630, To OBTAIN a release rate NOT to exceed the maximum release rate specified in Step G.3.e.

SUPERVISOR VERIFICATION _____

13. High Flow Release, PERFORM the following:

_____ a. VERIFY Step E.9. (beginning on page 26) has been completed. (N/A if 0RE-PR001 is inoperable and AAR 0BwOS RETS 2.1-1a has been initiated.)

_____ b. OBTAIN the key for 0AOV-WX353, Release Tank Outlet Valve.

NOTE

If Circ. Water Blowdown Flow Low and/or Release Tank Disch Header Radiation High alarms are lit, it may be necessary to reset the Rel. Tank Disch Header & Isolation Valves 0WX896 & 0WX353 by pressing their reset button prior to opening 0AOV-WX353.

NOTE

Upon receipt of a high radiation signal at 0PR01J, the Release Tank Discharge Valves, 0WX353 and 0WX896 will remain closed until the high radiation signal seal-in is reset 0PL01J.

_____ c. OPEN 0AOV-WX353, Release Tank Outlet Isolation Valve.

SUPERVISOR VERIFICATION _____

_____ d. VERIFY/CLOSE 0AOV-WX015, Release Tank 0WX01T Pump Recirc. Valve.

SUPERVISOR VERIFICATION _____

G ___13.   e.   SLOWLY OPEN 0AOV-WX302, Release Tank Discharge Flow Control Valve, with controller 0FK-WX001, TO OBTAIN a maximum discharge flowrate of 50 GPM for the first three (3) minutes of the release by checking at least one of the following:

○   High Flow Totalizer increasing.

○   High Flow Recorder increasing.

○   0WX01T Level Recorder decreasing.

○   Computer Point (F0001) for release rate increasing.

SUPERVISOR VERIFICATION _____

_____   f.   RECORD Release Start Time _____:_____ Date: _____

SUPERVISOR VERIFICATION _____

_____   g.   SLOWLY OPEN 0AOV-WX302, Release Tank Discharge Flow Control Valve, with controller 0FK-WX001, TO OBTAIN a release rate not to exceed the maximum release rate specified in step G.3.e.

SUPERVISOR VERIFICATION _____

_____14.   RECORD the Release Rate _____Gal/Min

SUPERVISOR VERIFICATION _____
(LESS THAN MAXIMUM RATE DETERMINED IN STEP G.3.e.)

15.   VERIFY the following:

NOTE

Step G.15.a. is not required if Batch and Cumulative Totalizers are not operable. Gallons released shall be determined per note prior to Step G.20.e. if both totalizers are not operable.

_____   a.   Batch Totalizer and/or Cumulative Totalizer readings increase. (It is acceptable, however, to observe no increase in the readings at low release rates).

NOTE

Step G.15.b. is not required if 0FR-WX630-1 or 0FR-WX630-2, as applicable, is inoperable and AAR 0BwOS RETS 2.1.1a has been identified.

G ___15.   b.   PERFORM a Channel Check per 0BwOSR 0.1-0 for 0FR-WX630-1 or 0FR-WX630-2, as applicable, by OBSERVING indication at 0PL01J.

NOTE

Step G.15.c. is not required if 0UR-CW032 is inoperable and AAR 0BwOS RETS 2.1-1a has been identified.

_____   c.   PERFORM a channel check per 0BwOSR 0.1-0 for the Station Blowdown Flow Monitor by observing 0UR-CW032, indicated on Panel 0PM01J, or computer point F2400.

_____   d.   RECORD Station Blowdown Flowrate during release: _____ gpm

_____   e.   RECORD Station Blowdown Flowrate once per 24 Hr. on continuous release: _____ gpm (N/A if not applicable)

_____   f.   NOTIFY Control Room of release in progress.

_____   g.   NOTIFY Shift Manager of release in progress.

G.   16.   PERFORM the following rate checks. REFER to Attachment A as needed.

   a.   For the high flow rate path check the flow rate using a tank level calculation over a 10 minute interval against computer point F0001 or Flow Recorder. PERFORM this check twice at the beginning of the release and again when < 50% level. RECORD each flow rate obtained.

   b.   For the low flow rate release path check the flow rate using a tank level calculation over a 10 minute interval against computer point F0002 or Flow Recorder. PERFORM this check twice at the beginning of the release. Providing the flow rates are consistent and below the allowed release rate the release flow rate checks can be relaxed to once every 30 minutes. RECORD each flow rate obtained.

(Circle One)

TIME		Computer Point Value F0001/F0002 (GPM)	OLR-WX011 Tank LEVEL (%)		Δt	Δl	329 X (Δl/Δt) = gpm	Operator*
Start	Stop		Start	Stop				

Where: Δt = Stop Time - Start TIME
         Δl = Stop LEVEL - Start Level
         329 = gallons per 1% tank level

*   After each check of flowrate, VERIFY the flowrate is less than the maximum release rate specified in step D.6.e. and/or G.3.e, if not, IMMEDIATELY NOTIFY the OPS Supervisor.

Attachment A
Liquid Release Rate Chart

%Level Change	% Time Change							
	5.00	10.00	15.00	20.00	25.00	30.00	35.00	40.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.50	32.90	16.45	10.97	8.23	6.58	5.48	4.70	4.11
1.00	65.80	32.90	21.9.	16.45	13.16	10.97	4.70	4.11
1.50	98.70	49.35	32.90	24.68	19.74	16.45	14.10	12.34
2.00	131.60	65.80	43.87	32.90	26.32	21.93	18.80	16.45
2.50	164.50	82.25	54.83	41.13	32.90	27.42	23.50	20.56
3.00	197.40	98.70	65.80	49.35	39.48	32.90	28.20	24.68
3.50	230.30	115.15	76.77	57.58	46.06	38.38	32.90	28.79
4.00	263.20	131.60	87.73	65.80	52.64	43.87	37.60	32.90
4.50	296.10	148.05	98.70	74.03	59.22	49.35	42.30	37.01
5.00	329.00	164.50	109.67	82.25	65.80	54.83	47.00	41.13
5.50	361.90	180.95	120.63	90.48	72.38	60.32	51.70	45.24
6.00	394.80	197.40	131.60	98.70	78.96	65.80	56.40	49.35
6.50	427.70	213.85	142.57	106.93	85.54	71.28	61.10	53.46
7.00	460.60	230.30	153.53	115.15	92.12	76.77	65.80	57.58
7.50	493.50	246.75	164.50	123.38	98.70	82.25	70.50	61.69
8.00	526.40	263.20	175.47	131.60	105.28	87.73	75.20	65.80
8.50	559.30	279.65	186.43	139.83	111.86	93.22	79.90	69.91
9.00	592.20	296.10	197.40	148.05	118.44	98.70	84.60	74.03
9.50	625.10	312.55	208.37	156.28	125.02	104.18	89.30	78.14
10.00	658.00	329.00	219.33	164.50	131.60	109.67	94.00	82.25
10.50	690.90	345.45	230.30	172.73	138.18	115.15	98.70	86.36
11.00	723.80	361.90	241.27	180.95	144.76	120.63	103.40	90.48
11.50	756.70	378.35	252.23	189.18	151.34	126.12	108.10	94.59
12.00	789.60	394.80	263.20	197.40	157.92	131.60	112.80	98.70
12.50	822.50	411.25	274.17	205.63	164.50	137.08	117.50	102.81
13.00	855.40	427.70	285.13	213.85	171.08	142.57	122.20	106.93
13.50	888.30	444.15	296.10	222.08	177.66	148.05	126.90	111.04
14.00	921.20	460.60	307.07	230.30	184.24	153.53	131.60	115.15
14.50	954.10	477.05	318.03	238.53	190.82	159.02	136.30	119.26
15.00	987.00	493.50	329.00	246.75	197.40	164.50	141.00	123.38
15.50	1019.90	509.95	339.97	254.98	203.98	169.98	145.70	127.49
16.00	1052.80	526.40	350.93	263.20	210.56	175.47	150.40	131.60
16.50	1085.70	542.85	361.90	271.43	217.14	180.95	155.10	135.71
17.00	1118.60	559.30	372.87	279.65	223.72	186.43	159.80	139.83
17.50	1151.50	575.75	383.83	287.88	230.30	191.92	164.50	143.94
18.00	1184.40	592.20	394.80	296.10	236.88	197.40	169.20	148.05
18.50	1217.30	608.65	405.77	304.33	243.46	202.88	173.90	152.16
19.00	1250.20	625.10	416.73	312.55	250.04	208.37	178.60	156.28
19.50	1283.10	641.55	427.70	320.78	256.62	213.85	183.30	160.39
20.00	1316.00	658.00	438.67	329.00	263.20	219.33	188.00	164.50
20.50	1348.90	674.45	449.63	337.23	269.78	224.82	192.70	168.61
21.00	1381.80	690.90	460.60	345.45	276.36	230.30	197.40	172.73
21.50	1414.70	707.35	471.57	353.68	282.94	235.78	202.10	176.84
22.00	1447.60	723.80	482.53	361.90	289.52	241.27	206.80	180.95
22.50	1480.50	740.25	493.50	370.13	296.10	246.75	211.50	185.06
23.00	1513.40	756.70	504.47	378.35	302.68	252.23	216.20	189.18
24.00	1579.20	789.60	526.40	394.80	315.84	263.20	225.60	197.40
24.50	1612.10	806.05	537.37	403.03	322.42	268.68	230.30	201.51
25.00	1645.00	822.50	548.33	411.25	329.00	274.17	235.00	205.63

Enter % Change ▮ Enter Time ▮ Flow Rate ▮

NOTE

Closing the 0AOV-WX889 will isolate sample flow to the
0RE-PR001, thus causing it to interlock, and subsequently close the
applicable flow path's Release Tank Discharge Isolation Valve
(0AQV-WX353 or 0AOV-WX896).

G.   17.   IF the release MUST be interrupted to provide the operator a break when a relief is unavailable, THEN perform the following:

_____ a.   Receive permission from the Shift Manager to secure the release for no more than 30 minutes.

_____ b.   Make a log entry and an entry on the table in step G.16. denoting the time the release was stopped.

_____ c.   OPEN 0AOV-WX015, Release Tank Pump 0WX01P Recirc Valve.

NOTE

Notify Main Control Room prior to closing 0AOV-WX889 as this
action will generate an RM-11 alarm.

_____ d.   CLOSE 0AOV-WX889, Release Tank Pump 0WX01P Discharge Isol Valve.

_____ e.   VERIFY that the release has been stopped.

_____ f.   MINIMIZE the pause in the release.

_____ g.   NOTIFY Shift Manager that release will be started again.

_____ h.   Make a log entry and an entry on the table in Step G.16. denoting the time which the release was restarted.

_____ i.   OPEN 0AOV-WX889, Release Tank Pump 0WX01T Discharge Isol Valve.

_____ j.   VERIFY Release Tank Discharge Header Radiation High alarm at 0PL01J CLEARS.

> **NOTE**
> Upon receipt of a high radiation signal at 0PR01J, the Release Tank Discharge Valves, 0WX353 and 0WX896 will remain closed until the high radiation signal seal-in is reset at 0PL01J.

G _____17. k. VERIFY/OPEN 0AOV-WX353/896, Release Tank Discharge Isolation Valve, for the flow path being used.

_____ l. CLOSE 0AOV-WX015, Release Tank 0WX01T Pump Recirc Valve.

> **NOTE**
> Tripping the release tank pump will stop sample flow to the 0RE-PR001, thus causing it to interlock. The main control room should be notified prior as this will generate an RM-11 alarm.

_____18. WHEN the desired volume of water has been released from Release Tank 0WX01T, TRIP Release Tank Pump 0WX01P.

> **NOTE**
> Verification is required for step G.19. if 0RE-PR001 is inoperable and AAR 0BwOS RETS 2.1-1a has been initiated.

_____19. CLOSE 0AOV-WX302/897, Release Tank Discharge Flow Control Valve.

SUPERVISOR VERIFICATION _____

20. RECORD the following:

_____ a. Release Stop Time: _____:_____ Date: _____

_____ b. Tank Level Final _____%

_____ c. Batch Totalizer Reading x10 = _____ gals (if operable)

_____ d. Cumulative Totalizer Reading Final x10 = _____ gals (if operable)

> **NOTE**
> At low release rates or if Batch and Cumulative Totalizers are inoperable, the gallons released may be calculated by multiplying the percent decrease in tank level by 329 gallons.

G ____20. e. ___ RECORD Gallons Released by one of the following:

     O   TOTALIZER READING _____ gallons Date:_____

     O   (_____ - _____) X 329 = _____gals
         (Step G.3.a. - Step G.20.b)
                             Calculation Date: _____

_____   f.   NOTIFY the Shift Manager that the release is complete.

_____   g.   NOTIFY the Control Room that the release is complete.

> **NOTE**
> Verification is required for steps G.21. and G.23. if 0RE-PR001 is inoperable and AAR 0BwOS RETS 2.1-1a has been initiated.

_____21.   VERIFY 0AOV-WX353, Release Tank Discharge Valve to Circ. Water Blowdown, LOCKED CLOSED.

            SUPERVISOR VERIFICATION _____

_____22.   RECORD time when key was removed from key lock switch for 0AOV-WX353, Release Tank Discharge Valve to Circ. Water Blowdown. _____:_____
            (N/A if this flowpath was not used)

_____23.   VERIFY 0AOV-WX896, Release Tank Discharge Valve to Circ. Water Blowdown, LOCKED CLOSED.

            SUPERVISOR VERIFICATION _____

_____24.   RECORD time when key was removed from key lock switch for 0AOV-WX896, Release Tank Discharge Valve to Circ. Water Blowdown. _____:_____
            (N/A if this flowpath was not used)

_____25.   CLOSE 0AOV-WX889 Release Tank 0WX01P Discharge Isolation Valve.

G. 26. If Relay Block K1 at 0RE-PR001 was removed in step G.2., then

_____ a. NOTIFY Shift Manager that the temporary Electrical Alterations being restored.

_____ b. REPLACE Relay Block K1 at 0RE-PR001, AND

SUPERVISOR VERIFICATION _____

_____ c. REMOVE the two placards stating "K1 RELAY REMOVED FOR LIQUID RELEASE", that were placed in Step G.2.c.

_____ d. If the Electrical Alteration cannot be restored, process a temporary alteration.

27. Backflush the 0PR01J radiation monitor as follows:

_____ a. VERIFY release tank 0WX01T is less than 96%.

CAUTION

Do not back flush the Radiation Monitor for a period of time such that the release tank level exceeds 97%.

NOTE

Steps G.27.b. through G.27.n. may be omitted at OPS Supervisor discretion if 0RE-PR001 is INOPERABLE and AAR-BwOS RETS 2.1-1a has been initiated.

NOTE

NOTIFY the Control Room that you will be flushing 0PR01J and that they will be receiving an alarm on RM11.

_____ b. VERIFY/OPEN 0WM897, WM Header Isolation Valve

_____ c. CLOSE 0WX354, Release Tank Discharge to Process Rad Monitor System.

_____ d. OPEN 0PR052, WX discharge to 0RE-PR001 Sample Connection.

_____ e. OPEN 0PR050, 0PR01J Backflush Isolation Valve

G ___27.   f.   OPEN 0WM898, 0PR01J WM Supply Header Valve

_____   g.   WAIT 1 minute

_____   h.   CLOSE 0PR5004, Skid 0PR01J Flow Isolation Valve

_____   i.   FLUSH 0PR01J, Radiation Monitor for 15 minutes

_____   j.   CLOSE 0PR050, 0PR01J Backflush Isolation Valve

_____   k.   CLOSE 0WM898, 0PR01J WM Supply Header Valve

_____   l.   OPEN 0PR5004, Skid 0PR01J Flow Isolation Valve

_____   m.   CLOSE 0PR052, WX discharge to 0RE-PR001 Sample Connection.

_____   n.   OPEN 0WX354, Release Tank Discharge to Process Rad Monitor System

            o.   Perform the following:

_____   1)   OPEN "NO EPN", 0PR01J Return to 0WX26T.

_____   2)   CLOSE "NO EPN", 0PR01J Return to 0WX01T.

_____   3)   Update Placard on Radwaste Control Panel to indicate that 0PR01J
                        is lined up to 0WX26T.

    28.   OPS Supervisor: I have reviewed Part G and have verified it is accurate and
           complete.

    _____/_____/_____
    OPS Supervisor   Date   Time

H.   CONTROL ROOM SUPERVISOR RESPONSIBILITY

> **NOTE**
> If the current activity level recorded in step H.1. is greater than
> 1.31 E-4 μCi/ml, INITIATE a work request to decontaminate the
> 0RE-PR001 sample chamber.

_____ 1.   RECORD the current reading for 0RE-PR001 (0PS101).

_____ μCi/ml   Date: _____

> **NOTE**
> Step H.2.a. is not required if 0RE-PR001 is inoperable and AAR
> 0BwOS RETS 2.1-1a has been initiated. Step H.2.b. is not required
> if 0RE-PR010 is inoperable and AAR 0BwOS RETS 2.1-1a has been
> initiated.

2.   SET the Rad Monitor 0RE-PR001 (0PS101) and 0RE-PR010 (0PS110) to their
original setpoints as follows:

_____   a.   RESET the ALERT Alarm and HIGH Alarm setpoints for 0RE-PR001
(0PS101) to their original values by performing the following:

VERIFICATION _____

1)   PLACE the RM-11 Console in SUPERVISOR MODE.

2)   SELECT the ALERT alarm setpoint (channel item 10) to be
changed on the 0RE-PR001 (0PS101) CHAN ITEMS display by
KEYING in 10 and DEPRESSING the SEL key. (Following this
CHAN ITEM 10 should be displayed in reverse characters.)

3)   ENTER the original ALERT alarm setpoint USING the format
XYZ ± AB. The CHAN ITEM 10 ALERT Alarm setpoint is
6.56E-5 μCi/ml, enter this as 6.56-5 and DEPRESS the ENTER
key. The new value will be displayed after a short delay.

4)   SELECT the HIGH alarm setpoint (channel item 9) to be changed
on the 0RE-PR001 (0PS101) CHAN ITEMS display by KEYING in
9 and DEPRESSING the SEL key. (Following this CHAN ITEM 9
should be displayed in reverse characters.)

H. 2. a. 5) ENTER the original HIGH alarm setpoint USING the format XYZ ± AB. The CHAN ITEM 9 HIGH Alarm setpoint is 1.31E-4 µCi/ml, enter this as 1.31-4 and DEPRESS the ENTER key. The new value will be displayed after a short delay.

b. RESET the ALERT and HIGH setpoints for 0RE-PR010 to their original values by performing the following:

VERIFICATION _____

1) SELECT the ALERT alarm setpoint (channel item 10) to be changed on the 0RE-PR010 (0PS110) CHAN ITEMS display by KEYING in 10 and DEPRESSING the SEL key. (Following this CHAN ITEM 10 should be displayed in reverse characters.)

2) ENTER the original ALERT alarm setpoint USING the format XYZ ± AB. The CHAN ITEM 10 ALERT Alarm setpoint is 5.73E-6 µCi/ml, enter this as 5.73-6 and DEPRESS the ENTER key. The new value will be displayed after a short delay.

3) SELECT the HIGH alarm setpoint (channel item 9) to be changed on the 0RE-PR010 (0PS110) CHAN ITEMS display by KEYING in 9 and DEPRESSING the SEL key. (Following this CHAN ITEM 9 should be displayed in reverse characters.)

4) ENTER the original HIGH alarm setpoint USING the format XYZ ± AB. The CHAN ITEM 9 HIGH Alarm setpoint is 8.19E-6 µCi/ml, enter this as 8.19-6 and DEPRESS the ENTER key. The new value will be displayed after a short delay.

5) PLACE the RM-11 Console in the NORMAL MODE.

> **NOTE**
>
> DO NOT isolate Circulating Water Blowdown until at least three and one-half (3.5) hours after the release stop time recorded in step G.20.a. to ensure the entire release tank effluent has passed through the Circulating Water Blowdown pipe to the Kankakee River.
>
> Control of Circulating Water Blowdown Flow Limitations may be transferred to an Equipment Status Tag for the purpose of completing this package. The Equipment Status Tag must specify the time and date for completion of the 3.5 hour flush requirement. This method is most applicable when performing multiple releases in one day. If control is transferred to an Equipment Status Tag, Step H.3. may be marked as "Condition Met".

H____ 3. 3.5 hours or more after the time recorded in step G.20.a., REMOVE the placard stating "Liquid Release in Progress" at 0PM01J.

____ 4. RECORD the Time and Date "Liquid Release in Progress" placard is removed at 0PM01J:

Time: ____ : ____   Date: _____

5. FORWARD this form to Health Physics to complete Section I.

I.   HEALTH PHYSICS SUPERVISION

```
┌─────────────────────────────────────────────────────────┐
│                          NOTE                           │
│   If a computerized release program is available, you may attach the │
│   printout to this form and indicate "see attached" in the calculation │
│   spaces in step I.1. below.                            │
└─────────────────────────────────────────────────────────┘
```

_____1.   COMPLETE the table below for each isotope identified in step D.6.a.:

Isotope	Total Activity Released (µCi) *	Isotope	Total Activity Released (µCi)

Sum of activities above = _____

*   OBTAIN by multiplying each number in column #2 of table in step D.6.a. by total volume released from step G.20.e. (in ml)(ml=gal x 3785)

Total ml released = _____ ml

_____2.   Health Physics Supervision SHALL VERIFY compliance with 10CFR50 dose limits, as specified in ODCM Radioactive Effluent Technical Standard 12.3.2.A, by ENTERING release data into the 10CFR50 ODCM Liquid Release Program per BwRP 6110-8.

(Final)

JOB PERFORMANCE MEASURE

TASK TITLE: **Classify and Screen an Event for Reportability**

JPM No.: **S-05**   **REV:** __12__

TPO No.: IV.F.ZP-17   K&A No.: (2.4.30)

TASK No.: S-AM-102   K&A IMP: 2.2/3.6

TRAINEE:_____

EVALUATOR:_____   DATE:_____

The Trainee: PASSED _____ this JPM.   TIME STARTED: _____

         FAILED _____   TIME FINISHED: _____

CRITICAL ELEMENTS: (*) 2, 3   JPM TIME:_____ MINUTES

CRITICAL TIME: **15 min for #2**   APPROX COMPLETION TIME: **6 MINUTES**

EVALUATION METHOD: LOCATION:
         __X__ PERFORM   _____ IN PLANT
         _____ SIMULATE   _____ SIMULATOR

GENERAL REFERENCES:

   1.   Exelon Reportability Manual, Operations Decision Tree, LS-AA-1020
   2.   Braidwood EALs.

MATERIALS:

        Copies of the references listed above.

TASK STANDARDS:

   1.   Classify the event per the Braidwood EALs.
   2.   Determine all reporting requirements per the Exelon Reportability Manual.
   3.   Demonstrates the use of good Core Work Practices.

TASK CONDITIONS:

   1.   You are the Unit 1 Unit Supervisor.
   2.   Unit 1 is in Mode 6 with refueling in progress.
   3.   All systems required to be operable in Mode 6 are functioning normally.

INITIATING CUES:

   1.   While supervising core alterations, the FH Supervisor was hit on the head by
        a piece of wood dropped from the top of the S/G shield wall. He was knocked
        unconscious and fell into the contaminated refueling cavity.
   2.   The injury requires medical attention and he is now enroute to St. Joseph
        Medical Center with a Rad Tech and an engineering assistant via Braidwood
        ambulance.
   3.   The SM directs you to evaluate for the Emergency Plan and determine all
        reporting requirements per the Bwd EALs, and the Exelon Reportability
        Manual.

1

PERFORMANCE CHECKLIST	STANDARDS	SAT	UNSAT	N/A

RECORD START TIME _____

1. Refer to Exelon Reportability Manual and Braidwood EALs.	Locate and Open the following: • Exelon Reportability Manual. • Braidwood EALs.	☐	☐	☐
*2. Evaluate for GSEP. **(Note: Record time to classify:_____.** **Must be < 15 minutes from start time.)**	Using Braidwood EALs, Cold Initiating Conditions, determine the Emergency Plan classification: • Unusual Event HU7	☐	☐	☐
*3. Screen the event for Reportability.	Using the Exelon Reportability Manual decision Trees to determine: • Emergency Plan Activated - SAF 1.1. • SAF 1.1 requires notification of State and Local within 15 minutes; and NRC within 1 hour. • Transport to Medical Facility - SAF 1.1 and RAD 1.6. • RAD 1.6 requires notification of NRC within 4 hours. (However the 1 hr notification for SAF 1.1 takes precedence over the 4 hour notification, and no duplicate call is necessary.) ○ 30 day LER	☐	☐	☐

(CUE:) THIS COMPLETES THIS JPM.

RECORD STOP TIME _____

COMMENTS:

S-05(7/5/01)

TASK CONDITIONS:

    1.   You are the Unit 1 Unit Supervisor.
    2.   Unit 1 is in Mode 6 with refueling in progress.
    3.   All systems required to be operable in Mode 6 are functioning normally.

INITIATING CUES:

    1.   While supervising core alterations, the FH Supervisor was hit on the head by a piece of wood dropped from the top of the S/G shield wall. He was knocked unconscious and fell into the contaminated refueling cavity.
    2.   The injury requires medical attention and he is now enroute to St. Joseph Medical Center with a Rad Tech and an engineering assistant via Braidwood ambulance.
    3.   The SM directs you to evaluate for Emergency Plan and determine all reporting requirements per the Bwd EALs, and the Exelon Reportability Manual.

S-05(7/5/01)

JPM NO: S-05

REQUIRED SIMULATOR MODE(S): ANY

MALFUNCTION #'S: N/A

COMMENTS:

    1)   This JPM may be performed IN PLANT or in Simulator.

4

BRAIDWOOD STATION
COLD INITIATING CONDITIONS

GENERAL EMERGENCY	SITE EMERGENCY	ALERT	UNUSUAL EVENT
ABNORMAL RAD LEVELS / EFFLUENTS			
RG1(p.6) 1 Rem Total Effective Dose Equiv. OR 5 Rem Committed Dose Equiv. to Thyroid	RS1(p.8) 100 mRem Total Effective Dose Equiv. OR 500 mRem Committed Dose Equiv. to Thyroid	RA2(p.10) Release > 10 X ODCM for ≥ 15 Minutes. RA3(p.14) Radiation Levels Impede Plant Operation.	RU2(p.12) Release > 2 X ODCM for ≥ 60 Minutes. RU3(p.15) Increased Rad Levels
SYSTEM MALFUNCTIONS			
		MA2(p.35) Loss of All AC Power for ≥ 15 Minutes.	MU1(p.34) Unplanned Loss of All Offsite AC Power
			MU4(p.40) Loss of 125 VDC Power
	MS7(p.45) Loss of Decay Heat Removal AND Core Uncovery Inside the Reactor Vessel.	MA7(p.46) Inability to Maintain Mode 5.	MU7(p.47) High Coolant Activity.
		MA11(p.51) Major Fuel Damage OR Fuel Uncovery Outside Containment.	MU9(p.49) Loss of Communications Capability. MU11(p.52) Loss of Spent Fuel Pool Level.
		MA12(p.53) Unexpected Loss of Refueling Cavity Water.	MU12(p.54) Unexpected Loss of Refueling Cavity Level
HAZARDS AND OTHER CONDITIONS			
HG1(p.55) Security Event Affecting the Ability to Achieve OR Maintain Mode 5.	HS1(p.56) Security Event in a Vital Area.	HA1(p.57) Security Event in the Protected Area.	HU1(p.58) Security Event
HG2(p.60) Condition Indicates Imminent Core Damage AND 0 Releases Affecting the Public.	HS2(p.61) Condition Indicates Actual OR Likely Failure of Functions Needed for Public Safety of the Plant.	HA2(p.62) Condition Indicates Actual OR Potential Substantial Degradation of the Level of Safety of the Plant.	HU2(p.63) Condition Indicates a Potential Degradation of the Level of Safety of the Plant.
	HS3(p.64) Control Room Evacuated AND Control NOT Established in < 15 Minutes.	HA3(p.65) Control Room Evacuation Initiated.	
		HA4(p.66) Natural OR Destructive Phenomena Inside a Vital Area.	HU4(p.68) Natural OR Destructive Phenomena Inside the Protected Area.
		HA5(p.69) Fire OR Explosion Affecting Plant Operation.	HU5(p.70) Fire in the Protected Area NOT Extinguished in ≤ 15 Minutes OR Explosion in the Protected Area.
		HA6(p.71) Toxic OR Flammable Gas Release Affecting the Ability to Achieve or Maintain Mode 5.	HU6(p.72) Toxic OR Flammable Gas Release Affecting Plant Operation.
			HU7(p.73) Transportation of Radioactivity Contaminated Person to an Offsite Medical Facility.

RECOGNITION CATEGORY
HAZARDS AND OTHER CONDITIONS

MATRIX DESCRIPTION

HU7-   Transportation of Radioactively Contaminated Person(s) to an Offsite Medical Facility.

INITIATING CONDITION

Transportation of radioactively contaminated person(s) to an offsite medical facility.

EAL-THRESHOLD VALUE

A radioactively contaminated injured person(s) is transferred to an offsite medical facility for treatment.

MODE APPLICABILITY

ALL

BASIS (References)

This EAL insures that proper authorities are notified when a contaminated or potentially contaminated individual is transported to an offsite medical facility. If it is uncertain that the individual is contaminated an UNUSUAL EVENT should be conservatively declared until proven otherwise.

Termination/Recovery Considerations:

A determination is made that the individual(s) is no longer contaminated.

HU7

COLD INITIATING CONDITIONS MATRIX

GENERAL EMERGENCY	SITE EMERGENCY	ALERT	UNUSUAL EVENT
ABNORMAL RAD LEVELS / EFFLUENTS			
RG1(p.6) 1 Rem Total Effective Dose Equiv. OR .5 Rem Committed Dose Equiv. to Thyroid	RS1(p.8) 100 mRem Total Effective Dose Equiv. OR 500 mRem Committed Dose Equiv. to Thyroid		
		RA2(p.10) Release > 10 X ODCM for ≥ 15 Minutes	RU2(p.12) Release > 2 X ODCM for ≥ 60 Minutes
		RA3(p.14) Radiation Levels Impede Plant Operation.	RU3(p.15) Increased Rad Levels
SYSTEM MALFUNCTIONS			
			MU1(p.34) Unplanned Loss of All Offsite AC Power.
		MA2(p.35) Loss of All AC Power for ≥ 15 Minutes.	
			MU4(p.40) Loss of 125 VDC Power
	MS7(p.45) Loss of Decay Heat Removal AND Core Uncovery Inside the Reactor Vessel.	MA7(p.46) Inability to Maintain Mode 5.	MU7(p.47) High Coolant Activity.
			MU9(p.49) Loss of Communications Capabilities.
		MA11(p.51) Major Plant Damage OR Fuel Uncovery Outside Containment.	MU11(p.52) Loss of Spent Fuel Pool Level
		MA12(p.53) Uncontrolled Loss of Refueling Cavity Volume.	MU12(p.54) Uncontrolled Loss of Refueling Cavity Level
HAZARDS AND OTHER CONDITIONS			
HG1(p.55) Security Event Affecting the Ability to Achieve OR Maintain Mode 5.	HS1(p.56) Security Event in a Vital Area.	HA1(p.57) Security Event in the Protected Area.	HU1(p.58) Security Event.
HG2(p.60) Conditions Indicate Imminent Core Damage AND a Release Affecting the Public.	HS2(p.61) Conditions Indicate Actual OR Likely Failure of Functions Needed for Public Protection.	HA2(p.62) Conditions Indicate Actual OR Potential Substantial Degradation of the Level of Safety of the Plant.	HU2(p.63) Conditions Indicate a Potential Degradation of the Level of Safety of the Plant.
	HS3(p.64) Control Room Evacuated AND Control NOT Established in ≤ 15 Minutes.	HA3(p.65) Control Room Evacuation Initiated.	
		HA4(p.66) Natural OR Destructive Phenomena Inside a Vital Area.	HU4(p.68) Natural OR Destructive Phenomena Inside the Protected Area.
		HA5(p.69) Fire OR Explosion Affecting Plant Operation.	HU5(p.70) Fire in the Protected Area NOT Extinguished in ≤ 15 Minutes OR Explosion in the Protected Area.
		HA6(p.71) Toxic OR Flammable Gas Release Affecting the Ability to Achieve or Maintain Mode 5.	HU6(p.72) Toxic OR Flammable Gas Release Affecting Plant Operation.
			HU7(p.73) Transportation of Radioactively Contaminated Person to an Offsite Medical Facility.

RECOGNITION CATEGORY
HAZARDS AND OTHER CONDITIONS

MATRIX DESCRIPTION

HU7-   Transportation of Radioactively Contaminated Person(s) to an Offsite Medical Facility.

INITIATING CONDITION

Transportation of radioactively contaminated person(s) to an offsite medical facility.

EAL-THRESHOLD VALUE

A radioactively contaminated injured person(s) is transferred to an offsite medical facility for treatment.

MODE APPLICABILITY

ALL

BASIS (References)

This EAL insures that proper authorities are notified when a contaminated or potentially contaminated individual is transported to an offsite medical facility. If it is uncertain that the individual is contaminated an UNUSUAL EVENT should be conservatively declared until proven otherwise.

Termination / Recovery Considerations:

A determination is made that the individual(s) is no longer contaminated.

REPORTABLE EVENT SAF 1.1:

Declaration of Emergency Class

Requirement: 10 CFR 50.72(a)(1)(i)
10 CFR 50 App. E, Section IV.D.3
10 CFR 72.75(a)
10 CFR 72.75(d)(2)

§ 50.72(a)(1)(i): Each ... licensee ... shall notify the NRC ... of ... declaration of any of the Emergency Classes specified in the licensee's approved Emergency Plan.

§ 50 App. E, Section IV.D.3: ... notify responsible State and local government agencies within 15 minutes after declaring an emergency.

§ 72.75(a): Each licensee shall notify the NRC ... upon the declaration of an emergency as specified in the licensee's approved emergency plan.

§72.75(d)(2): Each licensee ... shall submit a written follow-up report within 30 days of the initial notification.

Time Limit	**Required Notification(s):**
15 MIN	Notify State and local government agencies, in accordance with the Emergency Plan, within 15 minutes of declaring an emergency class. [10 CFR 50, Appendix E, Section IV.D.3]
30 MIN	Notify State and local government agencies, in accordance with the Defueled Emergency Plan, within 30 minutes of declaring an emergency class. [10 CFR 50.72(a)]
1 HOUR	Notify the NRC Operations Center via the ENS of the declaration of any of the Emergency Classes specified in the Emergency Plan immediately after notification of the appropriate State or local agencies and not later than one hour after the time the Emergency Class is declared. [10 CFR 50.72(a)(1)(i), (a)(3)] [I-01]
1 HOUR	Activate the Emergency Response Data System (ERDS) as soon as possible but not later than one hour after declaring an Emergency Class of Alert, Site Area Emergency/Site Emergency, or General Emergency. [10 CFR 50.72(a)(4)] [I-31]

REPORTABLE EVENT SAF 1.1 (Cont'd)

1 HOUR   Notify the NRC Operations Center upon the declaration of an emergency as specified in the Emergency Plan immediately after notification of the appropriate State or local agencies, but not later than one hour after the time the emergency is declared. [10 CFR 72.75(a)][I-01]

HOURLY   Verify that the Emergency Response Organization (ERO) updates the state agencies hourly or as requested. A state agency update should be issued at the top of the hour plus or minus ten minutes, starting the second hour after an alert or higher classification is made. [Emergency Plan]

2 HOURS   Notify ANI and INPO of the declaration of an Emergency Class of Alert, Site Area Emergency/Site Emergency, or General Emergency not later than 2 hours after the time the Emergency Class is declared. [I-27]

AS REQ'D   Notify the NRC Operations Center immediately during the course of the event of (i) any further degradation in the level of safety of the plant or other worsening plant conditions, or (ii) any change from one Emergency Class to another, or (iii) a termination of the Emergency Class. [10 CFR 50.72(c)(1)][I-25]

AS REQ'D   Notify the NRC Operations Center immediately during the course of the event of (i) the results of ensuing evaluations or assessments of plant conditions, (ii) the effectiveness of response or protective measures taken, and (iii) information related to plant behavior that is not understood. [10 CFR 50.72(c)(2)][I-29]

Time   ***Required Written Report(s):***
Limit

30 DAYS   Submit a written follow-up report within 30 days of the initial notification. [10 CFR 72.75(d)(2)] [T-29](ISFSI)

Discussion:

o   NRC guidance on this Reportable Event is provided in NUREG 1022, Revision 2, Section 3.1.1.

o   Refer to the Emergency Plan and implementing procedures for identification of the specific events which require Emergency Plan activation.

REPORTABLE EVENT SAF 1.1 (Cont'd)

o   If any doubt exists as to whether to initiate notification to the NRC Operations Center, the notification shall be made.

o   The ERDS may also be activated during emergency drills or exercises if the licensee's computer system has the capability to transmit the exercise data.

o   Notification of State and local agencies should be the first priority, followed by notification of the NRC. NUREG 0654, Revision 1 suggests that a written follow-up report be submitted to the NRC within 8 or 24 hours, depending on the Emergency class, following close-out of the emergency or Emergency Class reduction.

o   Declaration of an Emergency Class means that plant shift management has determined that conditions at the plant site meet the criteria specified in the Emergency Plan that define an Emergency Class, and the procedures for coping with that Emergency Class have been activated.

o   Notifications and reports required by 10 CFR 72 pertain to conditions associated with an independent spent fuel storage installation (ISFSI).

o   ANI should be advised of all emergency situations potentially involving bodily injury, damage to offsite property, or evacuation of offsite personnel in order that financial assistance and response plans can be initiated in a timely manner.

Related Reportable Events:

o   SAF 1.8, Event or Condition that Could Have Prevented Fulfillment of a Safety Function

o   SAF 1.11, Operation or Condition Prohibited by Technical Specifications

o   SAF 1.19, Adverse Condition

o   SAF 1.23, Occurrence of an Incident

o   SAF 1.44, Impairments to Fire Suppression Systems

REPORTABLE EVENT SAF 1.1 (Cont'd)

References:

o   10 CFR 50, Appendix E, Section IV.C

o   NUREG 0654, Revision 1

o   NUREG 1022, Revision 2

o   NRC Information Notice 80-06, "Notification of Significant Events at Operating Power Reactor Facilities," February 1980.

o   NRC Information Notice 88-64, "Reporting Fires in Nuclear Process Systems at Nuclear Power Plants," August 1988.

o   Plant specific Emergency Response Procedures

o   ANI Information Bulletin 5A(81), "Accident Notification Procedures for Property and Liability Insureds"

o   INPO 86-032, Emergency Resources Manual

o   10 CFR 50.72

o   10 CFR 50.73

REPORTABLE EVENT RAD 1.5 (Cont'd)

o   The dose from planned special exposures is not to be considered in controlling future occupational dose of the individual but is to be included in evaluations required for other planned special exposures.

Related Reportable Events:

o   RAD 1.1, Events Involving Byproduct, Source or Special Nuclear Material That Cause or Threaten to Cause Significant Exposure or Release

o   RAD 1.2, Events Involving Loss of Control of Licensed Material That Cause or Threaten to Cause Exposure or Release

o   RAD 3.1, Events Involving Byproduct, Source, or SNM Causing Significant Exposure or Release

o   RAD 3.2, Events Involving Licensed Material Causing Exposure or Release

o   RAD 3.3, Individual Exposure and Contamination Levels (Unplanned or Planned Special Exposures)

References:

o   10 CFR 19.13

o   10 CFR 20

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REPORTABLE EVENT RAD 1.6:

Transport of Contaminated Person to Medical Facility

Requirement:　　　10 CFR 50.72(b)(3)(xii)
　　　　　　　　　　　10 CFR 72.75(b)(5)
　　　　　　　　　　　10 CFR 72.75(d)(2)

§ 50.72(b)(3)(xii): The licensee shall notify the NRC as soon as practical and in all cases, within eight hours of occurrence of ... any event requiring the transport of a radioactively contaminated person to an offsite medical facility for treatment.

§ 72.75(b)(5): Each licensee shall notify the NRC as soon as possible but not later than four hours after the discovery of any ... events or conditions involving spent fuel or HLW ... that requires unplanned medical treatment at an offsite medical facility of an individual with radioactive contamination on the individual's clothing or body which could cause further radioactive contamination.

§72.75(d)(2): Each licensee ... shall submit a written follow-up report within 30 days of the initial notification.

Time Limit	Required Notification(s):
4 HOURS	Notify the NRC Operations Center as soon as possible but not later than 4 hours after discovery of an event or condition involving spent fuel or HLW that requires unplanned medical treatment at an offsite medical facility of an individual with radioactive contamination on the individual's clothing or body which could cause further radioactive contamination. [10 CFR 72.75(b)(5)] [F-11]
8 HOURS	Notify the NRC Operations Center via the ENS as soon as practical and in all cases within eight hours of the occurrence any event (that occurred within 3 years of the date of discovery) requiring the transport of a radioactively contaminated person to an offsite medical facility for treatment. [10 CFR 50.72(b)(3)(xii)] [E-05]
AS REQ'D	Notify the NRC Operations Center immediately during the course of the event of (i) any further degradation in the level of safety of the plant or other worsening plant conditions, or (ii) any change from one Emergency Class to another, or (iii) a termination of the Emergency Class. [10 CFR 50.72(c)(1)] [I-25]

REPORTABLE EVENT RAD 1.6 (Cont'd)

AS REQ'D   Notify the NRC Operations Center immediately during the course of the event of (i) the results of ensuing evaluations or assessments of plant conditions, (ii) the effectiveness of response or protective measures taken, and (iii) information related to plant behavior that is not understood. [10 CFR 50.72(c)(2)][I-29]

Time Limit	***Required Written Report(s):***
30 DAYS	Submit a written follow-up report within 30 days of the initial notification made in accordance with § 72.75(b)(5). [10 CFR 72.75(d)(2)] [T-29]

Discussion:

o   NRC guidance on this Reportable Event is provided in NUREG 1022, Revision 2, Section 3.2.11. Reporting under § 50.72 is only required if this Reportable Event occurred within three years of the date of discovery.

o   Treatment refers to any medical treatment whether or not such treatment is related to the contamination. If it has been determined prior to transport that the person and clothing is not contaminated, then no report is necessary.

o   An offsite medical facility is a hospital or other facility that is capable of treating radioactively contaminated persons.

Related Reportable Events:

o   SAF 1.1, Declaration of Emergency Class

o   SAF 1.27, Bodily Injury or Property Damage From Radioactive Material

References:

o   10 CFR 50.72

o   10 CFR 72.75

JOB PERFORMANCE MEASURE

TASK TITLE: Complete Unit Common Shiftly/Daily Surveillances

JPM No.: N-02SHDLY

REV: 0

TPO No.:

K&A No. 2.1.8

TASK No.:

K&A IMP: 2.9

TRAINEE:_____

EVALUATOR:_____

DATE:_____

The Trainee: PASSED _____ this JPM.

FAILED _____

TIME STARTED: _____

TIME FINISHED: _____

CRITICAL ELEMENTS: (*)5,9

JPM TIME:_____ MINUTES

CRITICAL TIME: N/A

APPROX COMPLETION TIME 9 MINUTES

EVALUATION METHOD:

LOCATION:

___X___ PERFORM
_____ SIMULATE

_____ IN PLANT
___X___ SIMULATOR

GENERAL REFERENCES:

1.   0BwOSR 0.1-0 Unit Common All Modes/At All Times Shiftly and Daily Operating Surveillance

MATERIALS:

Copy of partially completed 0BwOSR 0.1-0

TASK STANDARDS:

1.   Perform actions necessary to complete shiftly/daily surveillances
2.   Properly identify out of specification readings

TASK CONDITIONS:

1.   You are the Unit NSO.
2.   Unit 1 is in Mode 1
3.   Complete the Unit Common Shiftly/Daily Operating Surveillance for Shift 1
4.   Current time is 0430

INITIATING CUES:

1.   The Admin NSO on Unit 1 has been assigned an emergent task to perform and did not complete the Unit Common Shiftly/Daily Operating Surveillances for shift 1. You have been assigned by the US to complete the Unit Common Shiftly/Daily surveillance, 0BwOSR 0.1-0.

1

N-

PERFORMANCE CHECKLIST	STANDARDS	SAT	UNSAT	N/A

RECORD START TIME _____

1. Refer to 0BwOSR 0.1-0 (CUE: **Provide examinee partially completed copy of 0BwOSR 0.1-0)**	Locate and Open 0BwOSR 0.1-0	☐	☐	☐
2. Verify Ultimate Heat Sink Operability (as found) OLI-CW041	Record Lake Water Level from OLI-CW041	☐	☐	☐
3. Check Meteorological Monitoring Instrumentation (as found) OUR-EM001 (as found) OUR-EM012 (as found) OUR-EM001 (as found) OUR-EM012 (as found) OUR-EM002	Record Meteorological Monitoring Data: • 34' Wind Speed (OUR-EM001) • 203' Wind Speed (OUR-EM012) • 34' Wind Direction (OUR-EM001) • 203' Wind Direction (OUR-EM012 • Air Temp Delta T (OUR-EM002)	☐	☐	☐
4. Check Radiological Effluent Monitoring Instrument (as found) OUR-CW032	Record Liquid Effluent Monitoring Inst • Station Blowdown (OUR-CW032)	☐	☐	☐
*5. Verify Control Room Vent Operability (91°F-93°F) OTI-VC032	Record Control Room Temperature o CR Temp (OTI-VC032) • Identify temp reading above acceptance criteria • Red Circle log reading o Inform US of out of spec condition	☐	☐	☐

2

N-

PERFORMANCE CHECKLIST	STANDARDS	SAT	UNSAT	N/A
6. Verify Aux Building Exhaust Operability (as found)OTI-VA033 (as found)OTI-VA034	Record Aux Bldg Exhaust Temperatures • Plenum 0A (OTI-VA033) • Plenum 0B (OTI-VA034)	☐	☐	☐
7. Verify CST Level (as found)1LI-CD051A (as found)2LI-CD051A	Record Condensate Storage Tank Level • 1LI-CD051A • 2LI-CD051A	☐	☐	☐
8. Verify surveillance completion	Review remainder of surveillance for completion. • Pages (D-2)-(D-10) • TRM 3.7.d.1 data attached • Unlocked fire door checks complete and attached	☐	☐	☐
*9. Complete Data Package Cover Sheet (Page D-1) (CUE: Current time is 0435 if asked)	Review and sign completed surveillance on NSO signature block under initial review (Page D-1) • Surveillance within acceptance criteria w/o reliance on a TS or TRM block - checks NO • US is informed of out of spec reading on CR temp if not informed earlier	☐	☐	☐

(CUE:) THIS COMPLETES THIS JPM.

RECORD STOP TIME _____

COMMENTS:

3

TASK CONDITIONS:

    1.   You are the Unit NSO.
    2.   Unit 1 is in Mode 1
    3.   Complete the Unit Common Shiftly/Daily Operating Surveillance for Shift 1
    4.   Current time is 0430

INITIATING CUES:

    1.   The Admin NSO on Unit 1 has been assigned an emergent task to perform and did not complete the Unit Common Shiftly/Daily Operating Surveillances for shift 1. You have been assigned by the US to complete the Unit Common Shiftly/Daily surveillance, 0BwOSR 0.1-0.

SIMULATOR SETUP INSTRUCTIONS

JPM NO: N-02SHDLY

REQUIRED SIMULATOR MODE(S):NA

OVERRIDES #'S:

Override MCR air temp meter OTI-VC032 (ZA00TIVC032) to 92°F

COMMENTS:

- Place Release in Progress sign up

- Need a supply of red pens out on back desk

ADMINISTRATIVE NSO
UNIT COMMON ALL MODES / AT ALL TIMES
SHIFTLY AND DAILY OPERATING SURVEILLANCE
DATA PACKAGE COVER SHEET

TODAY'S DATE: (today)			
START TIME / COMPLETION TIME	0230 /	/	/
Present UNIT 1 / UNIT 2 MODE	/	/	/
Surveillance within ACCEPTANCE CRITERIA without reliance on a Tech Spec / TRM / ODCM / AAR Action Statement?	YES NO ☐ ☐	YES NO ☐ ☐	YES NO ☐ ☐
Surveillance completed on time? (0500 / 1400 / 2200 respectively)	YES NO ☐ ☐	YES NO ☐ ☐	YES NO ☐ ☐
Applicable Surveillance Data Sheets listed on D-10 attached?	YES NO ☐ ☐	YES NO ☐ ☐	YES NO ☐ ☐
Shift Manager or designee notified for any "NO" response to the above?	N/A YES ☐ ☐	N/A YES ☐ ☐	N/A YES ☐ ☐
NSO (Sign):			
Applicable LCOARs / AARs in effect for any failed ACCEPTANCE CRITERIA?	YES NO N/A ☐ ☐ ☐	YES NO N/A ☐ ☐ ☐	YES NO N/A ☐ ☐ ☐
Applicable BwAP 1110-1's in effect for any failed ACCEPTANCE CRITERIA?	YES NO N/A ☐ ☐ ☐	YES NO N/A ☐ ☐ ☐	YES NO N/A ☐ ☐ ☐
Any parameters or attachments not completed within specified shift logged on Unit Supervisor Turnover Log?	YES NO N/A ☐ ☐ ☐	YES NO N/A ☐ ☐ ☐	YES NO N/A ☐ ☐ ☐
Unit Supervisor (Sign):			
	TIME DATE	TIME DATE	TIME DATE
Shift Manager (Sign):			
	TIME DATE	TIME DATE	TIME DATE
COMMENTS:			

Title	Signature	Date	Remarks

	SHIFT 1	SHIFT 2	SHIFT 3		

ULTIMATE HEAT SINK OPERABILITY VERIFICATION (For local check, MEASURE the distance between the water surface and steel grating at the south side of the LSH)

PARAMETER	INSTRUMENT	INSTRUMENT VALUE	INSTRUMENT VALUE	INSTRUMENT VALUE	UNITS	ACCEPTANCE CRITERIA
LAKE WATER LEVEL (INTAKE BAY WTR LVL)	☐ 0LI-CW041 or ☐ LOCAL				Ft	TECH SPEC: ≥ 1 Ft on 0LI-CW041 or ≤ 12'10" locally. ADMIN: ≥ 5.5 Ft.

Tech Specs: SR 3.7.9.1 (MODE 1-4 requirement, always performed) LCOAR: 1BwOL 3.7.9, 2BwOL 3.7.9 (As applicable)

METEOROLOGICAL MONITORING INSTRUMENTATION CHANNEL CHECKS

PARAMETER		INSTRUMENT	CHANNEL CHK OK?	INSTR VALUE	CHANNEL CHK OK?	INSTR VALUE	CHANNEL CHK OK?	INSTR VALUE	UNITS	ACCEPTANCE CRITERIA
WIND SPEED	34'	☐ 0UR-EM001 or ☐ Y4011	☐ Y ☐ N						MPH	CHANNEL CHECK SAT (Indicating as expected pertaining to existing plant conditions) (Recorders operating with all pens inking OR computer readouts indicating properly)
	203'	☐ 0UR-EM012 or ☐ Y4013	☐ Y ☐ N							
WIND DIRECTION (Deduct 360° from readings ≥ 360°)	34'	☐ 0UR-EM001 or ☐ Y4012	☐ Y ☐ N						DEG	
	203'	☐ 0UR-EM012 or ☐ Y4014	☐ Y ☐ N							
AIR TEMP (DELTA T)	199 - 30 Ft	☐ 0UR-EM002 or ☐ Y4016	☐ Y ☐ N						°C/100M Δ DEGF	

TRM: TSR 3.3.c.1 LCOAR: 0BwOL TRM 3.3.c

RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION FLOW MEASUREMENT DEVICES CHANNEL CHECKS (CHANNEL CHECK shall consist of verifying flow indication during periods of release. CHANNEL CHECK shall be made at least once per 24 hours on days on which continuous, periodic or batch releases are made.)

PARAMETER	INSTRUMENT	INSTRUMENT VALUE	INSTRUMENT VALUE	INSTRUMENT VALUE	UNITS	ACCEPTANCE CRITERIA
STATION BLOWDOWN LINE	INSTRUMENT RECORDED	☐ 0UR-CW032 or ☐ F2400	☐ 0UR-CW032 or ☐ F2400	☐ 0UR-CW032 or ☐ F2400	GPM	Channel Check Sat
	INSTRUMENT VALUE					

ODCM: 12.2.1.B (3.c) AAR: 0BwOS RETS 2.1-1a

Comments:

		SHIFT 1	SHIFT 2	SHIFT 3		
CONTROL ROOM VENTILATION OPERABILITY VERIFICATION						
PARAMETER	INSTRUMENT	INSTRUMENT VALUE	INSTRUMENT VALUE	INSTRUMENT VALUE	UNITS	ACCEPTANCE CRITERIA
CONTROL ROOM TEMPERATURE @ 0PM02J	INSTRUMENT RECORDED INSTRUMENT VALUE	☐ 0TI-VC031 or ☐ 0TI-VC032	☐ 0TI-VC031 or ☐ 0TI-VC032	☐ 0TI-VC031 or ☐ 0TI-VC032	°F	≤ 90°F
Tech Specs: SR 3.7.11.1 TRM: TSR 3.7.d.1 (Table T3.7.d-1, Function 12) LCOAR: 0BwOL 3.7.11 & 1/2BwOL TRM 3.7.d						

AREA TEMPERATURE MONITORING - AUX BUILDING EXHAUST						
PARAMETER	INSTRUMENT	INSTRUMENT VALUE	INSTRUMENT VALUE	INSTRUMENT VALUE	UNITS	ACCEPTANCE CRITERIA
AUX BLDG VENTILATION Exhaust Plenum 0A	0TI-VA033 at 0PM02J				°F	≤ 105°F (If > 105°F and < 122°F, generate a CR to address the EQ concerns of the high temp)
AUX BLDG VENTILATION Exhaust Plenum 0B	0TI-VA034 at 0PM02J					
TRM: TSR 3.7.d.1 (Table T3.7.d.1, Function 7) (Refer to CR# A2001-0193) LCOAR: 1/2BwOL TRM 3.7.d						

RADIATION MONITORING INSTRUMENTATION CHANNEL CHECKS (Using RM-23) (If desired)									
PARAMETER	INSTRUMENT	CHANNEL CHK OK?	INSTR VALUE	CHANNEL CHK OK?	INSTR VALUE	CHANNEL CHK OK?	INSTR VALUE	UNITS	ACCEPTANCE CRITERIA
FUEL BLDG FH INCIDENT (With Fuel in Fuel Storage areas or Fuel Bldg)	0RIU-AR055 (MR/HR Key)	☒ Y ☐ N	2.33E-1	☐ Y ☐ N		☐ Y ☐ N		MR/HR	Green Channel "AVAIL" light is ON
	0RIU-AR056 (MR/HR Key)	☒ Y ☐ N	2.HE-1	☐ Y ☐ N		☐ Y ☐ N			
MCR OUTSIDE AIR INTAKES (TRAIN A)	0RIU-PR031 (GAS Key)	☒ Y ☐ N	1.87E-6	☐ Y ☐ N		☐ Y ☐ N		µCi/ml	
	0RIU-PR032 (GAS Key)	☒ Y ☐ N	3.31E-6	☐ Y ☐ N		☐ Y ☐ N			
MCR OUTSIDE AIR INTAKES (TRAIN B)	0RIU-PR033 (GAS Key)	☒ Y ☐ N	1.92E-6	☐ Y ☐ N		☐ Y ☐ N		µCi/ml	
	0RIU-PR034 (GAS Key)	☒ Y ☐ N	1.9SE-6	☐ Y ☐ N		☐ Y ☐ N			
Tech Specs: SR 3.3.7.1 (Table 3.3.7-1, Function 1) and SR 3.3.8.1 (Table 3.3.8-1, Function 1) TRM: TSR 3.3.o.1 (Table 3.3.o-1, Functional)					LCOAR: 0BwOL 3.3.7, 0BwOL 3.3.8, & 0BwOL TRM 3.3.o				
Comments:									

		SHIFT 1		SHIFT 2		SHIFT 3			
RADIATION MONITORING INSTRUMENTATION CHANNEL CHECKS (Using RM-11 IF not surveilled using the RM-23)									
PARAMETER	INSTRUMENT	CURSOR COLOR	INSTR VALUE	CURSOR COLOR	INSTR VALUE	CURSOR COLOR	INSTR VALUE	UNITS	ACCEPTANCE CRITERIA
If RM-11 Printout is being used, Cursor colors are indicated as follows: G=Green, W=White, Y=Yellow, M=Magenta, B=Dark Blue, C=Light Blue, R=Red, c=Cyan.									
Initial If Printout of RM-11 Group #25 Is Attached And Verified Acceptable		*N/A*							Monitor Status is NOT Magenta (M), White (W), or Dark Blue(B). (Dark Blue is acceptable if process flow is NOT in use).
If writing data off RM-11 screen, Cursor color may be indicated as follows: G=Green, W=White, Y=Yellow, M=Magenta, DB=Dark Blue, LB=Light Blue, R=Red, C=Cyan.									
FUEL BLDG FH INCIDENT (With Fuel in Fuel Storage areas or Fuel Bldg)	0RE-AR055 (G4 3AS155)	G	2.58E-1					MR/HR	Cursor NOT Magenta, White, or Dark Blue. (Dark Blue is acceptable if process flow is NOT in use).
	0RE-AR056 (G4 3AS156)	G	2.27E-1						
MCR OUTSIDE AIR INTAKES (TRAIN A)	0RE-PR031 (G2 0PB131)	G	1.91E-6					µCi/ml	
	0RE-PR032 (G2 0PB132)	G	3.14E-6						
MCR OUTSIDE AIR INTAKES (TRAIN B)	0RE-PR033 (G2 0PB133)	G	1.83E-6					µCi/ml	
	0RE-PR034 (G2 0PB134)	G	1.98E-6						
Tech Specs: SR 3.3.7.1 (Table 3.3.7-1, Function 1) and SR 3.3.8.1 (Table 3.3.8-1, Function 1) TRM: TSR 3.3.o.1 (Table T3.3.o-1, Function 1)					LCOAR: 0BwOL 3.3.7, 0BwOL 3.3.8, & 0BwOL TRM 3.3.o				

Comments:

	SHIFT 1	SHIFT 2	SHIFT 3

NOTE

A MONITOR LOSS OF FLOW (Dark Blue) cursor status is acceptable if the monitored process stream is NOT in use. SOURCE CHECKS consist of either verification that the 1PM14JB-2 (2PM14JB-2) printout indicated SOURCE CHECK automatically conducted with the absence of "Channel Source Check Failed" status, or check is satisfactorily conducted manually.

RADIOACTIVE LIQUID EFFLUENT RADIATION MONITORING INSTRUMENTATION CHANNEL CHECKS (Using RM-11) If writing data off RM-11 screen, Cursor color may be indicated as follows: G=Green, W=White, Y=Yellow, M=Magenta, DB=Dark Blue, LB=Light Blue, R=Red, C=Cyan.

PARAMETER		INSTRUMENT	CURSOR COLOR	INSTR VALUE	CURSOR COLOR	INSTR VALUE	CURSOR COLOR	INSTR VALUE	UNITS	ACCEPTANCE CRITERIA
LIQUID RADWASTE EFFLUENT LINE		0RE-PR001 (G1 0PS101)	G	2.18E-05					µCi/ml	Cursor NOT Magenta, White, or Dark Blue.
RCFC 1A & 1C OUTLET LINE	TRN A	1RE-PR002 (G1 1PS102)	G	8.13E-06						SOURCE CHECK SAT and Cursor NOT Magenta, White, or Dark Blue.
RCFC 1B & 1D OUTLET LINE	TRN B	1RE-PR003 (G1 1PS103)	G	1.20E-06						
RCFC 2A & 2C OUTLET LINE	TRN A	2RE-PR002 (G1 2PS102)	G	1.34E-07						
RCFC 2B & 2D OUTLET LINE	TRN B	2RE-PR003 (G1 2PS103)	G	5.30E-05						
FIRE AND OIL SUMP DISCHARGE		0RE-PR005 (G1 0PS105)	G	4.54E-07						SOURCE CHECK SAT and Cursor NOT Magenta, White, or Dark Blue.
CONDENSATE POLISHER SUMP DISCHARGE		0RE-PR041 (G1 0PS141)	G	4.36E-07						
STATION BLOWDOWN LINE		0RE-PR010 (G1 0PS110)	G	1.23E-06						

ODCM: 12.2.1.B (1.a, 1.b, 1.c, 2.a, & 2.b)   AAR: 0BwOS RETS 2.1-1a

Comments:

			SHIFT 1		SHIFT 2		SHIFT 3			
RADIOACTIVE LIQUID EFFLUENT RADIATION MONITORING INSTRUMENTATION CHANNEL CHECKS (Using RM-11) If writing data off RM-11 screen, Cursor color may be indicated as follows: G=Green, W=White, Y=Yellow, M=Magenta, DB=Dark Blue, LB=Light Blue, R=Red, C=Cyan.										
PARAMETER		INSTRUMENT	CURSOR COLOR	INSTR VALUE	CURSOR COLOR	INSTR VALUE	CURSOR COLOR	INSTR VALUE	UNITS	ACCEPTANCE CRITERIA
CC HX OUTLET	UNIT 0	0RE-PR009 (G1 0PS109)	G	4.6BE-07					µCi/ml	Cursor NOT Magenta, White, or Dark Blue and SOURCE CHECK SAT (consist of either verification that the 1PM14JB-2 (2PM14JB-2) printout indicated SOURCE CHECK automatically conducted with the absence of "Channel Source Check Failed" status, or check is satisfactorily conducted manually.)
	UNIT 1	1RE-PR009 (G1 1PS109)	G	1.06E-06						
	UNIT 2	2RE-PR009 (G1 2PS109)	G	4.67E-07						
UNIT ONE AUX BLDG VENT STACK EFFLUENT	PART	1RE-PR028A (G2 1PA228)	G	1.75E-15						
	GAS (Low)	1RE-PR028B (G2 1PB128)	G	1.03E-06						
	IODINE	1RE-PR028C (G2 1PC328)	G	1.20E-14						
	GAS (High)	1RE-PR028D (G2 1PD428)	G	8.32E-06						
UNIT TWO AUX BLDG VENT STACK EFFLUENT	PART	2RE-PR028A (G2 2PA228)	G	3.26E-15						
	GAS (Low)	2RE-PR028B (G2 2PB128)	G	7.86E-07						
	IODINE	2RE-PR028C (G2 2PC328)	G	3.67E-14						
	GAS (High)	2RE-PR028D (G2 2PD428)	G	1.07E-03						
U-1 CNMT PURGE EFFL	NOBLE GAS	1RE-PR001B (G2 1PB101)	G	1.92E-06						Cursor NOT Magenta, White, or Dark Blue
U-2 CNMT PURGE EFFL	NOBLE GAS	2RE-PR001B (G2 2PB101)	G	1.87-E-06						
ODCM. 12.2.2.B (1.a, 1.b, 1.c, 2.a, 2.b, 2.c, 5.a, & 6)					AAR: 0BwOS RETS 2.2-1a						

Comments:

RADIOACTIVE GASEOUS MONITORING INSTRUMENTATION FLOW MEASUREMENT DEVICES CHANNEL CHECKS (Using RM-11)

PARAMETER	INSTRUMENT	SHIFT 1		SHIFT 2		SHIFT 3		UNITS	ACCEPTANCE CRITERIA
		CHANNEL CHK OK?	INSTR VALUE	CHANNEL CHK OK?	INSTR VALUE	CHANNEL CHK OK?	INSTR VALUE		
UNIT ONE PLANT VENT EFFLUENT FLOW RATE	Loop-VA019 PROC FLOW N	☒ Y ☐ N	1.56E+05					CFM	Indicating expected range
UNIT ONE PLANT VENT SAMPLER FLOW RATE	1FT-PR165 SMPL FLOW 1	☒ Y ☐ N	2.31E+00						>1 CFM
UNIT TWO PLANT VENT EFFLUENT FLOW RATE	Loop-VA020 PROC FLOW N	☒ Y ☐ N	1.13E+05						Indicating expected range
UNIT TWO PLANT VENT SAMPLER FLOW RATE	2FT-PR165 SMPL FLOW 1	☒ Y ☐ N	2.01E+00						>1 CFM

ODCM: 12.2.2.B (1.d, 1.e, 2.d, & 2.e)

AAR: 0BwOS RETS 2.2-1a

RADIOACTIVE LIQUID MONITORING INSTRUMENTATION FLOW MEASUREMENT DEVICES CHANNEL CHECKS (CHANNEL CHECK shall consist of verifying flow indication during periods of release. CHANNEL CHECK shall be made at least once per 24 hours on days on which continuous, periodic or batch releases are made.)

PARAMETER	INSTRUMENT	CHANNEL CHK OK?	INSTR VALUE	CHANNEL CHK OK?	INSTR VALUE	CHANNEL CHK OK?	INSTR VALUE	UNITS	ACCEPTANCE CRITERIA
LIQUID RADWASTE EFFLUENT LINE	0FR-WX630-1 at 0PL01J (HIGH)	☒ Y ☐ N ☐ N/A	0	☐ Y ☐ N ☐ N/A		☐ Y ☐ N ☐ N/A		GPM	CHANNEL CHECK SAT
	0FR-WX630-2 at 0PL01J (LOW)	☒ Y ☐ N ☐ N/A	47	☐ Y ☐ N ☐ N/A		☐ Y ☐ N ☐ N/A			

ODCM: 12.2.1.B (3.a & 3.b)

AAR: 0BwOS RETS 2.1-1a

PLANT SYSTEMS - CONDENSATE STORAGE TANK - LEVEL CHECK

PARAMETER	INSTRUMENT	INSTRUMENT VALUE	INSTRUMENT VALUE	INSTRUMENT VALUE	UNITS	ACCEPTANCE CRITERIA
CST Level	1LI-CD051A				%	TECH SPEC: ≥ 66%
	2LI-CD051A				%	TECH SPEC: ≥ 66%

Tech Spec: SR 3.7.6.1

LCOAR: 1/2BwOL 3.7.6

Comments:

NOTE

A CHANNEL CHECK consists of verifying proper operation of all Analyzers for sample points selected. Waste Gas Compressor 0A or 0B must be running and stable for 0AIT-GW004 readings to be accurate.

EXPLOSIVE GAS MONITORING INSTRUMENTATION CHANNEL CHECKS AND MIXTURE CONCENTRATION CHECK (From Appropriate Method AS Outlined In The Main Body)

PARAMETER	INSTRUMENT	CHANNEL CHK OK?	INSTR VALUE	CHANNEL CHK OK?	INSTR VALUE	CHANNEL CHK OK?	INSTR VALUE	UNITS	ACCEPTANCE CRITERIA
HYDROGEN ANALYZER @ 0GW01J (426' L-25)	0AT-GW8000	☒ Y ☐ N	25						CHANNEL CHECK SAT and OXYGEN conc ≤ 2% by volume when HYDROGEN conc is > 4% by volume
OXYGEN ANALYZER @ 0GW01J (426' L-25)	0AIT-GW8003	☒ Y ☐ N	0.99					%	
OXYGEN ANALYZER @ 0GW03J (426' L-25) TRM: TSR 3.3.e.1	0AIT-GW004	☒ Y ☐ N	0.04						

LCOAR: 0BwOL TRM 3.3.e

Comments:

SPENT FUEL STORAGE POOL WATER LEVEL VERIFICATION

PARAMETER	INSTRUMENT	SHIFT 1 INSTRUMENT VALUE	SHIFT 2 INSTRUMENT VALUE	SHIFT 3 INSTRUMENT VALUE	UNITS	ACCEPTANCE CRITERIA
SPENT FUEL STORAGE POOL LEVEL (With Irrad Fuel in SFP)	From EA Rounds	24' 5"			Ft	≥ 23 Ft above Fuel

Tech Specs: SR 3.7.14.1 & TRM: TSR 3.7.j.1 (Weekly requirement - performed daily)   LCOAR: 0BwOL 3.7.14 & 0BwOL 3.7.j

CARBON DIOXIDE STORAGE TANK LEVEL AND PRESSURE VERIFICATION

PARAMETER	INSTRUMENT	INSTRUMENT VALUE	INSTRUMENT VALUE	INSTRUMENT VALUE	UNITS	ACCEPTANCE CRITERIA
CARBON DIOXIDE TANK LEVEL	From EA Rounds				%	> 70% (> 80% Admin Limit)
CARBON DIOXIDE TANK PRESSURE	From EA Rounds				PSIG	> 275 and < 357 PSIG

Administrative Requirement   ACTION RESPONSE: BwAP 1110-1A4

STEAM JET AIR EJECTOR OFF GAS FLOW

PARAMETER	INSTRUMENT	INSTRUMENT VALUE	INSTRUMENT VALUE	INSTRUMENT VALUE	UNITS	ACCEPTANCE CRITERIA
1FI-OG005 1A SJAE OFF-GAS FLOW	From EA Rounds				SCFM	≤ 27
1FI-OG006 1B SJAE OFF-GAS FLOW	From EA Rounds				SCFM	≤ 27
2FI-OG005 2A SJAE OFF-GAS FLOW	From EA Rounds				SCFM	≤ 27
2FI-OG006 2B SJAE OFF-GAS FLOW	From EA Rounds				SCFM	≤ 27

Comments:

ATTACHMENTS NEEDED VERIFICATION (ATTACH DATA SHEETS ONLY. D-1 of this surveillance fulfills all review requirements.)

PROCEDURE NUMBER	DESCRIPTION	SHEETS ATTACHED (init)		
		SHIFT 1	SHIFT 2	SHIFT 3
0BwOS TRM 3.7.d.1	U0, U1, and U2 Temperature Monitoring Shiftly Surveillance	AB (Review)	(Review)	(Attach)
Not Applicable	Functional Check of Annunciator Panels	Complete? ☒ Y ☐ N	Complete? ☐ Y ☐ N	Complete? ☐ Y ☐ N
Not Applicable	Lamp Check of Fire Protection Panels on 1PM09J And 2PM09J	Complete? ☒ Y ☐ N	Complete? ☐ Y ☐ N	Complete? ☐ Y ☐ N
0BwOS FP.7.2.D-1	Unlocked Fire Door Daily Surveillance	AB		
OP-AA-101-402	VERIFY, once per shift, chart recorders are functioning properly in the MCR.	Complete? ☒ Y ☐ N	Complete? ☐ Y ☐ N	Complete? ☐ Y ☐ N

Comments:

N

SHIFT 1

RM-11 GROUP #25 PRINTOUT A

ATTACH THE COMPUTER PRINTOUT HERE

(USE TRANSPARENT TAPE)

Comments:

SHIFT 2

RM-11 GROUP #25 PRINTOUT

ATTACH THE COMPUTER PRINTOUT HERE

(USE TRANSPARENT TAPE)

Comments:

<u>SHIFT 3</u>

RM-11 GROUP #25 PRINTOUT

ATTACH THE COMPUTER PRINTOUT HERE

(USE TRANSPARENT TAPE)

Comments.

(Final)

U0, U1 AND U2
ALL MODES/AT ALL TIMES
AREA TEMPERATURE MONITORING
SHIFTLY SURVEILLANCE DATA SHEET
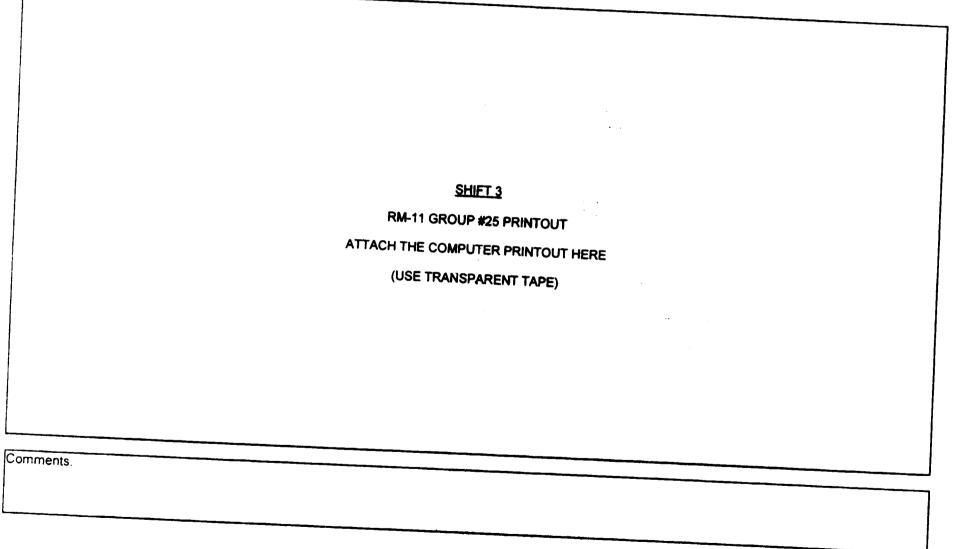
DATE OF PERFORMANCE:					
UNIT ONE TURB BLDG TEMPERATURES	INSTRUMENT & LOCATION	SHIFT			ACCEPTANCE CRITERIA
		1	2	3	
STARTING TIME FOR THIS DATA SHEET EACH SHIFT:	///////////// /////////////	0001			///////////// /////////////
PORTABLE INSTRUMENT ID NUMBER EACH SHIFT:	///////////// /////////////	120578			///////////// /////////////
Div 12 Misc Ele Equip Room	1TI-VE003 on 1VE01J	88			** ≤ 108°F
Div 12 ESF Switchgear Room	1TI-VX002 on 1VX02J	92			≤ 108°F
Div 12 Cable Spreading Room	1TI-VX003 on 1VX02J	91			≤ 108°F
Div 11 ESF Switchgear Room	1TI-VX001 on 1VX01J	91			≤ 108°F
1A Diesel Generator Oil Storage Room	1TI-VD047 on 1VD01JA	91			≤ 132°F
1A Diesel Generator Room	1TI-VD053 on 1VD01JA	102			$$
1B Diesel Generator Oil Storage Room	1TI-VD049 on 1VD01JB	87			≤ 132°F
1B Diesel Generator Room	1TI-VD063 on 1VD01JB	95			$$
Div 11 Misc Ele Equip Room	1TI-VE502 451' L-9	92			** ≤ 108°F
Div 12 Battery Room	Hand-Held Pyrometer	88			** ≤ 108°F
Div 11 Battery Room	Hand-Held Pyrometer	88			** ≤ 108°F
ENDING TIME FOR THIS DATA SHEET EACH SHIFT:	///////////// /////////////	0400			///////////// /////////////
CERTIFY (BY INITIALLING IN SPACE PROVIDED) THAT ALL DATA IS ACTUALLY TAKEN AND WITHIN SPECIFIED LIMITS:		DB			ALL DATA TAKEN & IN SPEC
* CERTIFY (BY INITIALLING IN SPACE PROVIDED) THE NSO AND UNIT SUPERVISOR NOTIFIED OF INCOMPLETE OR OUT OF SPEC DATA (RECORD "N/A" IF PREVIOUS STEP OK)		NA			BOTH NSO AND UNIT SUPERVISOR NOTIFIED IF REQ'D

$$ The Tech Spec (TRM TSR) is satisfied IF either:

    a.   Ambient room temperature is ≤ 122°F, OR,
    b.   Ambient room temperature AND the EDG Control Cabinet Exhaust
        temperature (BOTH sides of cabinet) are ≤ 132°F.
** Administratively limited to ≥ 65°F to ensure that battery electrolyte
    temperature does not fall below 60°F. Contact System Engineering
    Electrical group to determine appropriate actions for room
    temperature below 65°F.

COMMENTS:

U0, U1 AND U2
ALL MODES/AT ALL TIMES
AREA TEMPERATURE MONITORING
SHIFTLY SURVEILLANCE DATA SHEET

DATE OF PERFORMANCE:					
UNIT ONE AUX BLDG TEMPERATURES	INSTRUMENT & LOCATION	SHIFT			ACCEPTANCE CRITERIA
		1	2	3	
STARTING TIME FOR THIS DATA SHEET EACH SHIFT:	///////////// /////////////	0001			///////////// /////////////
PORTABLE INSTRUMENT ID NUMBER EACH SHIFT:	///////////// /////////////	NA			///////////// /////////////
1B Safety Injection Pump Cubicle	1TI-VA078	75			≤ 130°F
1B Cent Charging Pump Cubicle	1TI-VA076	80			≤ 122°F
1A Cent Charging Pump Cubicle	1TI-VA075	82			≤ 122°F
1A Safety Injection Pump Cubicle	1TI-VA077	81			≤ 130°F
1A Residual Heat Removal Pump Cubicle	1TI-VA079	82			≤ 130°F
1A Containment Spray Pump Cubicle	1TI-VA081	80			≤ 130°F
1B Residual Heat Removal Pump Cubicle	1TI-VA080	79			≤ 130°F
1B Containment Spray Pump Cubicle	1TI-VA082	79			≤ 130°F
Lower Cable Spreading Room Train 0A (1Z2)	0TI-VC618 439' L-13	81			≤ 108°F @
ENDING TIME FOR THIS DATA SHEET EACH SHIFT:	///////////// /////////////	0420			///////////// /////////////
CERTIFY (BY INITIALLING IN SPACE PROVIDED) THAT ALL DATA IS ACTUALLY TAKEN AND WITHIN SPECIFIED LIMITS:		JB			ALL DATA TAKEN & IN SPEC
* CERTIFY (BY INITIALLING IN SPACE PROVIDED) THE NSO AND UNIT SUPERVISOR NOTIFIED OF INCOMPLETE OR OUT OF SPEC DATA (RECORD "N/A" IF PREVIOUS STEP OK)		NA			BOTH NSO AND UNIT SUPERVISOR NOTIFIED IF REQ'D
@ If temperature in room 1Z2 is ≥ 105°F, MONITOR temperature in rooms 1Z3 and 1Z4 with a Hand-Held Pyrometer. RECORD results in the comments section.					
COMMENTS:					

U0, U1 AND U2
ALL MODES/AT ALL TIMES
AREA TEMPERATURE MONITORING
SHIFTLY SURVEILLANCE DATA SHEET

DATE OF PERFORMANCE:

UNIT TWO TURB BLDG TEMPERATURES	INSTRUMENT & LOCATION	SHIFT			ACCEPTANCE CRITERIA
		1	2	3	
STARTING TIME FOR THIS DATA SHEET EACH SHIFT:	/////////////	0001			/////////////
PORTABLE INSTRUMENT ID NUMBER EACH SHIFT:	/////////////	1205 730			/////////////
Div 22 Misc Ele Equip	2TI-VE003 on 2VE01J	84			** ≤ 108°F
Div 22 ESF Switchgear Room	2TI-VX002 on 2VX02J	89			≤ 108°F
Div 22 Cable Spreading Room	2TI-VX003 on 2VX02J	90			≤ 108°F
Div 21 ESF Switchgear Room	2TI-VX001 on 2VX01J	88			≤ 108°F
2A Diesel Generator Oil Storage Room	2TI-VD047 on 2VD01JA	83			≤ 132°F
2A Diesel Generator Room	2TI-VD053 on 2VD01JA	97			$$
2B Diesel Generator Oil Storage Room	2TI-VD049 on 2VD01JB	77			≤ 132°F
2B Diesel Generator Room	2TI-VD063 on 2VD01JB	95			$$
Div 21 Misc Ele Equip	2TI-VE502 451' L-27	86			** ≤ 108°F
Div 21 Battery Room	Hand-Held Pyrometer	85			** ≤ 108°F
Div 22 Battery Room	Hand-Held Pyrometer	83			** ≤ 108°F
ENDING TIME FOR THIS DATA SHEET EACH SHIFT:	/////////////	0420			/////////////
CERTIFY (BY INITIALLING IN SPACE PROVIDED) THAT ALL DATA IS ACTUALLY TAKEN AND WITHIN SPECIFIED LIMITS:		PS			ALL DATA TAKEN & IN SPEC
* CERTIFY (BY INITIALLING IN SPACE PROVIDED) THE NSO AND UNIT SUPERVISOR NOTIFIED OF INCOMPLETE OR OUT OF SPEC DATA (RECORD "N/A" IF PREVIOUS STEP OK)		NA			BOTH NSO AND UNIT SUPERVISOR NOTIFIED IF REQ'D

$$ The Tech Spec (TRM TSR) is satisfied IF either:

   a. Ambient room temperature is ≤ 122°F, OR,
   b. Ambient room temperature AND the EDG Control Cabinet Exhaust temperature (BOTH sides of cabinet) are ≤ 132°F.

** Administratively limited to ≥ 65°F to ensure that battery electrolyte temperature does not fall below 60°F. Contact System Engineering Electrical group to determine appropriate actions for room temperature

COMMENTS:

U0, U1 AND U2
ALL MODES/AT ALL TIMES
AREA TEMPERATURE MONITORING
SHIFTLY SURVEILLANCE DATA SHEET

DATE OF PERFORMANCE:					
UNIT TWO AUX BLDG TEMPERATURES	INSTRUMENT & LOCATION	SHIFT			ACCEPTANCE CRITERIA
		1	2	3	
STARTING TIME FOR THIS DATA SHEET EACH SHIFT:	/////////////	0001			/////////////
PORTABLE INSTRUMENT ID NUMBER EACH SHIFT:	/////////////	NA			/////////////
2B Safety Injection Pump Cubicle	2TI-VA078	72			≤ 130°F
2B Cent Charging Pump Cubicle	2TI-VA076	82			≤ 122°F
2A Cent Charging Pump Cubicle	2TI-VA075	82			≤ 122°F
2A Safety Injection Pump Cubicle	2TI-VA077	81			≤ 130°F
2A Residual Heat Removal Pump Cubicle	2TI-VA079	91			≤ 130°F
2A Containment Spray Pump Cubicle	2TI-VA081	79			≤ 130°F
2B Residual Heat Removal Pump Cubicle	2TI-VA080	77			≤ 130°F
2B Containment Spray Pump Cubicle	2TI-VA082	78			≤ 130°F
Lower Cable Spreading Room Train 0B (2Z2)	0TI-VC619 439' L-23.5	78			≤ 108°F @
Upper Cable Spreading Room Train 0A (1EE1)	0TI-VC620 463' Q-16	72			≤ 90°F #
Upper Cable Spreading Room Train 0B (2EE1)	0TI-VC621 463' Q-20	74			≤ 90°F #
ENDING TIME FOR THIS DATA SHEET EACH SHIFT:	/////////////	0420			/////////////
CERTIFY (BY INITIALLING IN SPACE PROVIDED) THAT ALL DATA IS ACTUALLY TAKEN AND WITHIN SPECIFIED LIMITS:		PS			ALL DATA TAKEN & IN SPEC
* CERTIFY (BY INITIALLING IN SPACE PROVIDED) THE NSO AND UNIT SUPERVISOR NOTIFIED OF INCOMPLETE OR OUT OF SPEC DATA (RECORD "N/A" IF PREVIOUS STEP OK)		NA			BOTH NSO AND UNIT SUPERVISOR NOTIFIED IF REQ'D
# If temperature in room 1EE1 or 2EE1 is > 87°F, MONITOR temperature in rooms 1EE2, 1EE3, and 1EE4 OR 2EE2, 2EE3 and 2EE4 with a Hand-Held Pyrometer for the associated Upper Cable Spreading Room train. RECORD results in the comments section.					
@ If temperature in room or 2Z2 is > 105°F, MONITOR temperature in rooms 2Z3 and 2Z4 with a Hand-Held Pyrometer. RECORD results in the comments section.					
COMMENTS:					

(Final)

UNLOCKED FIRE DOOR DAILY SURVEILLANCE DATA SHEET

Date: __TODAY -__

AUX-1 Rounds Area		AUX-2 Rounds Area		M.C.R	OUTSIDES	TURB-1 Rounds Area		TURB-2 Rounds Area	
Door#/Init	Door#/Init	Door#/Init	Door#/Init	Door#/Init	Door#/Init	Door#/Init	Door#/Init		
D357/SD	D288/SS	D374/PS	D299/PS	D419/D	D608/D	D412/SS	D349/SS		
D724/SS	D573/SS	D461/PS	D298/PS	D431/D		D413/SS	D318/SS	D542/PS	
D725/SD	D748/SS	D462/PS	D296/PS	D428/D		D781/SS	D340/SS	D544/PS	D378/PS
D383/SS	D749/SS	D500/PS	D262/PS	D430/D		D417/SS	D320/SS	D782/PS	D524/PS
D382/SS	D292/SS	D393/PS	D844/PS	D432/D		D463/SS	D317/SS	D446/PS	D338/PS
D720*/SS	D295/SS	D721*/PS		D440/D		D780/SS	D286/SS	D474/PS	D336/PS
D436/SS	D261/SS	D437/PS	D234/PS	D441/D		D418/SS	D370/SS	D783/PS	D525/PS
D329/SS	D843/SS	D326/PS	SD172/PS	D443/D		D523/SS	D350/SS	D451/PS	D337/PS
D321/SS	D231/SS	D327/PS		D444/D				D449/PS	D309/PS
D647/SS		D300/PS		SD174/D				D452/PS	D379/PS
		D301/PS							
		D302/PS							
TIME: 0425		TIME: 0430		TIME: 0100	TIME: 0200	TIME: 0425		TIME: 0430	

Door Number	Comments

(If additional Comment space is needed, attach additional data sheet).
*DOORS MAY BE VERIFIED CLOSED AND LATCHED BY ENSURING THAT THE SEAL, FROM THE DOOR TO THE DOOR FRAME, IS UNBROKEN.

(Final)

TASK CONDITIONS:

    1.   You are an extra NSO.
    2.   The Unit 1 is at 100% power.

INITIATING CUES:

    1.   The US has provided you a copy of, and directed you to perform, the weekly QPTR calculation using 1BwOSR 3.2.4.1. However the process computer is inoperable only for the purpose of this surveillance.

JPM NO: N-18

REQUIRED SIMULATOR MODE(S): 100% Steady State

MALFUNCTION #'S: N/A

COMMENTS: Use the following as a 'KEY' to check calculations:

Date: TODAY	Time: NOW			
Channel	N41	N42	N43	N44
Is the channel operable?	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N
Instrument reading	100%	100%	100%	100%
UPPER DETECTORS (A)				
Present upper detector current	190	185	190	185
100% upper detector current	194	179	192	186
Normalized detector current	.979	1.03	.990	.994
Average normalized current	.996			
Upper power tilt ratio (¢≤1.02)	¢ .980	¢ 1.03	¢ .990	¢ .996
LOWER DETECTORS (B)				
Present lower detector current	170	150	165	165
100% lower detector current	170	153	165	168
Normalized detector current	1.00	.980	1.0	.982
Average normalized current	.990			
Lower power tilt ratio (¢≤1.02)	¢ 1.01	¢ .989	¢ 1.01	¢ .991

UNIT ONE
QUADRANT POWER TILT RATIO CALCULATION
NIS METERS

Being performed once per:

- ☐ 7 Days (normal interval)
- ☐ 12 Hours (with BwVSR 3.2.4.2.)
- ☐ Shiftly
- ☐ Other: _____

Date: TODAY	Time: NOW			
Channel	N41	N42	N43	N44
Is the channel operable?	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N
Instrument reading	100%	100%	100%	100%
UPPER DETECTORS (A)				
Present upper detector current	190	185	190	185
100% upper detector current	194	179	192	186
Normalized detector current				
Average normalized current				
Upper power tilt ratio ($\not{c} \leq 1.02$)	$\not{c}$	$\not{c}$	$\not{c}$	$\not{c}$
LOWER DETECTORS (B)				
Present lower detector current	170	150	165	165
100% lower detector current	170	153	165	168
Normalized detector current				
Average normalized current				
Lower power tilt ratio ($\not{c} \leq 1.02$)	$\not{c}$	$\not{c}$	$\not{c}$	$\not{c}$

Date:	Time:			
Channel	N41	N42	N43	N44
Is the channel operable?	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N
Instrument reading	%	%	%	%
UPPER DETECTORS (A)				
Present upper detector current				
100% upper detector current				
Normalized detector current				
Average normalized current				
Upper power tilt ratio ($\not{c} \leq 1.02$)	$\not{c}$	$\not{c}$	$\not{c}$	$\not{c}$
LOWER DETECTORS (B)				
Present lower detector current				
100% lower detector current				
Normalized detector current				
Average normalized current				
Lower power tilt ratio ($\not{c} \leq 1.02$)	$\not{c}$	$\not{c}$	$\not{c}$	$\not{c}$

Attach additional copies of this page as necessary.

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N-18 6/26/01

UNIT ONE
QUADRANT POWER TILT RATIO CALCULATION
NIS METERS

Being performed once per:

- ☐ 7 Days (normal interval)   ☐ Shiftly
- ☐ 12 Hours (with BwVSR 3.2.4.2.)   ☐ Other: _____

Date: TODAY	Time: NOW			
Channel	N41	N42	N43	N44
Is the channel operable?	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N
Instrument reading	100%	100%	100%	100%
UPPER DETECTORS (A)				
Present upper detector current	190	185	190	185
100% upper detector current	194	179	192	186
Normalized detector current				
Average normalized current				
Upper power tilt ratio (¢≤1.02)	¢	¢	¢	¢
LOWER DETECTORS (B)				
Present lower detector current	170	150	165	165
100% lower detector current	170	153	165	168
Normalized detector current				
Average normalized current				
Lower power tilt ratio (¢≤1.02)	¢	¢	¢	¢

Date:	Time:			
Channel	N41	N42	N43	N44
Is the channel operable?	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N
Instrument reading	%	%	%	%
UPPER DETECTORS (A)				
Present upper detector current				
100% upper detector current				
Normalized detector current				
Average normalized current				
Upper power tilt ratio (¢≤1.02)	¢	¢	¢	¢
LOWER DETECTORS (B)				
Present lower detector current				
100% lower detector current				
Normalized detector current				
Average normalized current				
Lower power tilt ratio (¢≤1.02)	¢	¢	¢	¢

Attach additional copies of this page as necessary.

N-18 6/26/01

UNIT ONE
QUADRANT POWER TILT RATIO (QPTR) CALCULATION

A.   STATEMENT OF APPLICABILITY

This procedure outlines the steps necessary to verify the QUADRANT POWER TILT RATIO is ≤ 1.02. It is applicable in MODE 1 above 50% RATED THERMAL POWER when the Power Distribution System (PDMS) is inoperable and shall be performed:

1.   Once per 7 days.

2.   Once per shift when the NIS Power Range Tilts alarm is INOPERABLE as directed by 1BwOL 3.2.4 and 1BwOSR 0.1-1,2,3.

3.   Once per 12 hours when QUADRANT POWER TILT RATIO is not within limits as directed by LCOAR 1BwOL 3.2.4.

B.   REFERENCES

1.   Tech Spec LCO 3.2.4.

2.   Tech Spec Surveillance Requirements:

    a.   3.2.4.1.

    b.   3.2.4.2.

3.   TRM TLCO 3.3.h.

4.   Station Procedures:

    a.   1BwOSR 0.1-1,2,3, Unit One MODES 1, 2 & 3 Shiftly & Daily.

    b.   1BwOL 3.2.4, LCOAR - Power Distribution Limits - QPTR.

    c.   1BwOL TRM 3.3.h, Technical Requirements Manual (TRM) LCOAR - Power Distribution Monitoring System (PDMS)

    d.   BwVSR 3.2.4.2, QPTR Checkout Using Incores.

B.   5.   Station Commitments:

a.   456-200-87-38101, limitation to check the operability of the QPTR Alarm anytime QPTR exceeds 1.02.

b.   456-130-98-3.2.4-0100 "Specific SAR Commitment" (Regarding shiftly surveillance interval when the power range tilts alarm is inoperable).

C.   PREREQUISITES

1.   Receive permission to perform this surveillance from the Shift Manager or designee prior to performance by having the Data Package Cover Sheet signed and dated.

2.   Reactor power should be constant while recording NIS data.

3.   The latest 100% Power NIS Detector Currents are available (from Station Nuclear Engineer or Operator Aid).

D.   PRECAUTIONS

None.

E.   **LIMITATIONS AND ACTIONS**

1.   As stated in Tech Spec LCO 3.2.4.

2.   In the event the Acceptance Criteria (¢) is not met during the performance of this surveillance, IMMEDIATELY notify the Shift Manager or designee to initiate LCOAR 1BwOL 3.2.4.

3.   Anytime the calculated QPTR exceeds 1.02, the NIS Power Range Tilts alarm OPERABILITY should be reviewed. If the alarm is not illuminated the required frequency of this surveillance shall be increased from once per 7 days to once per shift in accordance with 1BwOL 3.2.4.

4.   The process computer point calculation is the most accurate method of calculating QPTR and should normally be used. During the performance of AFD calibrations on the excore detectors the process computer point method will not be correct until ALL drawers are calibrated. During this calibration period QPTR MUST be calculated using the NIS meter method.

5.   If the Power Range channel is inoperable but individual detector current indication is reliable, performance of BwVSR 3.2.4.2 is not required. Detector current indication can be considered reliable if detector degradation or failure is not indicated, the detector signal cable is attached to the 1PM07J drawer, and proper high voltage is applied to the detector. In this condition, the QPTR alarm may be inoperable but the neutron flux input to QPTR is available. QPTR can be calculated using the individual detector current meter indications.

3

F. **MAIN BODY**

1. VERIFY all applicable Prerequisites, Precautions, and Limitations and Actions are satisfactorily addressed.

2. INDICATE the applicability of this surveillance on the appropriate Data Sheet (REFER to Statement of Applicability):

    a. Being performed once per 7 days.

    b. Being performed once per shift.

    c. Being performed once per 12 hrs with BwVSR 3.2.4.2.

    d. Other (Specify).

3. RECORD the Date and Time.

NOTE

With one Power Range Channel INOPERABLE and THERMAL POWER is > 50% but ≤ 75%, the QPTR may be calculated using the three OPERABLE channels. With one Power Range channel input to QPTR INOPERABLE with THERMAL POWER > 75%, the QPTR shall be calculated using the three OPERABLE channels taking data when directed by System Engineering during performance of BwVSR 3.2.4.2. RECORD "N/A" for the INOPERABLE Power Range channel data.

---

4. RECORD the OPERABILITY status and indicated Reactor Power from the NIS drawer front panel PERCENT FULL POWER meters on the appropriate Data Sheet.

4

> **NOTE**
>
> Step F.5 and F.6 are independent of each other. Perform the applicable step.
>
> Step F.5 will use the process computer to determine the QPTR.
>
> Step F.6 will use installed NIS Meters or DVMs to determine QPTR.

F.   5.   DETERMINE the QPTR using process computer points as follows (N/A if determined with the NIS meters):

a.   RECORD present computer point reading.

b.   DIVIDE the sum of the computer points by the number of operable channels to obtain the average computer point reading.

$$\text{Average Computer Point Reading} = \frac{\text{Sum of Computer Points}}{\text{Number of Operable NIS Channels}}$$

c.   DIVIDE the Computer Point Reading by the Average Computer Point Reading to determine the Quadrant Power Tilt Ratio.

$$\text{Power Tilt Ratio} = \frac{\text{Computer Point Reading}}{\text{Average Computer Point Reading}}$$

F.   6.0   <u>DETERMINE the QPTR using installed NIS Meters or DVMs</u>

NOTE

Step 6.a will install DVMs, N/A step if using installed NIS Meters.
Step 6.b will determine the QPTR using installed NIS Meters or DVMs.
Step 6.c will remove DVMs, N/A step if using installed NIS Meters.

NOTE

The following annunciator(s) may actuate during connection of the
DVMs. This list is not all inclusive but if the annunciator(s) does not
reset when the DVM is disconnected, investigate the cause before
going to the next drawer.

10A04 PWR RNG UPPER DET FLUX DEV HIGH
10B04 PWR RNG LOWER DET FLUX DEV HIGH
10C04 PWR RNG CHANNEL DEV
10B05 PWR RNG FLUX HIGH ROD STOP

CAUTION

To minimize the effect of meter loading to the drawer,
Fluke 8840A DVMs shall be used. If there are not
enough 8840As available, Fluke 8505A and Fluke 8502
may be substituted. Other DVM may also be used with
the consent of NIS System Engineer or backup. In
addition, shielded test leads shall be used to avoid EMF
induction to the reactor protection system circuitry.

CAUTION

A Reactor Trip could occur if a 2 of 4 coincidence is
made up due to a channel trip on the power range
detector being measured. The DVM <u>MUST</u> be initially
set to the millivolt range for detector current readings to
prevent a channel trip.

If the current as seen on the face meter is low (at low
powers), it is permissible to down range the detector
meter current selector switch for better resolution.

6

```
┌─────────────────────────────────────────────────────────┐
│   ▼                 CAUTION                    ▼          │
│        Ensure that the DVM leads to be used have no flaws in │
│        their insulation.  Also ensure that any contact points │
│        between the leads and the drawer are properly protected │
│        to ensure that chafing of the leads' insulation does not │
│        occur.  If the DVM leads become shorted to ground after │
│        connection, the associated power range channel will be │
│        made inoperable.                                    │
└─────────────────────────────────────────────────────────┘
```

```
┌─────────────────────────────────────────────────────────┐
│   ▼                 CAUTION                    ▼          │
│        Power range cables can become snagged while opening │
│        the drawers.  Open the rear cabinet doors to 1PM07J │
│        and station a person at the rear of the drawers to ensure │
│        that all cables are free while opening the drawer. │
│        Minimize motion of the cables, since the cable may │
│        become disconnected from its connector if excessive │
│        motion occurs.  This could make the drawer inoperable. │
└─────────────────────────────────────────────────────────┘
```

F. 6. a. NOFITY IMD to perform the following for each Power Range "B" drawer:

1) CAREFULLY OPEN the Power Range Nuclear Instrumentation Channel "B drawer.

2) CONNECT a DVM between the red and black test jacks of the detector current meter for each of the eight Power Range detectors.

3) ROLL the Power Range "B" drawers carefully as far into the 1PM07J panel as possible. Avoid crimping or damaging the DVM leads. If possible, slightly engage the seismic screws on the front of the drawers.

4) SECURE the DVM leads to 1PM07J.

F. 6. b. DETERMINE the QPTR using NIS meters or DVM as follows (N/A if determined with the computer points):

1) RECORD each present detector current.

2) RECORD the latest 100% Power NIS detector current (from the Station Nuclear Engineer or the Operator Aid).

3) DIVIDE the present detector current by the 100% detector current to obtain the normalized detector current.

$$\text{Normalized Detector Current} = \frac{\text{Present Detector Current}}{\text{100\% Detector Current}}$$

4) DIVIDE the sum of the normalized detector currents by the number of operable channels to obtain the average normalized current.

$$\text{Average Normalized Current} = \frac{\text{Sum of Normalized Detector Currents}}{\text{Number of Operable NIS Channels}}$$

5) DIVIDE the Normalized Detector Current by the Average Normalized Current to determine the Quadrant Power Tilt Ratio.

$$\text{Power Tilt Ratio} = \frac{\text{Normalized Detector Current}}{\text{Average Normalized Current}}$$

F.   6.   c.   PERFORM the following to RESTORE each Power Range "B" Drawers:

NOTE

The following steps are applicable if DMVs are to be used to indicate detector current. Mark this section N/A if current meters installed in the drawers are to be used.

CAUTION

Power Range cables can become snagged while opening the drawers. Open the rear cabinet doors to 1PM07J and station a person at the rear of the drawers to ensure that all cables are free while opening the drawer. Minimize motion of the cables, since the cable may become disconnected from its connector if excessive motion occurs. This could make the drawer inoperable.

---

1)   CAREFULLY OPEN the Power Range "B" drawers.

2)   REMOVE the DVM leads.

3)   CAREFULLY CLOSE and SECURE the Power Range "B" drawers.

4)   REMOVE all material installed to secure equipment.

G.   ACCEPTANCE CRITERIA

No Quadrant Power Tilt Ratio shall exceed 1.02.

UNIT ONE
QUADRANT POWER TILT RATIO CALCULATION
COMPUTER POINTS

> **NOTE**
> The process computer point calculation is the most accurate method of calculating QPTR and should normally be used. During the performance of AFD calibrations on the excore detectors the process computer point method will not be correct until ALL drawers are calibrated. During this calibration period QPTR MUST be calculated using the NIS meter method.

Being performed once per:
- ☐ 7 Days (normal interval)
- ☐ 12 Hours (with BwVSR 3.2.4.2)
- ☐ Shiftly
- ☐ Other: _____

Date:	Time:			
Channel	N41	N42	N43	N44
Is the channel operable?	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N
Instrument reading	%	%	%	%
Upper Detectors (A)				
Computer point	N0041	N0043	N0045	N0047
Present computer point reading				
Average computer point reading				
Upper power tilt ratio ($\not\leq$1.02)	¢	¢	¢	¢
Lower Detectors (B)				
Computer point	N0042	N0044	N0046	N0048
Present computer point reading				
Average computer point reading				
Lower power tilt ratio ($\not\leq$1.02)	¢	¢	¢	¢

Date:	Time:			
Channel	N41	N42	N43	N44
Is the channel operable?	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N
Instrument reading	%	%	%	%
Upper Detectors (A)				
Computer point	N0041	N0043	N0045	N0047
Present computer point reading				
Average computer point reading				
Upper power tilt ratio ($\not\leq$1.02)	¢	¢	¢	¢
Lower Detectors (B)				
Computer point	N0042	N0044	N0046	N0048
Present computer point reading				
Average computer point reading				
Lower power tilt ratio ($\not\leq$1.02)	¢	¢	¢	¢

ATTACH additional copies of this page as necessary.

UNIT ONE
QUADRANT POWER TILT RATIO CALCULATION
NIS METERS

Being performed once per:
- ☐ 7 Days (normal interval)   ☐ Shiftly
- ☐ 12 Hours (with BwVSR 3.2.4.2)   ☐ Other: _____

Date:	Time:			
Channel	N41	N42	N43	N44
Is the channel indication reliable?	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N
Instrument reading	%	%	%	%
Upper Detectors (A)				
Present upper detector current				
100% upper detector current				
Normalized detector current				
Average normalized current				
Upper power tilt ratio ($\not\leq$1.02)	¢	¢	¢	¢
Lower Detectors (B)				
Present lower detector current				
100% lower detector current				
Normalized detector current				
Average normalized current				
Lower power tilt ratio ($\not\leq$1.02)	¢	¢	¢	¢

Date:	Time:			
Channel	N41	N42	N43	N44
Is the channel indication reliable?	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N
Instrument reading	%	%	%	%
Upper Detectors (A)				
Present upper detector current				
100% upper detector current				
Normalized detector current				
Average normalized current				
Upper power tilt ratio ($\not\leq$1.02)	¢	¢	¢	¢
Lower Detectors (B)				
Present lower detector current				
100% lower detector current				
Normalized detector current				
Average normalized current				
Lower power tilt ratio ($\not\leq$1.02)	¢	¢	¢	¢

ATTACH additional copies of this page as necessary.

UNIT ONE
DVM CALIBRATION TABLE

DVM		QA#	Cal Date	Due Date	Initials	IV
N41	Top					
	Bottom					
N42	Top					
	Bottom					
N43	Top					
	Bottom					
N44	Top					
	Bottom					

DVM		Leads Installed Name/Date	IV Name/Date	Leads Removed Name/Date	IV Name/Date
N41	Top				
	Bottom				
N42	Top				
	Bottom				
N43	Top				
	Bottom				
N44	Top				
	Bottom				

(Final)

JOB PERFORMANCE MEASURE

TASK TITLE: **Perform a QPTR Calculation**

JPM No.: **N-18**

REV: <u>10</u>

TPO No.: IV.C.RK-01

K&A No.: (015A1.04)

TASK No.: RK-003

K&A IMP: 3.5/3.7

TRAINEE:_____

EVALUATOR: _____

DATE:_____

The Trainee: PASSED _____ this JPM.

FAILED _____

TIME STARTED: _____

TIME FINISHED: _____

CRITICAL ELEMENTS: (*) **4, 9**

CRITICAL TIME: **NA**

JPM TIME:_____ MINUTES

APPROX COMPLETION TIME **17 MINUTES**

EVALUATION METHOD:

____**X**____ PERFORM
_____ SIMULATE

LOCATION:
_____ IN PLANT
____**X**____ SIMULATOR

GENERAL REFERENCES:

1.   1BwOSR 3.2.4.1, Rev. 2, Unit One Quadrant Power Tilt Ratio (QPTR) Calculation.
2.   Operator Aid for 100% Power NIS Detector Currents.

MATERIALS:

1.   1BwOSR 3.2.4.1 (blank)
2.   1BwOSR 3.2.4.1 page D-3, partially completed. (Page 7 of this JPM).
3.   Operator Aid for current values to be used in QPTR Calculation.

TASK STANDARDS:

1.   Perform QPTR Surveillance (1BwOSR 3.2.4.1)
2.   Demonstrates the use of good Core Work Practices (CWP).

TASK CONDITIONS:

1.   You are an extra NSO.
2.   The Unit 1 is at 100% power. PDMS is inoperable

INITIATING CUES:

1.   The US has provided you a copy of and directed you to perform the weekly QPTR calculation using 1BwOSR 3.2.4.1. The process computer is inoperable for the purpose of this surveillance.

Note to Examiner: **Step 4 of this JPM requires data from the NIS meters and Op Aid. This data should be gathered before the examinee starts this JPM. This data is to be compared to the data the examinee takes during the JPM to ensure he is within ± 10 uamps.**

1

PERFORMANCE CHECKLIST	STANDARDS	SAT	UNSAT	N/A

RECORD START TIME _____

1. Open and refer to 1BwOSR 3.2.4.1, QPTR Calculation.

   (CUE: All Prerequisites, Precautions, Limitations and Actions have been met.)

   Open and refer to the provided copy of 1BwOSR 3.2.4.1.

   VERIFY all applicable Prerequisites, Precautions, and Limitations and Actions are satisfactorily addressed.

   □   □   □

2. Indicate the applicability of this surveillance on Data Sheet D-3.

   Determine NIS meters must be used to perform this surveillance and INDICATE on Data Sheet D-3:

   • CHECK 7 day block.
   • RECORD current Date and Time.

   □   □   □

3. Record power range NIs operability status.

   (CUE: If asked, the Unit is in No LCOARs at this time.)

   On Data Sheet D-3, RECORD the following for power range NIs 41-44:

   • 'Y' block checked for each channel indication reliable.
   • 100% (or present power reading from each channel at 1PM07J).

   □   □   □

*4. Record each present detector current reading from 1PM07J on Data Sheet D-3.

   (Note: Prior to commencing this JPM, the actual readings should be logged here:

UPPERS		LOWERS
_____	N41	_____
_____	N42	_____
_____	N43	_____
_____	N44	_____

   Log Op Aid Data here:

	N41	_____
_____	N42	_____
_____	N43	_____
_____	N44	_____

   All present Upper and Lower Detector Currents recorded within $\pm$ 10 uamps of actual values on Data Sheet D-3.

   UPPERS:
   • N41_____
   • N42_____
   • N43_____
   • N44_____

   □   □   □

   LOWERS:
   • N41_____
   • N42_____
   • N43_____
   • N44_____

   □   □   □

2

PERFORMANCE CHECKLIST	STANDARDS	SAT	UNSAT	N/A
5. Record 100% Detector Currents from Operator Aid Book on data Sheet D-3. (CUE: If asked as the SM for the values, report that they are in the operator aid book.)	Record the 100% Detector Currents from the Operator Aid Book for each upper and lower detector on Data Sheet D-3: • Each upper • Each Lower	☐	☐	☐

Note: After examinee has recorded the data to this point from 1PM07J, provide him/her with the partially filled in D-3 Data Sheet for calculations. (Page 7 of this JPM. Use the simulator setup instructions page 6 of this JPM for a 'KEY'.)

6. Using the partially filled in D-3 Data Sheet, perform the calculations to obtain the normalized detector currents and log them on the data sheet.	Calculate the Normalized Detector Currents for each detector by dividing its present detector current reading by the 100% detector current value from the operator aid and log on the D-3 Data Sheet: • Each Upper • Each Lower	☐	☐	☐
7. Using the partially filled in D-3 Data Sheet, perform the calculations to obtain the average normalized currents and log them on the data sheet.	Calculate the Average Normalized Current by summing the upper (lower) normalized detector currents and dividing by 4 and log on the D-3 Data Sheet: • Upper Average • Lower Average	☐	☐	☐
8. Using the partially filled in D-3 Data Sheet, perform the calculations to determine the QPTR for each detector and log them on the data sheet.	Determine the QPTR for each detector by dividing each Normalized Detector Current by the Average Normalized Current and log on the D-3 data sheet: • Each Upper • Each Lower	☐	☐	☐
*9. Identify N42 Upper Detector QPTR is unacceptable. (CUE: As SM acknowledge the required initiation of LCOAR 1BwOL 3.2.4.)	Identify N42 Upper Detector QPTR is >1.02 and is unacceptable. Immediately notify the Shift Manager or Designee to initiate LCOAR 1BwOL 3.2.4.	☐	☐	☐

3

N-18 6/26/01

PERFORMANCE CHECKLIST	STANDARDS	SAT	UNSAT	N/A

(CUE:) THIS COMPLETES THIS JPM.

RECORD STOP TIME _____

COMMENTS:

TASK TITLE: Perform Quarterly Valve Stroke Surveillance of 1CS007A

PM No.: N-02CS007   REV: 0

TPO No.:   K&A No. 2.2.12

TASK No.:   K&A IMP: 3.0

TRAINEE: _____

EVALUATOR: _____   DATE: _____

The Trainee: PASSED _____ this JPM.   TIME STARTED: _____

             FAILED _____   TIME FINISHED: _____

CRITICAL ELEMENTS: (*)5-10   JPM TIME: _____ MINUTES

CRITICAL TIME: N/A   APPROX COMPLETION TIME 14 MINUTES

EVALUATION METHOD: LOCATION:
           X   PERFORM   _____ IN PLANT
           ____ SIMULATE   X   SIMULATOR

GENERAL REFERENCES:

1.   1BwOSR 3.6.3.5.CS-1A Train A CS Containment Isolation Valve Stroke Quarterly Surveillance
2.   Tech Spec 3.6.3 Containment Isolation Valves
3.   Tech Spec 3.6.6 Containment Spray and Cooling Systems

MATERIALS:

Copy of 1BwOSR 3.6.5.CS-1A
Stop Watch

TASK STANDARDS:

1.   Perform 1BwOSR 3.6.5.CS-1A, 1CS007A Valve Stroke Test

TASK CONDITIONS:

1.   You are the Extra NSO.
2.   Unit 1 is in Mode 1, Unit 2 is in Mode 1

INITIATING CUES:

1.   The Unit Supervisor has instructed you to perform 1BwOSR 3.6.5.CS-1A, Train A Containment Spray Containment Isolation Valve Stroke Quarterly Surveillance for 1CS007A. The concurrent surveillance for position indication (1BwOSR 5.5.8.CS-2A) is not going to be performed at this time.

N-

1. Refer to 1BwOSR 3.6.5.CS-1A

    Locate and Open 1BwOSR 3.6.5.CS-1A

    ☐ ☐ ☐

    (CUE: All prereqs, precautions, limitations and actions are met)

    • Review Prerequisites, Precautions, Limitations and Actions

    (If asked) The surveillance cover sheet has been signed and approved by the US.

    Train B of CS is Operable

2. Review initial conditions

    Locate and review initial conditions, step 1

    ☐ ☐ ☐

    (CUE: The IST coordinator is listed on the Work Description Section for results review)

    Verify the IST coordinator is listed on the Work Description Section for review.

3. Record the stopwatch Data

    Record stopwatch data:

    ☐ ☐ ☐

    (CUE: Stopwatch data:
        Dept: Ops
    If asked then the following:
        Accuracy Check date:7/13/02
        Due Date: 8/15/02

    • Dept:
    o Accuracy Check Date:
    o Due Date:

4. Record as found conditions

    Circle the as found condition of listed equipment:

    ☐ ☐ ☐

    (CUE: RH Suction pressure <75#

    • 1SI001A - NA
    • 1CS001A - OPEN
    • 1CS007A - CLOSED
    • 1A CS pump - STOP
    • 1A CS TEST - NORMAL

*5. Ensure LOCAR 3.6.6 entered

    Enter LCO 3.6.6 for 1A CS Train when CS taken to PTL for 1A CS Pump

    ☐ ☐ ☐

    (CUE: LCO has been entered for Train A CS)

N-

PERFORMANCE CHECKLIST	STANDARDS	SAT	UNSAT	N/A
*6. Take action to disable Train A of CS from auto actuations	At 1PM06J perform the following: • Take C/S for 1A CS pump to PTL • Verify 1A CS pump test switch in Normal • Close 1A CS pump suction 1CS001A	☐	☐	☐
*7. Open 1CS007A and record stroke time:	Stroke and time 1CS007A: • Place MCB C/S for 1CS007A to OPEN and simultaneously start the stopwatch. • Stop the stopwatch when 1CS007A indicates full open • Record stroke time in step 2.0 data table o Check status light	☐	☐	☐
*8. Close 1CS007A and record stroke time:	Stroke and time 1CS007A: • Place MCB C/S for 1CS007A to CLOSE and simultaneously start the stopwatch. • Stop the stopwatch when 1CS007A indicates full closed • Record stroke time in step 2.0 data table o Check Status Light	☐	☐	☐
*9. Identify that the stroke time meets Tech Spec requirements	Record and review stroke times on acceptance data sheet and verify acceptance criteria met.	☐	☐	☐

PERFORMANCE CHECKLIST	STANDARDS	SAT	UNSAT	N/A
*10. Restore system to 'as found' condition.	At 1PM06J perform/verify the following: • 1A CS Pump STOP/NOT o 1SI001A N/A • 1CS001A OPEN • 1CS007A CLOSED • 1CS01PA Test Switch NORMAL	☐	☐	☐
11. Exit LCO for CS	Exit LCO for CS.	☐	☐	☐

(CUE:) THIS COMPLETES THIS JPM.

RECORD STOP TIME _____

==

COMMENTS:

TASK CONDITIONS:

    1.   You are the Unit NSO.
    2.   Unit 1 is in Mode 1, Unit 2 is in Mode 1

INITIATING CUES:

    1.   The Unit Supervisor has instructed you to perform 1BwOSR 3.6.5.CS-1A, Train A Containment Spray Containment Isolation Valve Stroke Quarterly Surveillance for 1CS007A. The concurrent surveillance for position indication (1BwOSR 5.5.8.CS-2A) is not going to be performed at this time.

N-

JPM NO: N-01CS007

REQUIRED SIMULATOR MODE(S): (any)

MALFUNCTION #'S: NA

COMMENTS: Need stop watch from instructors booth

N-

TRAIN A
CONTAINMENT SPRAY CONTAINMENT ISOLATION
VALVE STROKE QUARTERLY SURVEILLANCE

A. STATEMENT OF APPLICABILITY

The purpose of this procedure is to verify that 1CS007A strokes within the specified time when tested pursuant to Tech Specs 5.5.8, SR 3.6.3.5, and Bases T.3.6.3-1. Testing will be performed at the interval of once per 92 days, or after any maintenance affecting valve operability and is applicable for MODES 1, 2, 3 and 4.

B. REFERENCES

1. Tech Spec LCOs:

   a. 3.6.6

   b. 3.6.3

2. Tech Spec Surveillance Requirement:

   a. 5.5.8

   b. SR 3.6.3.5

3. Station Procedures:

   a. BwAP 1900-1, Timepiece Accuracy Verification.

   b. 1BwOL 3.6.6, LCOAR - Containment Spray System.

   c. 1BwOL 3.6.3, LCOAR - Containment Isolation Valves.

   d. ER-AA-321, Admin Requirements for Inservice Testing.

   e. 1BwOSR 5.5.8.CS-2A, Containment Spray Power Operated Valve Indication 18 Month Surveillance.

4. Station Drawings: M-46

5. In Service Testing Program Plan for Pumps (IST Program)

6. NTS Item: 456-100-93-01101C.

1

C.   PREREQUISITES

1.   Receive permission to perform the surveillance from the Shift Manager or
       designee prior to performance by having the Data Package Cover sheet signed
       and dated.

2.   This surveillance may be performed in any operating MODE.

3.   A stopwatch will be necessary to perform this surveillance with timepiece
       accuracy verification per BwAP 1900-1.

D.   PRECAUTIONS

VERIFY that all requirements of the applicable RWP have been met.

E.   LIMITATIONS AND ACTIONS

1.   As stated in Tech Spec LCOs 3.6.6 and 3.6.3.

2.   In the event a valve fails to change position, or the stroke time exceeds the
       Operability (Oper) Limit during surveillance performance, IMMEDIATELY
       NOTIFY the Shift Manager or designee to declare the valve inoperable and
       initiate corrective actions.

3.   In the event a valve stroke time exceeds the Alert Limit, but is less than the
       Operability (Oper) Limit, the following should be performed:

       a.   The Shift Manager or designee must be notified.

       b.   The valve should be stroked a second time.

       c.   NOTIFY the System Engineer to PERFORM an evaluation to document
              valve operability (per ER-AA-321) and attach it to this surveillance.

       d.   If the second stroke time exceeds the Alert Limit, but is less than the
              Operability (Oper) Limit, then the valve must be tracked with a 96 hour
              time clock to decide the ER-AA-321 operability determination. (N/A if
              second stroke is within Alert Limits.) (Valve is considered operable until
              evaluation is complete.) (The Dequip program is an acceptable tracking
              method.)

2

E. 4. For any valve declared inoperable demonstrate acceptable operation after required corrective action has been taken but before returning the valve to service.

5. IF ALARA concerns permit, THEN local stroke timing and local examination of the valve should be performed if Operability Acceptance Criteria (Oper Limit) is not met.

6. Per the requirements of the IST Program Tech Spec 5.5.8, valve stroke time limits SHALL be set up which accurately reflect the way the valve strokes. These times, in some instances, may be more limiting than other Tech Spec values. Per the IST Program requirements Tech Spec 5.5.8, these stroke times SHALL be the basis on which the valve is declared inoperable.

7. When the CS Pump CONTROL Switch is placed to PULL TO LOCK, NOTIFY the Shift Manager or designee to initiate LCOAR 1BwOL 3.6.6.

8. PERFORM 1BwOSR 5.5.8.CS-2A concurrently if possible, to obtain both stroke time data and indication checks.

F.   MAIN BODY

0.0   SURVEILLANCE OVERVIEW

0.1   The timing valve strokes may be performed in any order to minimize the number of needless valve strokes.

0.2   The subsections of this surveillance perform the following.

F.1.0   Establish Initial Conditions

F.2.0   Stroke Test of 1CS007A

F.   1.0   <u>INITIAL CONDITIONS</u>

NOTE
Initial each step in the space provided adjacent to the procedure step number AFTER the step has been SUCCESSFULLY completed. Person(s) performing VERIFICATIONS SHALL initial in the space provided following the step.

NOTE
"Valve stroke time" is defined as the time duration from the instant of handswitch (or manual relay) actuation until the instant of indication of the valve's intended final position.

_____1.1   VERIFY all applicable PREREQUISITES, PRECAUTIONS, and LIMITATIONS and ACTIONS satisfactorily addressed.

_____1.2   VERIFY the IST Coordinator is listed in the Work Description Section of the Data Package Cover Sheet to review the results.

_____1.3   RECORD the Stopwatch data.

Dept/No.: _____
Accuracy Check Date: _____
Due Date: _____

NOTE
The As Found Position of 1SI001A may be marked N/A if RH Suction Press is less than <u>75</u> psig.

_____1.4   RECORD the "As Found" position of the following:

●   1SI001A, 1A CS Pmp Disc Test Line to RWST
      OPEN/LOCKED/CLOSED/NA

●   1CS001A, Cnmt Spray Pump 1A RWST Suction Vlv
      OPEN/CLOSED

●   1CS007A, Cnmt Spray Pump 1A Header Isol Vlv
      OPEN/CLOSED

●   1CS01PA, Cnmt Spray Pump 1A
      RUN/STOP/PTL

●   1CS01PA TEST SWITCH, Cnmt Spray Pump 1A Test Switch
      NORMAL/TEST

5

F.   2.0   STROKE TEST OF 1CS007A

Valve: 1CS007A				Panel: 1PM06J			
Stroke	@ Oper Limits ¢	@ Alert Limits ¢	Status Lights	@ Test Time ¢	@ Retest Time ¢	Ver Oper	Init
OPEN	Max 10	Min 6.5	☐ LIT ☐ DARK			☐ YES ☐ NO	
CLOSE	Max 13.1	Min 6.5 Max 10.9	☐ LIT ☐ DARK			☐ YES ☐ NO	

_____2.1   VERIFY/PLACE the 1A CS Pump handswitch in PULL TO LOCK at 1PM06J.

_____2.2   VERIFY/PLACE 1CS01PA Test Switch in the NORMAL position at 1PM06J.

NOTE

Step 2.3 is N/A if RH Suct Press is less than **75** psig.

_____2.3   UNLOCK and OPEN 1SI001A, 1A CS Pump Dsch Test Line to RWST.

_____2.4   VERIFY/CLOSE 1CS001A at 1PM06J.

_____2.5   Use the handswitch at 1PM06J to STROKE 1CS007A in the OPEN direction.
(PERFORM in accordance with steps outlined in ATTACHMENT A, Timing in the OPEN Direction.)

_____2.6   Use the handswitch at 1PM06J to STROKE 1CS007A in the CLOSE direction.
(PERFORM in accordance with steps outlined in ATTACHMENT B, Timing in the CLOSE Direction.)

_____2.7   OPEN 1CS001A at 1PM06J.

@   All limits and times are in seconds.

6

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┌─────────────────────────────────────────────────────────────┐
│                           NOTE                              │
│  If step 2.3 was not performed, the As Left position of 1SI001A may │
│  be marked N/A.                                             │
│                                                             │
└─────────────────────────────────────────────────────────────┘
```

F.   2.8   RESTORE the following equipment to the "As Found" position or as directed by the Shift Manager or designee.

_____   • 1CS01PA, Cnmt Spray Pump 1A
                RUN/STOP/PTL

              VERIFICATION _____

_____   • 1SI001A, 1A CS Pmp Disc. Test Line to RWST
                OPEN/LOCKED/CLOSED/NA

              VERIFICATION _____

_____   • 1CS001A, Cnmt Spray Pump 1A RWST Suction Valve
                OPEN/CLOSED

              VERIFICATION _____

_____   • 1CS007A, Cnmt Spray Pump 1A Header Isolation Valve
                OPEN/CLOSED

              VERIFICATION _____

_____   • 1CS01PA Test Switch, Cnmt Spray Pump 1A Test Switch
                NORMAL/TEST

              VERIFICATION _____

G.   ACCEPTANCE CRITERIA

1.   Each valve must have been verified to stroke within the Operability (OPER) Limits.

2.   Each valve must have been verified in accordance with one of the following:

   a.   The valve stroke time was within the Alert Limits.

   b.   The valve stroke time exceeded the Alert Limits, but was within the Operability (Oper) Limits and the following criteria have been met:

      1)   The valve was stroked a second time.

      2)   ER-AA-321, is attached to this surveillance for the System Engineer to evaluate.

      3)   The second valve stroke time exceeded the Alert Limits, but was within the Operability (Oper) Limits and the valve is being tracked with a 96 hour clock to complete the ER-AA-321 evaluation. (Valve is considered operable until evaluation is complete.) (The Dequip program is an acceptable tracking method.)

ATTACHMENT A

TIMING IN THE OPEN DIRECTION

1. VERIFY/CLOSE the valve.

2. SIMULTANEOUSLY START the stopwatch and OPEN the valve with the test switch.

3. STOP the stopwatch when the valve indicates OPEN.

4. RECORD the stroke OPEN TEST TIME.

5. RECORD the MLB status light indication associated with the valve.

6. VERIFY the valve indicates OPEN on the control panel.

7. VERIFY the OPEN TEST TIME is within the OPERABILITY (OPER) LIMITS. (If not, DECLARE the valve INOPERABLE and initiate appropriate actions.)

8. If the valve is within the OPERABILITY (OPER) LIMITS, but is not within ALERT LIMITS, PERFORM the following (otherwise N/A):

    a. VERIFY/CLOSE the valve (May be performed in conjunction with a close stroke timing step).

    b. SIMULTANEOUSLY START the stopwatch and OPEN the valve with the appropriate test switch(es).

    c. STOP the stopwatch when the valve indicates OPEN.

    d. RECORD the stroke OPEN RETEST TIME.

    e. VERIFY the OPEN RETEST TIME is within the OPERABILITY (OPER) LIMITS. (If not, DECLARE the valve INOPERABLE and initiate appropriate actions.)

    f. Attach ER-AA-321, to this surveillance for the System Test Engineer to evaluate.

    g. If the second stroke time exceeds the Alert Limit, but is less than the Operability (Oper) Limit, then TRACK the valve with a 96 hour clock to complete the ER-AA-321 evaluation. (Valve is considered operable until evaluation is complete.)

ATTACHMENT B

TIMING IN THE CLOSE DIRECTION

1.   VERIFY/OPEN the valve.

2.   SIMULTANEOUSLY START the stopwatch and CLOSE the valve with the test switch.

3.   STOP the stopwatch when the valve indicates CLOSED.

4.   RECORD the stroke CLOSED TEST TIME.

5.   RECORD the MLB status light indication associated with the valve.

6.   VERIFY the valve indicates CLOSED on the control panel.

7.   VERIFY the CLOSED TEST TIME is within the OPERABILITY (OPER) LIMITS. (If not, DECLARE the valve INOPERABLE and initiate appropriate actions.)

8.   If the valve is within the OPERABILITY (OPER) LIMITS, but is not within ALERT LIMITS, PERFORM the following (otherwise N/A):

   a.   VERIFY/OPEN the valve (May be performed in conjunction with an open stroke timing step).

   b.   SIMULTANEOUSLY START the stopwatch and CLOSE the valve with the appropriate test switch(es).

   c.   STOP the stopwatch when the valve indicates CLOSED.

   d.   RECORD the CLOSED RETEST TIME.

   e.   VERIFY the CLOSED RETEST TIME is within the OPERABILITY (OPER) LIMITS. (If not, DECLARE the valve INOPERABLE and initiate appropriate actions.)

   f.   Attach ER-AA-321, to this surveillance for the System Test Engineer to evaluate.

   g.   If the second stroke time exceeds the Alert Limit, but is less than the Operability (Oper) Limit, then TRACK the valve with a 96 hour clock to complete the ER-AA-321 evaluation. (Valve is considered operable until evaluation is complete.)

(Final)

JOB PERFORMANCE MEASURE

TASK TITLE: **Prepare/Perform a Liquid Radwaste Release**

JPM No.: **N-32**   REV: **12**

TPO No.: IV.C.WQ-01   K&A No.: (068A4.02)

TASK No.: WX-002   K&A IMP: 3.2/3.1

TRAINEE:_____

EVALUATOR:_____   DATE:_____

The Trainee: PASSED _____ this JPM.   TIME STARTED: _____

             FAILED _____   TIME FINISHED: _____

CRITICAL ELEMENTS: (*) 5-7   JPM TIME:_____ MINUTES

CRITICAL TIME: **NA**   APPROX COMPLETION TIME: **16 MINUTES**

EVALUATION METHOD: LOCATION:
        X   PERFORM   _____ IN PLANT
        _____   SIMULATE   **X** SIMULATOR

GENERAL REFERENCES:

    1.   BwOP WX-501T1 Rev. 19, Liquid Release Tank 0WX01T Release Form

MATERIALS:

    Copy of BwOP WX-501T1, Liquid Release Tank 0WX01T Release Form completed through section D.

TASK STANDARDS:

    1.   Complete Section E of a liquid release tank release form in accordance with BwOP WX-501T1.
    2.   Correctly operate the RM-11 for setpoint adjustment/testing.
    3.   Demonstrates the use of good Core Work Practices.

TASK CONDITIONS:

    1.   You are an extra NSO.
    2.   Both Units are at 100% power.
    3.   0PR01J, 0PR10J, and 0UR-CW032 are operable.
    4.   All Channel Checks are complete.

INITIATING CUES:

    1.   The Unit Supervisor has handed you an 0WX01T liquid release package, completed through section D, and has directed you to complete the release package through Section E, using the HIGH flowrate path.

1

N-32(7/14/01)

PERFORMANCE CHECKLIST	STANDARDS	SAT	UNSAT	N/A

RECORD START TIME _____

Note: Provide the examinee with a copy of BwOP WX-501T1 completed through Section D, page 18. Provide cues to the examinee only if actual equipment is unavailable. When requested by the examinee, Independent Verification has been completed.

1. Indicate the release flow path as HIGH FLOW, by circling on the form.

   Indicate the release flow path as HIGH FLOW by circling on the release form.   ☐ ☐ ☐

   (Note: HIGH Flow Rate was given as an initiating cue.)

2. Obtain and record the High Alarm and Alert Alarm Setpoints for ORE-PR010 from the RM-11.

   Obtain and record the High Alarm and Alert Alarm Setpoints for ORE-PR010 from the RM-11 as follows: ☐ ☐ ☐

   - DEPRESS Grid 1 key.
   - Key in "110".
   - DEPRESS SEL key.
   - DEPRESS CHAN ITEMS key.

   (Chan Item #9 _____)
   - RECORD Chan Item #9, High Alarm Setpoint.

   (Chan Item #10 _____)
   - RECORD Chan Item #10, Alert Alarm Setpoint.

3. Obtain and record the High Alarm and Alert Alarm Setpoints for ORE-PR001 from the RM-11.

   Obtain and record the High Alarm and Alert Alarm Setpoints for ORE-PR001 from the RM-11 as follows: ☐ ☐ ☐

   - DEPRESS Grid 1 key.
   - Key in "101".
   - DEPRESS SEL key.
   - DEPRESS CHAN ITEMS key.

   (Chan Item #9 _____)
   - RECORD Chan Item #9, High Alarm Setpoint.

   (Chan Item #10 _____)
   - RECORD Chan Item #10, Alert Alarm Setpoint.

N-32(7/14/01)

PERFORMANCE CHECKLIST	STANDARDS	SAT	UNSAT	N/A

4. Verify OBwOSR 0.1-0 daily channel check is complete on Liquid Radwaste Effluent monitor (ORE-PR001), Station Blowdown Monitor (ORE-PR010), and Station Blowdown Line Monitor Loop (0-CW032).

   (CUE: **As examinee asks for status of surveillances, report they are all completed SAT as of shift 1 today.**)

Check rounds to ensure OBwOS 0.1-0 daily channel check surveillance is complete on the following:

- ORE-PR001 Liquid Radwaste Effluent.
- ORE-PR010 Station Blowdown.
- 0-CW032 Station Blowdown Line Monitor Loop.

☐ ☐ ☐

*5. Perform lineup in preparation to verify valve 0AOV-WX353 auto closes on high radiation.

   (CUE: **As asked, sufficient blowdown flow is established;**

   WX-302 and 890 are CLOSED;

   WX889 is OPEN;

   Release Tank Pump is running;

   The discharge hdr hi rad alarm is clear;

   0AOV-WX353 is OPEN using the key.)

Contact Radwaste to prepare to verify 0AOV-WX353 Auto closes on high radiation as follows:

o VERIFY sufficient blowdown flow is established.

- VERIFY/CLOSE 0AOV-WX302.

- VERIFY/CLOSE 0AOV-WX890.

- VERIFY/OPEN 0AOV-WX889.

- VERIFY/START 0WX01P, Release Tank pump.

o VERIFY/CLEAR Release Tank Discharge Header Radiation High annunciator.

- OPEN 0AOV-WX353 using the key obtained from the OPS Supervisor or SM.

☐ ☐ ☐

3

*6.   Verify the Auto Closure of   Verify the Auto Closure   ☐   ☐   ☐
       the release tank discharge   of 0AOV-WX353 by LOWERING
       isolation valve 0AOV-   the liquid radwaste
       WX353.   effluent monitor ORE-
                                        PR001 High alarm setpoint
                                        to a value below the
                                        current activity level as
                                        follows:

                                        • PLACE the RM-11
                                           console in the
                                           SUPERVISOR mode.

                                        • SELECT the HIGH alarm
                                           setpoint (channel item
                                           #9) to be changed on
                                           0RE-PR001 (0PS101)
                                           CHAN ITEMS by keying
                                           in 9 and DEPRESSING
                                           the SEL key.

(Current activity setting____)   o Record the current
                                           activity reading.

                                        • ENTER a new HIGH alarm
                                           setpoint below the
                                           current activity
                                           value.

(New Hi Alarm setting_____)   o RECORD the new HIGH
                                           alarm setpoint that
                                           was entered.

                                        • DEPRESS the ENTER key.

                                        o ACKNOWLEDGE the alarm
                                           at the RM-11 console.

                                        Contact the local
                                        operator to: ☐   ☐   ☐

(CUE: When contacted report   • VERIFY 0AOV-WX353 AUTO
         0AOV-WX353 Auto   CLOSES.
         Closed,
                                        o VERIFY Release Tank
         The high rad alarm   discharge Header
         annunciated,   Radiation High alarm
                                           annunciates.

         and (when directed)   • PLACE key locked
         the key locked switch   switch for 0AOV-WX353
         for 0AOV-WX353 is in   in CLOSE.
         CLOSE.)

PERFORMANCE CHECKLIST	STANDARDS	SAT	UNSAT	N/A

PERFORMANCE CHECKLIST

*7. VERIFY/ADJUST the Alert and High alarm setpoints for ORE-PR001 to the values specified by Health Physics is step D.7.b.

(CUE: When asked, Independent Verification is complete.)

8. Contact the radwaste operator and VERIFY/CLEAR Release Tank Discharge Header Radiation High annunciator.

(CUE: When asked, Release Tank Discharge Header Radiation High annunciator is clear.)

STANDARDS

VERIFY/ADJUST the ALERT alarm and HIGH alarm setpoints to the values specified by Health Physics in step D.7.b as follows:

- PLACE the RM-11 Console in the SUPERVISOR mode.

- SELECT the ALERT alarm setpoint (channel item #10) to be changed on the ORE-PR001 (OPS101) CHAN ITEMS display by KEYING in 10 and DEPRESSING the SEL key.

- ENTER the new ALERT alarm setpoint (656-5) and DEPRESS the ENTER key. (3.19E-4)

- SELECT the HIGH alarm setpoint (channel item #9) to be changed on the ORE-PR001 (OPS101) CHAN ITEMS display by KEYING in 9 and DEPRESSING the SEL key.

- ENTER the new HIGH alarm setpoint (131-4) and DEPRESS the ENTER key. (6.38E-4)

o INDEPENDENT VERIFICATION obtained.

Contact the radwaste operator and VERIFY/CLEAR Release Tank Discharge Header Radiation High annunciator.
- Window 77A09 at OPL01J.

5

PERFORMANCE CHECKLIST	STANDARDS	SAT	UNSAT	N/A

9. VERIFY/ADJUST the ALERT and HIGH setpoints for ORE-PR010 to the values specified by Health Physics is step D.8.b.

VERIFY/ADJUST the ALERT alarm and HIGH alarm setpoints to the values specified by Health Physics in step D.8.b as follows:

☐ SAT   ☐ UNSAT   ☐ N/A

(Note: This step is NOT required (because there were no changes to these setpoints), but is included here in case the examinee performs it anyway.)

- SELECT the ALERT alarm setpoint (channel item #10) to be changed on the ORE-PR010 (0PS110) CHAN ITEMS display by KEYING in 10 and DEPRESSING the SEL key.
- ENTER the new ALERT alarm setpoint (573-6) and DEPRESS the ENTER key. (5.80E-6)
- SELECT the HIGH alarm setpoint (channel item #9) to be changed on the ORE-PR010 (0PS110) CHAN ITEMS display by KEYING in 9 and DEPRESSING the SEL key.
- ENTER the new HIGH alarm setpoint (819-6) and DEPRESS the ENTER key. (1.20E-5)

(CUE: When asked, INDEPENDENT VERIFICATION is complete.)

- PLACE the RM-11 console in the NORMAL mode.
- INDEPENDENT VERIFICATION obtained.

10. Record Circulating Water Blowdown rate and obtain verifications.

Obtain/Record the following:
- Circ Water Blowdown rate from 0UR-CW032 at 0PM01J, or computer point F2400.
- SUPERVISOR VERIFICATION.
- VERIFY CW blowdown rate $\geq$ 8000 gpm.
- Control Room Supervisor Review.

☐ SAT   ☐ UNSAT   ☐ N/A

(CUE: When asked for verifications/ reviews, they are complete.)

(CUE:) THIS COMPLETES THIS JPM.

RECORD STOP TIME _____

COMMENTS:

TASK CONDITIONS:

1. You are an extra NSO.
2. Both Units are at 100% power.
3. 0PR01J, 0PR10J, and 0UR-CW032 are operable.
4. All Channel Checks are complete.

INITIATING CUES:

1. The Unit Supervisor has handed you an 0WX01T liquid release package, completed through section D, and has directed you to complete the release package through Section E, using the HIGH flowrate path.

7

JPM NO: N-32

REQUIRED SIMULATOR MODE(S): ANY

MALFUNCTION #'S: N/A
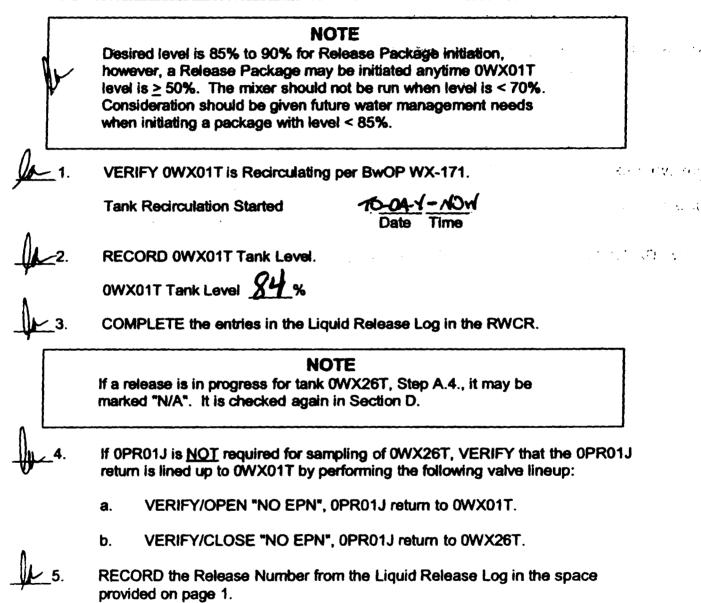
COMMENTS:

    1)   BwOP WX-501T1 needs to be filled out through section D.

    2)   Verify/Start 0WX01P on SDG WD5 (RF WD12 ON).

    3)   if contacted as radwaste operator, report:
        -adequate blowdown flow
        -0WX353 is CLOSED
        -0WX890 is CLOSED
        -0WX389 is OPEN
        -Release Tank pump is started
        -Release Tank discharge Header Rad High annun is CLEAR.

    4)   When contacted as radwaste operator, report 0WX353 is OPEN.

    5)   When contacted as radwaste operator, report 0WX353 is CLOSED.

    6)   When contacted as RWO, report the Release Hdr Rad High Alarm is in and has been acknowledged.

    7)   When contacted as RWO, report the high rad alarm is CLEAR.

N-32(7/14/01)

LIQUID RELEASE TANK 0WX01T RELEASE FORM

Release Number L - _02_ - _049_

A.   OPERATING DEPARTMENT RESPONSIBILITY-RADWASTE OPERATOR

> **NOTE**
> Desired level is 85% to 90% for Release Package initiation,
> however, a Release Package may be initiated anytime 0WX01T
> level is ≥ 50%. The mixer should not be run when level is < 70%.
> Consideration should be given future water management needs
> when initiating a package with level < 85%.

_1.   VERIFY 0WX01T is Recirculating per BwOP WX-171.

Tank Recirculation Started   TO-DAY - NOW
                                      Date   Time

_2.   RECORD 0WX01T Tank Level.

OWX01T Tank Level **84** %

_3.   COMPLETE the entries in the Liquid Release Log in the RWCR.

> **NOTE**
> If a release is in progress for tank 0WX26T, Step A.4., it may be
> marked "N/A". It is checked again in Section D.

_4.   If 0PR01J is **NOT** required for sampling of 0WX26T, VERIFY that the 0PR01J
return is lined up to 0WX01T by performing the following valve lineup:

a.   VERIFY/OPEN "NO EPN", 0PR01J return to 0WX01T.

b.   VERIFY/CLOSE "NO EPN", 0PR01J return to 0WX26T.

_5.   RECORD the Release Number from the Liquid Release Log in the space
provided on page 1.

> **NOTE**
>
> The minimum mixing time required for an accurate sample is
> 5 minutes, if recirculating with the mixer ON or 60 minutes, if
> recirculating with the mixer OFF. After meeting time requirements,
> Chemistry can be called for a sample.

A_____6.   WHEN the minimum mixing time requirements have been satisfied, NOTIFY
Chemistry that a Release Package in progress requires 0WX01T sampling.

> **NOTE**
>
> If more than 25% of the volume in the Release Tank is water that
> was drained or processed out of one or more systems to support
> Refueling or Forced Outage activities, it is "Outage Water".

_____7.   Is the water in this tank considered to be outage water?

☑ YES   ☐ NO

_____8.   Is 0WX01T level greater than 80% (From Step A.2.)?

☒ YES (GO TO STEP A.9.)   ☐ NO (MARK STEP A.9. "N/A".)

> **NOTE**
>
> If more than 55 gallons of caustic has accumulated at the Release
> Tank Chemical Addition area (426' by 1A FW Pp), a caustic add
> should be performed unless directed otherwise by the Shift
> Supervisor based on release priority.

_____9.   Is it desired to add caustic to 0WX01T?

☐ YES   ☒ NO

_____10.   VERIFY/DELIVER this release package to the non-outage Unit Supervisor.

2

B.   OPERATING DEPARTMENT RESPONSIBILITY – UNIT SUPERVISOR

> **NOTE**
>
> Kankakee River Flow rate is normally obtained via the internet site
> for the US ARMY CORPS OF ENGINEERS, WILMINGTON DATA
> (from the appropriate Unit Supervisor). If data is unavailable,
> RECORD most recent data from the Unit Supervisor turnover.

_____1.   OBTAIN and RECORD current (within the last 24 hrs.) Kankakee River flow data:

Stream Flow: **7580**   CFS at Date: _TODAY_   at Time: _0600_

_____2.   RECORD the START AFTER time from BwOP WX-501T2, Release Time Table, for the flow rate recorded in Step B.1.

Release can start after _1100_

> **NOTE**
>
> A TSS analysis is required on ALL tanks released on the first day of
> the sampling week, that releases are performed. The first release
> tank of the month requires Oil and Grease analysis. These sample
> analysis add 4-5 hours to the processing time. All chemistry
> analysis calculations require second verification (If there is only one
> Chem Tech Available, the verification occurs the following shift). A
> release package can process through Chemistry in as little as three
> hours if there are two Chem Techs, there are no higher priorities, no
> caustic add is required, and 0PR01J is operable.

_____3.   EVALUATE the expected time of release so that both biocide treatment and the release can be accommodated considering:

● CW Biocide treatment requires associated Unit CW blowdown isolated.

● At least 8000 GPM CW blowdown flow is required for the Liquid release.

_____4.   RECORD the Kankakee River flow rate obtained in step B.1. in the Unit Supervisor Turnover.

B.   5.   AAR 0BwOS RETS 2.1-1a in effect for:

~signature~

- •   0RE-PR001   ☐ YES   ☒ NO

          VERIFICATION *CRW*

~signature~

- •   0RE-PR010   ☐ YES   ☒ NO

          VERIFICATION *CRW*

NOTE

Prior to forwarding this Release Package to the Chemistry Department, Step E.1. and E.2. may be performed if operating conditions permit.

---

6.   OPS Supervisor: I have reviewed Parts A and B and have verified them accurate and complete.

_____   *T5OA4*   *NOW*
OPS Supervisor   Date   Time

7.   NOTIFY the RADWASTE OPERATOR that his release package is ready for prompt delivery to Chemistry.

C.   CHEMISTRY DEPARTMENT RESPONSIBILITY

NOTE

100% level for the 0WX01T release tank is 32,900 gallons.

NOTE

If ORE-PR001 is inoperable under AAR 0BwOS RETS 2.1-1a, analyses other than isotopic required in this package, i.e., Tritium, Boron, O & G (if required), and TSS (if required) must be run and the numbers reported on one of two samples that meet the 30% acceptance criteria.

---

1.   To verify a request has been made to add caustic to 0WX01T Release Tank, verify yes applies to all statements specified in step A.8 and A.9.

   O   All statements are yes, a chemical addition has been requested, proceed to step C.2.

   ●   Not all statements apply. A chemical addition will not be performed, proceed to step C.3.

2.   Caustic addition to 0WX01T.

   a.   Sample and analyze 0WX01T for boron concentration.

   Sampled by ___N/A___   Time/Date ___NA___

   Results ___NA___ ppm   (Record boron value in step C.9).

   b.   Submit a chemical addition using BwCP 340-1T4 for caustic to 0WX01T based on the following chart.

PPM BORON	GALLONS OF CAUSTIC
≤200	0
>200 ≤ 600	≤5
>600 ≤ 1000	≤10
>1000 ≤ 1500	≤15
>1500	≤20

5

C. 2. c. Chemical Addition for ~NA gallons caustic submitted by
_____ Time/Date _____/_____. Proceed to step C.2.d.

OR

OPS Supervisor notified that no caustic is to be added based on boron concentration. OPS Supervisor notified:

_____ Time/Date _____/_____ by Chem Tech

_____. Proceed to step C.3.

    d. After receiving notification that the caustic addition to 0WX01T is complete proceed to step C.3.

Time/Date notified that add was completed _____/_____.

3. Sampling the Release Tank Effluent.

> **NOTE**
> After obtaining a sample of the Release Tank, the analysis listed in Section C (Excluding sections C.1 and C.2), can be performed in any order necessary to perform the analysis in a safe and timely fashion. It is not necessary to complete one analysis before starting another. The sequence of performing the analysis is left to the discretion of individual performing the tasks.

| | 1st Set | | 2nd Set (If Required) | |
	1st Sample	2nd Sample (If Required)	1st Sample	2nd Sample (if Required)
Sampled by	~JRw			
Date	TODAY			
Sample Time	NOW			

    a. One liter in a poly bottle for isotopic analysis (per BwCP 210-11), tritium analysis (per BwCP 220-2), boron analysis (per BwCP 103-10) and 250 ml for the "monthly save" (monthly composites).

    b. For the first release package of the month, analyze for Oil and Grease analysis as directed per BwCP 323-18.

NOTE

Additional release packages sampled on the same day as those analyzed in Step C.3.c. will require TSS samples also.

C.   3.   c.   For the day of the first release package of the week, obtain a sample for Total Suspended Solids (TSS) analysis for **ALL** releases as directed per BwCP 323-18.

4.   **ISOTOPIC SAMPLING CHECK**

a.   If Radwaste Effluent Process Monitor, 0RE-PR001 **is operable** per AAR 0BwOS RETS 2.1-1a (see Step B.5.) then N/A Step C.5.

b.   If Radwaste Effluent Process Monitor, 0RE-PR001 **is not operable** per AAR 0BwOS RETS 2.1-1a (see Step B.5.) then perform Step C.5.

NOTE

If an Isotopic Verification is to be performed then an independent sample of sufficient volume for an Isotopic must be taken by an independent qualified individual. Fill in Table on page 6.

N/A 5.   **ISOTOPIC VERIFICATION**

a.   VERIFY that Cobalt 58 (Co-58) activities, obtained from the Weighted Mean Decay Corrected Table, are within $\underline{30}$% of each other by performing the following calculation:

$A/B \leq 1.30$

Where:

A = The Larger Co-58 activity, μCi/g = _____ .
B = The Smaller Co-58 activity, μCi/g = _____ .
A/B = _____ .

If the activities are within $\underline{30}$% of each other, N/A Steps C.5.b. through C.5.f. and proceed to Step C.6.

C N/A 5.

b. If the activities were not within 30% of each other, perform the following:

1) DISCARD any results obtained for O & G, TSS, boron, and tritium on these samples.

2) INFORM OPS Supervision.

3) OBTAIN another set of INDEPENDENT samples.

4) PERFORM an isotopic analysis on each of the second set of samples.

5) VERIFY that Cobalt 58 (Co-58) activities, obtained from the Weighted Mean Decay Corrected Table, are within 30% of each other by performing the following calculation:

$$A/B \leq 1.30$$

Where:

A = The Larger Co-58 activity, $\mu Ci/g$ = _____ .
B = The Smaller Co-58 activity, $\mu Ci/g$ = _____ .
A/B = _____ .

c. A second INDEPENDENT set of samples has been obtained, analyzed and the Co-58 activities verified to be within 30% of each other.

☐ YES, PROCEED to Step C.6.

☐ NO, INFORM OPS Supervision and Chemistry Supervision immediately. Save other analysis results, i.e., Tritium, boron, O & G (if required) and TSS (if required) obtained on the second set of samples.

_____ / _____
Signature   Date

8

> **NOTE**
> Chemistry and OPS Supervision will attempt to resolve the activity mismatch. Further INDEPENDENT sampling and isotopic analyses may be necessary. Radiation Protection Supervision may need to be consulted to re-evaluate the 30% acceptance criteria.

c N/A 5. d. Radiation Protection has waived 30% acceptance criteria.

_____/_____/_____
Rad. Protection Supervisor   Date   Time

_____/_____/_____
OPS Supervisor   Date   Time

e. If Radiation Protection waives the 30% acceptance criteria, report analysis results for Tritium, boron, O & G (if required) and TSS (if required) obtained on the second set of samples.

f. If Radiation Protection does not waive the 30% acceptance criteria, discard analysis results for Tritium, boron, O & G (if required) and TSS (if required) obtained on the second set of samples. Notify OPS Supervisor that this package is terminated and return to him. Chemistry Supervision will begin an investigation to determine the difference.

MP 6. Radionuclide Analysis Performed (Isotopic report(s) attached)

JRW 7. ANALYZE sample for tritium per BwCP 220-2, and RECORD the results from the completed BwCP 220-2T1.

PARAMETER	FREQUENCY	LIMIT	RESULTS
Tritium	Each Batch	None	0.0913 µCi/g

JRW 8. Composite sample drawn, labeled with sample time, date and assigned release number and placed in designated sample storage area.

JRW 9. ANALYZE sample for boron concentration, if not previously obtained in step C.2, per BwCP 103-10 and RECORD the results below.

PARAMETER	FREQUENCY	POST DILUTION DISCHARGE LIMIT	TANK CONCENTRATION
Boron	Each Batch	≤ 1 ppm	293.46 ppm

JRW

C_____10. Maximum Discharge Rate based on Water Quality Chemical Analysis

PERFORM the following calculation for each analysis:

$$\frac{A \quad X \quad B}{C \text{ (gpm)}} = \text{MAXIMUM DISCHARGE RATE}$$

A = Kankakee River Flowrate = <u>91.392</u> gpm.
B = Parameter Limit = 1 ppm
C = Tank Concentration (from Step C.9.)

Maximum Discharge Rate _____ 3 11 _____ gpm
(not to exceed <u>500</u> gpm)

NOTE

All <u>required</u> NPDES LIMITS must be satisfied in the release tank prior to a release.

N/A 11. ANALYZE sample as required by the NPDES Permit for Total Suspended Solids per CY-AA-130-9140 and Oil and Grease per BwCP 100-10. RECORD the results from the completed appropriate T-sheets below and on BwCP 323-18T1. N/A this Step if NPDES sampling has been satisfied.

PARAMETER	FREQUENCY	LIMIT	RESULTS
Total Suspended Solids	Per Current NPDES Permit	≤ 30 ppm	_____ ppm
Oil and Grease	Per Current NPDES Permit	≤ 20 ppm	_____ ppm

C. 12. Is the Release Tank within all specified NPDES limits as determined in step C.11?

■ YES a. The release tank is approved for Chemical Release.

b. Perform Step C.13., then forward this procedure to the Health Physics Department or back to the Operating Department for Step E.1.

☐ NO a. IMMEDIATELY NOTIFY the OPS Supervisor

OPS Supervisor notified:

_____ / _____ / _____
(Print Name)   Date   Time

b. RETURN this procedure to Health Physics for release cancellation.

13. Chemistry Department: I have reviewed Part C and have verified it is accurate and complete.

_James R. Welch_____ _TODAY NOW_
Chemistry Department   Date   Time

_OAA_____ _TODAY NOW_
Verification   Date   Time

JRW 14. PROMPTLY DELIVER this release package to Health Physics for processing (ENSURE receipt is acknowledged).

D. HEALTH PHYSICS DEPARTMENT RESPONSIBILITY

RADIONUCLIDE ANALYSIS

> **NOTE**
> If 0RE-PR001 (Liquid Radwaste Release Monitor) is out-of-service two release tank samples must be obtained and analyzed. For all release calculations the **average** concentrations of each isotope (from the two analyses) SHALL be used. If an isotope appears on only one of the two analyses, then use that value for the isotope.

1. Obtain the following and attach to this release form:

   a. Isotopic(s) for the tank to be released.

   _BH_ 2. CALL the Unit Supervisor and VERIFY that there are no "Liquid Release in Progress" placards on panel 0PM01J. *Field Sup J CT*

> **NOTE**
> Steps D.3, D.4, and D.5 are not required if 0RE-PR001 is inoperable and AAR 0BwOS RETS 2.1-1a has been initiated.

3. Call the OPS Supervisor for the following: *Field Sup = SCT*

   _BH_ a. Verify no 0WX026T release package (BwOP WX-526T1) is in progress past Step D.2 and prior to Step I.1.

   _BH_ b. Verify that the backflush of the 0RE-PR001 was completed more than **30** minutes ago.

   _BH_ c. Verify that the 0PR01J return is lined up to 0WX01T by either

      1) Checking Placard on Radwaste Control Panel OR

      2) Performing the following valve lineup:

         a) OPEN "No EPN", 0PR01J return to 0WX01T.

         b) CLOSE "No EPN", 0PR01J return to 0WX26T.

D. 4. Call the NSO and Request the 3 most recent <u>10</u> minute average readings from RM-11 for the ORE-PR001 (OPS101).   *nso: se*

Date: _____   Time: _____

#1 _____ µCi/ml
#2 _____ µCi/ml
#3 _____ µCi/ml

5. Record the maximum background for ORE-PR001 obtained from 3 average readings in Step D.4. above = _____ µCi/ml

> **NOTE**
>
> If a computerized release program is available, you may attach the printout to this form and indicate "see attached" in the calculation spaces in Step D.6.a. below: If no quantifiable peaks are found in the radionuclide analysis, write "NQPF" in the Table in Step D.6.a. Actual release data will be completed in Section I.

6. **RADIOACTIVE RELEASE RATE DETERMINATION:**

    a. To ensure compliance of the planned release with 10CFR20 limits and BwRP 6110-12, COMPLETE the table below. If an isotope is not present, you may leave the space blank.

D. 6. a.

NOTE
DWC values are listed in 10CFR20, Appendix B Table 2, Column 2. For Tech Spec Limit take ten times the DWC value for each isotope listed for column 3. (i.e. the DWC value for Co-58 is 2E-5 μCi/ml. The value listed in column 3 below would be 2E-4 μCi/ml.) The Tech Spec Limit for noble gas isotopes is 2E-4 μCi/ml per ODCM Radioactive Effluent Technical Standard 12.3.1.A.

#1 Isotope	#2 Analyzed Tank Activity (μCi/ml)	#3 Tech Spec Limit (μCi/ml)	#4 Tank Activity (μCi/ml) / Tech Spec Limit (μCi/ml)	#5 (This Column Not Completed until Step D.6.g.1. Unrestricted Area DWC Fraction
Na-24		5.0 E-4		
Cr-51		5.0 E-3		
Mn-54		3.0 E-4		
Co-57		6.0 E-4		
Co-58		2.0 E-4		
Fe-59		1.0 E-4		
Co-60		3.0 E-5		
Zn-65		5.0 E-4		
Br-82		4.0 E-4		
Kr-85		2.0 E-4		
Sr-92		4.0 E-4		
Nb-95		3.0 E-4		
Zr-95		2.0 E-4		
Zr-97		9.0 E-5		
Ag-110m		6.0 E-5		
Tc-99m		1.0 E-2		
Sn-113		3.0 E-4		
Sb-122		1.0 E-4		
Sb-124		7.0 E-5		
Sb-125		3.0 E-4		
Sb-126		7.0 E-5		
Cs-136		6.0 E-5		
I-131		1.0 E-5		
I-133		7.0 E-5		
Xe-133		2.0 E-4		
Xe-133m		2.0 E-4		
Cs-134		9.0 E-6		
Xe-135		2.0 E-4		
Cs-137		1.0 E-5		
Cs-138		4.0 E-3		
Ba-140		8.0 E-5		
La-140		9.0 E-5		
Ce-144		3.0 E-5		
H-3		1.0 E-2		
Total		Total		

(2) Sum of column #2 does NOT include Tritium
(4) Sum of column #4 DOES include Tritium

D _BM_6.   b.   VERIFY that the total tank curies excluding noble gas and tritium, are less
                 than the administrative limit. If exceeded, receive permission from the
                 OPS Supervisor to release the tank.

_____ / ____ / ____ .
OPS Supervisor Contacted (print) or N/A   Date   Time

_BM_   c.   Circulating Water Blowdown. = _8,000_ GPM.

_BM_   d.   RADIOACTIVE RELEASE RATE

$$Radioactive\ Release\ Rate = \left[\frac{Circulating\ Water\ Blowdown\ Rate\ (8,000\ gpm)}{Total\ of\ Column\ 4}\right] / 2$$

     = _____416_____ GPM   Date: _TSOAH_   Time: _Now_
     (not to exceed _500_ gpm)

_BM_   e.   MAXIMUM RELEASE RATE DETERMINATION:

          CHOOSE the most limiting (smallest) release rate, either the Chemistry
          release rate from Step C.10 or the Radioactive Release Rate in
          Step D.6.d. above.

          MAXIMUM RELEASE RATE ___311___ **GPM**

_BM_   f.   Calculate the minimum release duration using formula below.

          Minimum
          Release = [Tank Volume (Gal) - 3300] = ___28___ Min
          Duration   Max. Release Rate (GPM)

_BM_   g.   UNRESTRICTED AREA DWC FRACTION (Verification):

          1)   COMPLETE column #5 of Step D.6.a. using the following equation
                on a radionuclide basis:

$$DWC\ Fraction = \left[\frac{Analyzed\ Tank\ Activity\ (\mu Ci/ml) \times Max.\ Release\ Rate\ \ \ \ (gpm)}{Max.\ Release\ Rate\ (gpm) + Circ\ Water\ Blowdown\ Rate\ (8,000\ (gpm)}\right] / Tech\ Spec\ Limit$$

          2)   VERIFY the sum of column #5 is less than 0.5. If not, NOTIFY the
                OPS Supervisor and CANCEL this release form.

```
NOTE
Step D.7. is not required if ORE-PR001 is inoperable and AAR
0BwOS RETS 2.1-1a has been initiated.
```

D/__ 7. RADWASTE EFFLUENT MONITOR SETPOINT:

a. DETERMINE the Alert Alarm and High Alarm setpoints for the Liquid
Radwaste Effluent Monitor (ORE-PR001) using the following equation:

ORE-PR001 maximum background from Step D.5.
_6.86E-6_ μCi/ml

Calculated ORE-PR001 setpoint = [(Total Analyzed Tank activity*) x 1.5]
+ (Max. ORE-PR001 Bkg).
* sum of column 2 Step D.6.a.

RECORD the calculated ORE-PR001 setpoint _6.83E-5_ μCi/ml

COMPARE the calculated ORE-PR001 setpoint to each of the current
ORE-PR001 monitor setpoints. These setpoints are:

1.31E-4 μCi/ml for the HIGH setpoint
6.56E-5 μCi/ml for the ALERT setpoint

If the calculated value is less than the current monitor setpoint, RECORD
the current monitor setpoint as the Release setpoint. If the calculated
value is greater than the current monitor setpoint, RECORD the calculated
value as the Release setpoint.

b. RECORD ORE-PR001 Monitor Liquid Release setpoints:

Chan Item 9 (HIGH Alarm Setpoint) _6.38E-4_ μCi/ml

Chan Item 10 (ALERT Alarm Setpoint) _3.19E-4_ μCi/ml

NOTE

Step D.8. is not required if 0RE-PR010 is inoperable and AAR
0BwOS RETS 2.1-1a has been initiated.

D. 8. STATION BLOWDOWN MONITOR SETPOINT:

    a. DETERMINE the ALERT Alarm and HIGH Alarm setpoints for the Station Blowdown Process Monitor 0RE-PR010 using the following equation:

$$\frac{\text{0RE-PR010}}{\text{Setpoint}} = \frac{\text{0RE-PR010}}{\text{current reading}} + \frac{1.25 \times \text{Total Analyzed Tank Activity*} \times \text{Max Release Rate}}{\text{Circ. Water Blowdown Rate of } \underline{8,000} \text{ gpm} + \text{Max Release Rate}}$$

                                                          * Sum of column #2, Step D.6.a.

PM   0RE-PR010 current reading   <u>2.67E-6</u> µCi/ml

Mr   Calculated 0RE-PR010 setpoint   <u>4.8E-6</u> µCi/ml

COMPARE the calculated 0RE-PR010 Setpoint to each of the current monitor setpoints. These setpoints are:

        8.19E-6 µCi/ml for the HIGH setpoint
        5.73E-6 µCi/ml for the ALERT setpoint

If the calculated value is less than the current monitor setpoint, RECORD the current monitor setpoint as the Release setpoint. If the calculated value is greater than the current monitor setpoint, RECORD the calculated value as the Release setpoint.

    b. RECORD 0RE-PR010 Monitor Liquid Release setpoints:

PM   Chan Item 9 (HIGH Alarm Setpoint)   <u>1.2E-5</u> µCi/ml

Mr   Chan Item 10 (ALERT Alarm Setpoint)   <u>5.8E-6</u> µCi/ml

D. 9. APPROVAL FOR RADIOLOGICAL RELEASE:

Radiation Protection: I have reviewed Part D and have verified it is accurate and complete.

_____   _____
Radiation Protection   Date   Time

┌───┐
│   **NOTE**   │
│ Verification is required for Step D.9. if 0RE-PR001 is inoperable and │
│ AAR 0BwOS RETS 2.1-1a has been initiated.   │
└───┘

RP or Chem: I have verified that Part D is accurate and complete.

VERIFICATION ____ Date: _____ Time: _____

10. Forward Release Package to the OPS Supervisor, or Contact OPS Supervisor for instructions to forward this package.

E.   OPERATING DEPARTMENT RESPONSIBILITY

NOTE

A Check Source Check is a verification of Detector Response. Even if Detector response is immediately evident when a "Hot" Release Tank is first lined up to OPR01J, ODCM RETS 2.1.B-1 requires a Source Check. If a Check Source Test fails when High Activity is present, it is caused by the program function of OPR01J. To pass the Check Source Test, the Activity has to stabilize or be missed, and repeated attempts may have to be performed until successful.

NOTE

Step E.1. is not required if ORE-PR001 is inoperable and AAR 0BwOS RETS 2.1-1a has been initiated.

---

1.   Perform 0BwOS RETS 2.1.B-1, "Unit Common Pre-Release Source Check of Liquid Effluent Monitor OPR01J."

Time: _____   Date: _____

2.   Control Room Supervisor: I have verified that either the 0BwOS RETS 2.1.B-1 Acceptance Criteria has been met, or ORE-PR001 is inoperable.

_____   / _____
Control Room Supervisor   Date

NOTE

Generally, a low flow release rate should be considered as <130 gpm. Contact OPS Supervisor for determination of which release flow path to use based on current conditions, equipment availability, etc.

_____3.   CONTACT OPS Supervisor for release flow rate path.

_____4.   CIRCLE release flow rate path. Low Flow/High Flow.

> **NOTE**
>
> Step E.5. is not required if 0RE-PR010 is inoperable and AAR
> 0BwOS RETS 2.1-1a has been initiated.

E. 5. OBTAIN and RECORD the values of the following CHAN ITEMS for the
0RE-PR010 (0PS110) from its CHAN ITEM Display on the RM-11 Console.
(DEPRESS Grid 1 key, key in 110, DEPRESS SEL key and then DEPRESS
CHAN ITEMS key).

_____   a.   Chan Item 9 (HIGH Alarm Setpoint) _____μCi/ml

_____   b.   Chan Item 10 (ALERT Alarm Setpoint) _____μCi/ml

> **NOTE**
>
> Step E.6. is not required if 0RE-PR001 is inoperable and AAR
> 0BwOS RETS 2.1-1a has been initiated.

6. OBTAIN and RECORD the values of the following CHAN ITEMS for the
0RE-PR001 (0PS101) from its CHAN ITEM display on the RM-11 Console.
(DEPRESS GRID 1 key, key in 101, DEPRESS SEL key and then DEPRESS
CHAN ITEMS key).

_____   a.   Chan Item 9 (HIGH Alarm Setpoint) _____μCi/ml

_____   b.   Chan Item 10 (ALERT Alarm Setpoint) _____μCi/ml

E.   7.   VERIFY 0BwOSR 0.1-0 daily channel check is complete on:

NOTE

Step E.7.a. is not required if 0RE-PR001 is inoperable and AAR
0BwOS RETS 2.1-1a has been initiated.

_____   a.   Rad Monitor 0RE-PR001: Liquid Radwaste Effluent.

NOTE

Step E.7.b. is not required if 0RE-PR010 is inoperable and AAR
0BwOS RETS 2.1-1a has been initiated.

_____   b.   Rad Monitor 0RE-PR010: Station Blowdown.

NOTE

Step E.7.c. is not required if 0UR-CW032 is inoperable and AAR
0BwOS RETS 2.1-1a has been initiated.

_____   c.   Station Blowdown Line Monitor Loop 0UR-CW032.

> **NOTE**
> Steps E.8. and E.9. are not required if 0RE-PR001 is inoperable and AAR 0BwOS RETS 2.1-1a has been initiated.

> **NOTE**
> For a release through the low flow rate path COMPLETE Step E.8 and mark step E.9 N/A. If a high flow rate release, PROCEED to Step E.9 and mark step E.8 N/A.

> **NOTE**
> If the 0PR01J is in High Alarm at this point in the procedure due to high background, it will be necessary to reset the HIGH alarm setpoint to a value higher than the background. This will allow the 0AOV-WX896 to open to test the interlock function. Otherwise, Step E.8.f. is not required.

> **NOTE**
> Upon receipt of a high radiation signal at 0PR01J, the Release Tank Discharge Valves, 0WX353 and 0WX896 will remain closed until the high radiation signal seal-in is reset at 0PL01J.

E.   8.   VERIFY valve 0AOV-WX896, Release Tank Disch Isolation Valve, automatically closes on high radiation by PERFORMING the following Steps:

_____   a.   VERIFY sufficient blowdown flow is established.

_____   b.   VERIFY/CLOSE 0AOV-WX897, Flow Control Radwaste Effluent Discharge Valve.

_____   c.   VERIFY/CLOSE 0AOV-WX890, Release Tk Pp 0WX53P Dsch Isol.

_____   d.   VERIFY/OPEN 0AOV-WX889, Release Tk Pp 0WX01P Dsch Isol.

_____   e.   VERIFY/START 0WX01P, Release Tank Pump.

E____8   f.   IF the 0PR01J is in HIGH alarm, CHANGE the HIGH alarm setpoint to a value higher than background. This will allow the RELEASE TANK DISCHARGE HEADER RADIATION HIGH alarm (Window 77A09 on 0PL01J) to be reset, and the 0AOV-WX896 valve to be opened after its seal-in has been reset. This can be accomplished as follows:

▼ CAUTION ▼

Some actions possible in the Supervisor Mode may have serious detrimental effects on system operation. Therefore use caution when in this mode and do not leave the RM-11 console unattended when it is in this mode.

---

1)   PLACE the RM-11 Console in SUPERVISOR MODE.

2)   SELECT the HIGH alarm setpoint (channel item 9) to be changed on the 0RE-PR001 (0PS101) CHAN ITEMS display by KEYING in 9 and DEPRESSING the SEL key. (Following this CHAN ITEM 9 should be displayed in reverse characters.)

3)   ENTER a HIGH alarm setpoint USING The format XYZ ± AB (i.e. a value of 3.76E-10 would be entered as 376-10) and DEPRESS the ENTER key. The new value will be displayed after a short delay.

____   g.   VERIFY/CLEAR RELEASE TANK DISCHARGE HEADER RADIATION HIGH Annunciator (Window 77A09 on 0PL01J).

NOTE

Upon receipt of a high radiation signal at 0PR01J, the Release Tank Discharge Valves, 0WX353 and 0WX896 will remain closed until the high radiation signal seal-in is reset at 0PL01J.

____   h.   OPEN 0AOV-WX896, Release Tank Disch Isolation Valve.

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E.   8.   i.   AUTO CLOSE valve 0AOV-WX896, Release Tank Disch Isolation Valve, by LOWERING the Liquid Radwaste Effluent monitor 0RE-PR001 HIGH alarm setpoint to a value below the current activity as follows:

1)   PLACE the RM-11 Console in SUPERVISOR MODE.

2)   SELECT the HIGH alarm setpoint (channel item 9) to be changed on the 0RE-PR001 (0PS101) CHAN ITEMS display by KEYING in 9 and DEPRESSING the SEL key. (Following this CHAN ITEM 9 should be displayed in reverse characters.)

3)   RECORD the current activity reading. _____

4)   ENTER a new HIGH alarm setpoint below the current activity value (from the upper right corner of the display) USING the format XYZ ± AB for XYZ E ± AB (i.e. a value of 3.76E-10 would be entered as 376-10).

5)   RECORD the new HIGH alarm setpoint that was entered. (channel item 9) _____

6)   DEPRESS the ENTER key.

7)   ACKNOWLEDGE the alarm at the RM-11 console.

____   j.   VERIFY 0AOV-WX896, Release Tank Disch Isolation Valve, Auto Closes.

____   k.   VERIFY RELEASE TANK DISCHARGE HEADER RADIATION HIGH alarm (Window 77A09 at 0PL01J) annunciates at 0PL01J and ACKNOWLEDGE.

____   l.   PLACE key locked switch for 0AOV-WX896, Release Tank Disch Isolation Valve, in CLOSE.

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CAUTION

Some actions possible in the Supervisor Mode may have serious detrimental effects on system operation. Therefore use caution when in this mode and do not leave the RM-11 console unattended when it is in this mode.

E____8.   m.   VERIFY/ADJUST the ALERT Alarm and HIGH Alarm setpoints for ORE-PR001 (OPS101) to the values specified by Health Physics in Step D.7.b. USING the instructions that follow.

VERIFICATION ____

1) PLACE the RM-11 Console in SUPERVISOR MODE.

2) SELECT the ALERT alarm setpoint (channel item 10) to be changed on the ORE-PR001 (OPS101) CHAN ITEMS display by KEYING in 10 and DEPRESSING the SEL key. (Following this CHAN ITEM 10 should be displayed in reverse characters.)

3) ENTER the new ALERT alarm setpoint USING the format XYZ ± AB (i.e. a value of 3.76E-10 would be entered as 376-10) and DEPRESS the ENTER key. The new value will be displayed after a short delay.

4) SELECT the HIGH alarm setpoint (channel item 9) to be changed on the ORE-PR001 (OPS101) CHAN ITEMS display by KEYING in 9 and DEPRESSING the SEL key. (Following this CHAN ITEM 9 should be displayed in reverse characters.)

5) ENTER the new HIGH alarm setpoint USING the format XYZ ± AB (i.e. a value of 3.76E-10 would be entered as 376-10) and DEPRESS the ENTER key. The new value will be displayed after a short delay.

____   n.   VERIFY/CLEAR RELEASE TANK DISCHARGE HEADER RADIATION HIGH annunciator (Window 77A09 at OPL01J).

NOTE

If the 0PR01J is in High Alarm at this point in the procedure due to
high background, it will be necessary to reset the HIGH alarm
setpoint to a value higher than the background. This will allow the
0AOV-WX353 to open to test the interlock function. Otherwise, Step
E.9.f. is not required.

E.   9.   VERIFY valve 0WX353, Release Tank Disch Isolation Valve, automatically
closes on high radiation by PERFORMING the following Steps for a release
through the high flow rate path:

_____   a.   VERIFY sufficient blowdown flow is established.

_____   b.   CLOSE 0AOV-WX302, Flow Control Radwaste Effluent Discharge Valve.

_____   c.   VERIFY/CLOSE 0AOV-WX890, Release Tk Pp 0WX53P Dsch Isol.

_____   d.   VERIFY/OPEN 0AOV-WX889, Release Tk Pp 0WX01P Dsch Isol.

_____   e.   VERIFY/START 0WX01P, Release Tank Pump.

> ## CAUTION
> ▼ Some actions possible in the Supervisor Mode may have serious detrimental effects on system operation. Therefore use caution when in this mode and do not leave the RM-11 console unattended when it is in this mode. ▼

E_____9.   f.   IF the 0PR01J is in HIGH alarm, CHANGE the HIGH alarm setpoint to a value higher than background. This will allow the RELEASE TANK DISCHARGE HEADER RADIATION HIGH alarm (Window 77A09 on 0PL01J) to be reset, and the 0AOV-WX353 valve to be opened after its seal-in has been reset. This can be accomplished as follows (N/A if 0PR01J is not in alarm):

        1)   PLACE the RM-11 Console in Supervisor Mode.

        2)   SELECT the HIGH alarm setpoint (channel item 9) to be changed on the 0RE-PR001 (0PS101) CHAN ITEMS display by KEYING in 9 and DEPRESSING the SEL key. (Following this CHAN ITEM 9 should be displayed in reverse characters.)

        3)   ENTER a HIGH alarm setpoint USING the format XYZ ± AB (i.e. a value of 3.76E-10 would be entered as 376-10) and DEPRESS the ENTER key. The new value will be displayed after a short delay.

_____   g.   VERIFY/CLEAR RELEASE TANK DISCHARGE HEADER RADIATION HIGH Annunciator (Window 77A09 on 0PL01J).

> ## NOTE
> Upon receipt of high radiation signal at 0PR01J, the Release Tank Discharge Valves, 0WX353 and 0WX896 will remain closed until the high radiation signal seal-in is reset at 0PL01J.

_____   h.   OPEN 0AOV-WX353, Release Tank Disch Isolation Valve. (The key to operate the 0AOV-WX353 valve control switch must be obtained from the OPS Supervisor or Shift Manager.)

E. 9. i. AUTO CLOSE valve 0AOV-WX353, Release Tank Disch Isolation Valve, by LOWERING the Liquid Radwaste Effluent monitor 0RE-PR001 HIGH alarm setpoint to a value below the current activity as follows:

    1) PLACE the RM-11 Console in SUPERVISOR MODE.

    2) SELECT the HIGH alarm setpoint (channel item 9) to be changed on the 0RE-PR001 (0PS101) CHAN ITEMS display by KEYING in 9 and DEPRESSING the SEL key. (Following this CHAN ITEM 9 should be displayed in reverse characters.)

_____ 3) RECORD the current activity reading _____

_____ 4) ENTER a new HIGH alarm setpoint below the current activity value (from the upper right corner of the display) USING the format XYZ ± AB for XYZ E ± AB (i.e. a value of 3.76E-10 would be entered as 376-10).

    5) RECORD the new HIGH alarm setpoint that was entered. (channel item 9) _____

    6) DEPRESS the ENTER key.

    7) ACKNOWLEDGE the alarm at the RM-11 console.

j. VERIFY 0AOV-WX353, Release Tank Disch Isolation Valve, Auto Closes.

_____ k. VERIFY RELEASE TANK DISCHARGE HEADER RADIATION HIGH alarm annunciates at 0PL01J and ACKNOWLEDGE.

_____ l. PLACE key locked switch for 0AOV-WX353, Release Tank Disch Isolation Valve, in CLOSE.

```
┌─────────────────────────────────────────────────────────────┐
│  ▼                        CAUTION                        ▼   │
│      Some actions possible in the Supervisor Mode may have  │
│      serious detrimental effects on system operation.       │
│      Therefore use caution when in this mode and do not      │
│      leave the RM-11 console unattended when it is in this   │
│      mode.                                                   │
└─────────────────────────────────────────────────────────────┘
```

E____9.   m.   VERIFY/ADJUST the ALERT Alarm and HIGH Alarm setpoints for 0RE-PR001 (0PS101) to the values specified by Health Physics in Step D.7.b. USING the instructions that follow.
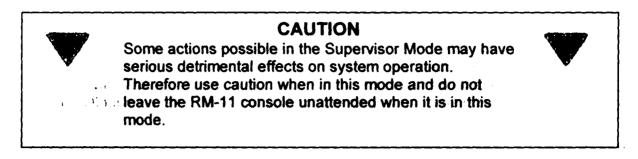
VERIFICATION ____

1)   PLACE the RM-11 Console in SUPERVISOR MODE.

2)   SELECT the ALERT alarm setpoint (channel item 10) to be changed on the 0RE-PR001 (0PS101) CHAN ITEMS display by KEYING in 10 and DEPRESSING the SEL key. (Following this CHAN ITEM 10 should be displayed in reverse characters.)

3)   ENTER the new ALERT alarm setpoint USING the format XYZ ± AB (i.e. a value of 3.76E-10 would be entered as 376-10) and DEPRESS the ENTER key. The new value will be displayed after a short delay.

4)   SELECT the HIGH alarm setpoint (channel item 9) to be changed on the 0RE-PR001 CHAN ITEMS display by KEYING in 9 and DEPRESSING the SEL key. (Following this CHAN ITEM 9 should be displayed in reverse characters.)

5)   ENTER the new HIGH alarm setpoint USING the format XYZ ± AB (i.e. a value of 3.76E-10 would be entered as 376-10) and DEPRESS the ENTER key. The new value will be displayed after a short delay.

____   n.   VERIFY/CLEAR RELEASE TANK DISCHARGE HEADER RADIATION HIGH annunciator (Window 77A09 at 0PL01J).

NOTE

Step E.10. is not required if 0RE-PR010 is inoperable and AAR 0BwOS RETS 2.1-1a has been initiated or if ALERT ALARM & HIGH ALARM setpoints have not changed from Step D.8.b.

E____10.   VERIFY/ADJUST the ALERT and HIGH setpoints for 0RE-PR010 to the values specified by Health Physics in Step D.8.b. using the instructions that follow.

VERIFICATION ____

a.   PLACE the RM-11 Console in Supervisor Mode.

b.   SELECT the ALERT alarm setpoint (channel item 10) to be changed on the 0RE-PR010 (0PS110) CHAN ITEMS display by KEYING in 10 and DEPRESSING the SEL key. (Following this CHAN ITEM 10 should be displayed in reverse characters.)

c.   ENTER the new ALERT alarm setpoint USING the format XYZ ± AB (i.e. a value of 3.76E-10 would be entered as 376-10) and DEPRESS the ENTER key. The new value will be displayed after a short delay.

d.   SELECT the HIGH alarm setpoint (channel item 9) to be changed on the 0RE-PR010 (0PS110) CHAN ITEMS display by KEYING in 9 and DEPRESSING the SEL key. (Following this CHAN ITEM 9 should be displayed in reverse characters.)

e.   ENTER the new HIGH alarm setpoint USING the format XYZ ± AB (i.e. a value of 3.76E-10 would be entered as 376-10) and DEPRESS the ENTER key. The new value will be displayed after a short delay.

f.   PLACE the RM-11 Console in the NORMAL MODE.

E.   11.   RECORD the following data in the space provided.

_____   a.   Circulating Water Blowdown Rate _____ gpm
                   (0UR-CW032 at PNL 0PM01J, or computer Point F2400)

_____   b.   VERIFY CW BLOWDOWN RATE IS EQUAL TO OR GREATER THAN
                   8,000 gpm.

      12.   Control Room Supervisor: I have reviewed Part E and have verified it is accurate
             and complete.

             _____/_____/_____
             Control Room Supervisor   Date Time

F.   Shift Manager OR SRO RESPONSIBILITY

_____1.   VERIFY that Steps B.6., C.13., D.9. and E.12. are signed.

NOTE

Biocide treatment of CW requires isolation of CW blowdown. The expected time of release and release duration must be considered so that both biocide treatment and the release can be accommodated.

---

2.   VERIFY that the actual Circulating Water Blowdown Rate is equal to or greater than 8,000 gpm (0UR-CW032 at PNL 0PM01J, or computer point F2400).

_____/_____

Shift Manager or SRO   Date

_____3.   PLACE a placard stating "Liquid Release in Progress" at 0PM01J.

4.   APPROVAL FOR RELEASE   _____/_____/_____

Shift Manager or SRO   Date   Time

5.   COMMENTS _____

_____

_____

_____

G.   OPERATING DEPARTMENT RESPONSIBILITY - Discharging Release Tank 0WX01T
to Circulating Water Blowdown Line.

NOTE

If during the release, Circ Water Blowdown flow (Computer point
F2400) is reduced to <8,000 gpm, terminate the release. If during
the release, Circ Water Blowdown flow is reduced to <7,000 gpm
(low flow interlock setpoint), VERIFY the release is terminated. If
Circ Water Blowdown flow can be re-established ≥8,000 gpm, the
release may be restarted at step G.2 provided that the following
conditions are met:
  *Shift Manager permission is obtained.
  *All applicable Steps are re-initialed/re-verified as necessary.
  *No additions have been made to the Release Tank.
  *Release totalizers have not been reset and the original
    totalizer readings are used to calculate the gallons released.

NOTE

If Station Blowdown Line Flow Monitor (CW-032) is inoperable,
effluent releases via this pathway may continue for up to 30 days
provided the flow rate is estimated at least once per 4 hours during
actual releases.

NOTE

If this procedure is aborted before any effluent is released, perform
Step G.27.a. through Step G.27.n. and realign the 0PR01J as
directed by the OPS Supervisor, then perform Step G.28. and Step
H. before exiting this procedure.

NOTE

The purpose of the release window is to minimize the interaction
with the City of Wilmington Water Department intake periods.

---

1.   OPS Supervisor performs the following:

____   a.   RECORD the START AFTER time from step B.2. and the START
                BEFORE time from BwOP WX-501T2, RELEASE TIME TABLE, using the
                River Flow Rate from step B.1. and the release duration from step D.6.f.:

            Start After _____   Start Before _____

G. 1. b. VERIFY release will start within release start time window recorded in step G.1.a. If release cannot start within times recorded in step G.1.a. this step is N/A. Proceed to step G.1.c.

_____/_____/_____
OPS Supervisor   Date   Time

c. To start release outside of release start time window recorded in step G.1.a. VERIFY Authorization to Release Outside of Release Window, BwOP WX-501T3, is completed and retained with this package.

_____/_____/_____
OPS Supervisor   Date   Time

NOTE

If this procedure must be exited prior to its completion, the following temporary alteration must be restored per Step G.26. prior to exit.

---

2. PERFORM the following if AAR 0BwOS RETS 2.1-1a is in effect for 0RE-PR001 (refer to Step B.5.):

_____ a. OBTAIN Shift Manager or designee permission to perform the following Temporary Electrical Alteration.

SM/DESIGNEE VERIFICATION _____

SUPERVISOR VERIFICATION _____

_____ b. REMOVE Relay Block K1 at 0PR01J (inside the AC Power Panel) to allow opening of 0WX896/353, Release Tank Disch Isolation Valve.

SUPERVISOR VERIFICATION _____

_____ c. LOCALLY, at 0PR01J, place 2 placards stating "K1 RELAY REMOVED FOR LIQUID RELEASE":

● ONE on the AC Power Panel for 0PR01J and,

● ONE on the Rad Detector Cabinet for 0PR01J.

G. 3. RECORD the following data in the space provided.

_____ a. Tank Level Start _____%
(OLR-WX011 at PNL OPL01J)

_____ b. VERIFY level in Step G.3.a. is ±5% OF LEVEL RECORDED IN Step A.2 (Page 1), or receive Supervisor approval to continue.

_____ c. RESET the Batch Totalizer reading to zero at PNL OPL01J for the flowpath being used. (This step may be marked N/A if Batch Totalizer is inoperable.)

_____ d. RESET the Cumulative Totalizer reading to zero at PNL OPL01J for the flowpath being used. (This step may be marked N/A if Cumulative Totalizer is inoperable.)

CAUTION
▼ Failure to record and use the correct maximum permissible release rate may result in violation of NPDES and/or 10CFR20 release criteria. ▼

_____ e. Maximum Release Rate from Step D.6.e. (page 15) _____ GPM

SUPERVISOR VERIFICATION _____

_____ 4. STOP 0WX36M, Release Tank Mixer (if applicable)

NOTE
Step G.5. is not applicable if Steps E.1. and E.2. were not required.

_____ 5. VERIFY Steps E.1. and E.2. (page 19) have been completed within the previous **24** hrs (If NOT, RE-PERFORM Steps E.1. and E.2.).

NOTE
Verification is required in Steps G.6. through G.13. if ORE-PR001 is inoperable and AAR 0BwOS RETS 2.1-1a has been initiated.

_____ 6. VERIFY/CLOSE 0AOV-WX834, Release Tank Inlet Isolation Valve for Release Tank 0WX01T.

SUPERVISOR VERIFICATION _____

G ___7.   VERIFY/CLOSE 0AOV-WX017, Release Tank Recycle Valve (Release Tank Discharge to Turbine Building Equipment Drain Tank Isolation Valve).

SUPERVISOR VERIFICATION _____

_____8.   VERIFY/CLOSE 0AOV-WX910, Release Tank Pump Disch Valve (Release Tank Discharge to Regeneration Waste Drain Tank).

SUPERVISOR VERIFICATION _____

_____9.   VERIFY/CLOSE 0AOV-WX302, Release Tank Discharge Control Valve/(High Flow Path).

SUPERVISOR VERIFICATION _____

_____10. VERIFY/CLOSE, 0AOV-WX897, Release Tank Discharge Flow Control valve/(Low Flow Path).

SUPERVISOR VERIFICATION _____

_____11. VERIFY/OPEN 0AOV-WX889, Release Tank Pump 0WX01P Discharge Isolation Valve.

SUPERVISOR VERIFICATION _____

NOTE

For releases through the low flow rate path, $\leq$ 130 GPM or as specified by OPS Supervisor, COMPLETE Step G.12 and mark step G.13 "N/A". For releases through the high flow rate path, mark Step G.12 "N/A" and PROCEED to Step G.13.

---

12.   Low Flow Release, PERFORM the following:

_____   a.   VERIFY Step E.8. (beginning on page 22) has been completed. (N/A if 0RE-PR001 is inoperable and AAR 0BwOS RETS 2.1-1a has been initiated)

_____   b.   OBTAIN the key for 0AOV-WX896, Release Tank Outlet Valve.

NOTE

If Circ. Water Blowdown Flow Low and/or Release Tank Disch
Header Radiation High alarms are lit, it may be necessary to reset
the Rel. Tank Disch Header & Isolation Valves 0WX896 & 0WX353
by pressing their reset button prior to opening 0AOV-WX896.

NOTE

Upon receipt of a high radiation signal at 0PR01J, the Release Tank
Discharge Valves, 0WX353 and 0WX896 will remain closed until the
high radiation signal seal-in is reset 0PL01J.

G ___ 12. c. OPEN 0AOV-WX896, Release Tank Outlet Isolation Valve.

SUPERVISOR VERIFICATION _____

_____ d. VERIFY/CLOSE 0AOV-WX015, Release Tank 0WX01T Pump Recirc
Valve.

SUPERVISOR VERIFICATION _____

_____ e. SLOWLY OPEN 0AOV-WX897, Release Tank Discharge Flow Control
Valve,(Low Flow Path) with controller 0FK-WX630, TO OBTAIN a
maximum discharge flowrate of 50 GPM, or less than 50 GPM if required
by Step D.6.e., for the first three (3) minutes of the release by checking at
least one of the following:

O Low Flow Totalizer increasing.

O Low Flow Recorder increasing.

O 0WX01T Level Recorder decreasing.

O Computer Point (F0002) for release rate increasing.

SUPERVISOR VERIFICATION _____

_____ f. RECORD Release Start Time _____:_____ Date: _____

SUPERVISOR VERIFICATION _____

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G ___12.   g.   SLOWLY OPEN 0AOV-WX897, Release Tank Discharge Flow Control Valve, with controller 0FK-WX630, To OBTAIN a release rate NOT to exceed the maximum release rate specified in Step G.3.e.

SUPERVISOR VERIFICATION _____

13.   High Flow Release, PERFORM the following:

___   a.   VERIFY Step E.9. (beginning on page 26) has been completed. (N/A if 0RE-PR001 is inoperable and AAR 0BwOS RETS 2.1-1a has been initiated.)

___   b.   OBTAIN the key for 0AOV-WX353, Release Tank Outlet Valve.

NOTE

If Circ. Water Blowdown Flow Low and/or Release Tank Disch Header Radiation High alarms are lit, it may be necessary to reset the Rel. Tank Disch Header & Isolation Valves 0WX896 & 0WX353 by pressing their reset button prior to opening 0AOV-WX353.

NOTE

Upon receipt of a high radiation signal at 0PR01J, the Release Tank Discharge Valves, 0WX353 and 0WX896 will remain closed until the high radiation signal seal-in is reset 0PL01J.

___   c.   OPEN 0AOV-WX353, Release Tank Outlet Isolation Valve.

SUPERVISOR VERIFICATION _____

___   d.   VERIFY/CLOSE 0AOV-WX015, Release Tank 0WX01T Pump Recirc. Valve.

SUPERVISOR VERIFICATION _____

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G __13. e. **SLOWLY OPEN 0AOV-WX302, Release Tank Discharge Flow Control Valve, with controller 0FK-WX001, TO OBTAIN** a maximum discharge flowrate of 50 GPM for the first three (3) minutes of the release by checking at least one of the following:

- ○ High Flow Totalizer increasing.

- ○ High Flow Recorder increasing.

- ○ 0WX01T Level Recorder decreasing.

- ○ Computer Point (F0001) for release rate increasing.

SUPERVISOR VERIFICATION ____

____ f. RECORD Release Start Time ____:____ Date: ____

SUPERVISOR VERIFICATION ____

____ g. **SLOWLY OPEN 0AOV-WX302, Release Tank Discharge Flow Control Valve, with controller 0FK-WX001, TO OBTAIN** a release rate not to exceed the maximum release rate specified in step G.3.e.

SUPERVISOR VERIFICATION ____

____14. RECORD the Release Rate ____Gal/Min

SUPERVISOR VERIFICATION ____
(LESS THAN MAXIMUM RATE DETERMINED IN STEP G.3.e.)

15. VERIFY the following:

NOTE
Step G.15.a. is not required if Batch and Cumulative Totalizers are not operable. Gallons released shall be determined per note prior to Step G.20.e. if both totalizers are not operable.

____ a. Batch Totalizer and/or Cumulative Totalizer readings increase. (It is acceptable, however, to observe no increase in the readings at low release rates).

> **NOTE**
>
> Step G.15.b. is not required if 0FR-WX630-1 or 0FR-WX630-2, as applicable, is inoperable and AAR 0BwOS RETS 2.1.1a has been identified.

G ___ 15.   b.   PERFORM a Channel Check per 0BwOSR 0.1-0 for 0FR-WX630-1 or 0FR-WX630-2, as applicable, by OBSERVING indication at 0PL01J.

> **NOTE**
>
> Step G.15.c. is not required if 0UR-CW032 is inoperable and AAR 0BwOS RETS 2.1-1a has been identified.

___   c.   PERFORM a channel check per 0BwOSR 0.1-0 for the Station Blowdown Flow Monitor by observing 0UR-CW032, indicated on Panel 0PM01J, or computer point F2400.

___   d.   RECORD Station Blowdown Flowrate during release: _____ gpm

___   e.   RECORD Station Blowdown Flowrate once per 24 Hr. on continuous release: _____ gpm   (N/A if not applicable)

___   f.   NOTIFY Control Room of release in progress.

___   g.   NOTIFY Shift Manager of release in progress.

G.   16.   PERFORM the following rate checks. REFER to Attachment A as needed.

a.   For the high flow rate path check the flow rate using a tank level calculation over a 10 minute interval against computer point F0001 or Flow Recorder. PERFORM this check twice at the beginning of the release and again when < 50% level. RECORD each flow rate obtained.

b.   For the low flow rate release path check the flow rate using a tank level calculation over a 10 minute interval against computer point F0002 or Flow Recorder. PERFORM this check twice at the beginning of the release. Providing the flow rates are consistent and below the allowed release rate the release flow rate checks can be relaxed to once every 30 minutes. RECORD each flow rate obtained.

			(Circle One)					
TIME		Computer Point Value F0001/F0002 (GPM)	OLR-WX011 Tank LEVEL (%)		Δt	Δl	329 X (Δl/Δt) = gpm	Operator*
Start	Stop		Start	Stop				

Where: Δt = Stop Time - Start TIME
Δl = Stop LEVEL - Start Level
329 = gallons per 1% tank level

*   After each check of flowrate, VERIFY the flowrate is less than the maximum release rate specified in step D.6.e. and/or G.3.e, if not, IMMEDIATELY NOTIFY the OPS Supervisor.

Attachment A
Liquid Release Rate Chart

%Level Change	% Time Change							
	5.00	10.00	15.00	20.00	25.00	30.00	35.00	40.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.50	32.90	16.45	10.97	8.23	6.58	5.48	4.70	4.11
1.00	65.80	32.90	21.9.	16.45	13.16	10.97	9.40	8.23
1.50	98.70	49.35	32.90	24.68	19.74	16.45	14.10	12.34
2.00	131.60	65.80	43.87	32.90	26.32	21.93	18.80	16.45
2.50	164.50	82.25	54.83	41.13	32.90	27.42	23.50	20.56
3.00	197.40	98.70	65.80	49.35	39.48	32.90	28.20	24.68
3.50	230.30	115.15	76.77	57.58	46.06	38.38	32.90	28.79
4.00	263.20	131.60	87.73	65.80	52.64	43.87	37.60	32.90
4.50	296.10	148.05	98.70	74.03	59.22	49.35	42.30	37.01
5.00	329.00	164.50	109.67	82.25	65.80	54.83	47.00	41.13
5.50	361.90	180.95	120.63	90.48	72.38	60.32	51.70	45.24
6.00	394.80	197.40	131.60	98.70	78.96	65.80	56.40	49.35
6.50	427.70	213.85	142.57	106.93	85.54	71.28	61.10	53.46
7.00	460.60	230.30	153.53	115.15	92.12	76.77	65.80	57.58
7.50	493.50	246.75	164.50	123.38	98.70	82.25	70.50	61.69
8.00	526.40	263.20	175.47	131.60	105.28	87.73	75.20	65.80
8.50	559.30	279.65	186.43	139.83	111.86	93.22	79.90	69.91
9.00	592.20	296.10	197.40	148.05	118.44	98.70	84.60	74.03
9.50	625.10	312.55	208.37	156.28	125.02	104.18	89.30	78.14
10.00	658.00	329.00	219.33	164.50	131.60	109.67	94.00	82.25
10.50	690.90	345.45	230.30	172.73	138.18	115.15	98.70	86.36
11.00	723.80	361.90	241.27	180.95	144.76	120.63	103.40	90.48
11.50	756.70	378.35	252.23	189.18	151.34	126.12	108.10	94.59
12.00	789.60	394.80	263.20	197.40	157.92	131.60	112.80	98.70
12.50	822.50	411.25	274.17	205.63	164.50	137.08	117.50	102.81
13.00	855.40	427.70	285.13	213.85	171.08	142.57	122.20	106.93
13.50	888.30	444.15	296.10	222.08	177.66	148.05	126.90	111.04
14.00	921.20	460.60	307.07	230.30	184.24	153.53	131.60	115.15
14.50	954.10	477.05	318.03	238.53	190.82	159.02	136.30	119.26
15.00	987.00	493.50	329.00	246.75	197.40	164.50	141.00	123.38
15.50	1019.90	509.95	339.97	254.98	203.98	169.98	145.70	127.49
16.00	1052.80	526.40	350.93	263.20	210.56	175.47	150.40	131.60
16.50	1085.70	542.85	361.90	271.43	217.14	180.95	155.10	135.71
17.00	1118.60	559.30	372.87	279.65	223.72	186.43	159.80	139.83
17.50	1151.50	575.75	383.83	287.88	230.30	191.92	164.50	143.94
18.00	1184.40	592.20	394.80	296.10	236.88	197.40	169.20	148.05
18.50	1217.30	608.65	405.77	304.33	243.46	202.88	173.90	152.16
19.00	1250.20	625.10	416.73	312.55	250.04	208.37	178.60	156.28
19.50	1283.10	641.55	427.70	320.78	256.62	213.85	183.30	160.39
20.00	1316.00	658.00	438.67	329.00	263.20	219.33	188.00	164.50
20.50	1348.90	674.45	449.63	337.23	269.78	224.82	192.70	168.61
21.00	1381.80	690.90	460.60	345.45	276.36	230.30	197.40	172.73
21.50	1414.70	707.35	471.57	353.68	282.94	235.78	202.10	176.84
22.00	1447.60	723.80	482.53	361.90	289.52	241.27	206.80	180.95
22.50	1480.50	740.25	493.50	370.13	296.10	246.75	211.50	185.06
23.00	1513.40	756.70	504.47	378.35	302.68	252.23	216.20	189.18
24.00	1579.20	789.60	526.40	394.80	315.84	263.20	225.60	197.40
24.50	1612.10	806.05	537.37	403.03	322.42	268.68	230.30	201.51
25.00	1645.00	822.50	548.33	411.25	329.00	274.17	235.00	205.63

Enter %
Change ■■■ Enter
Time ■■■ Flow Rate ■■■

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NOTE

Closing the 0AOV-WX889 will isolate sample flow to the 0RE-PR001, thus causing it to interlock, and subsequently close the applicable flow path's Release Tank Discharge Isolation Valve (0AOV-WX353 or 0AOV-WX896).

G. 17. IF the release MUST be interrupted to provide the operator a break when a relief is unavailable, THEN perform the following:

_____ a. Receive permission from the Shift Manager to secure the release for no more than 30 minutes.

_____ b. Make a log entry and an entry on the table in step G.16. denoting the time the release was stopped.

_____ c. OPEN 0AOV-WX015, Release Tank Pump 0WX01P Recirc Valve.

NOTE

Notify Main Control Room prior to closing 0AOV-WX889 as this action will generate an RM-11 alarm.

_____ d. CLOSE 0AOV-WX889, Release Tank Pump 0WX01P Discharge Isol Valve.

_____ e. VERIFY that the release has been stopped.

_____ f. MINIMIZE the pause in the release.

_____ g. NOTIFY Shift Manager that release will be started again.

_____ h. Make a log entry and an entry on the table in Step G.16. denoting the time which the release was restarted.

_____ i. OPEN 0AOV-WX889, Release Tank Pump 0WX01T Discharge Isol Valve.

_____ j. VERIFY Release Tank Discharge Header Radiation High alarm at 0PL01J CLEARS.

> **NOTE**
>
> Upon receipt of a high radiation signal at 0PR01J, the Release Tank Discharge Valves, 0WX353 and 0WX896 will remain closed until the high radiation signal seal-in is reset at 0PL01J.

G. ____17. k. VERIFY/OPEN 0AOV-WX353/896, Release Tank Discharge Isolation Valve, for the flow path being used.

____ l. CLOSE 0AOV-WX015, Release Tank 0WX01T Pump Recirc Valve.

> **NOTE**
>
> Tripping the release tank pump will stop sample flow to the 0RE-PR001, thus causing it to interlock. The main control room should be notified prior as this will generate an RM-11 alarm.

____18. WHEN the desired volume of water has been released from Release Tank 0WX01T, TRIP Release Tank Pump 0WX01P.

> **NOTE**
>
> Verification is required for step G.19. if 0RE-PR001 is inoperable and AAR 0BwOS RETS 2.1-1a has been initiated.

____19. CLOSE 0AOV-WX302/897, Release Tank Discharge Flow Control Valve.

SUPERVISOR VERIFICATION ____

20. RECORD the following:

____ a. Release Stop Time: ____:____ Date: _____

____ b. Tank Level Final _____%

____ c. Batch Totalizer Reading x10 = _____ gals (if operable)

____ d. Cumulative Totalizer
Reading Final x10 = _____ gals (if operable)

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> **NOTE**
> At low release rates or if Batch and Cumulative Totalizers are inoperable, the gallons released may be calculated by multiplying the percent decrease in tank level by **329** gallons.

G ___20.   e. ·· RECORD Gallons Released by one of the following:

     O   TOTALIZER READING _____ gallons Date:_____

     O   (_____ - _____) X **329** = _____gals
            (Step G.3.a. - Step G.20.b)

                              Calculation Date: _____

_____   f.   NOTIFY the Shift Manager that the release is complete.

_____   g.   NOTIFY the Control Room that the release is complete.

> **NOTE**
> Verification is required for steps G.21. and G.23. if 0RE-PR001 is inoperable and AAR 0BwOS RETS 2.1-1a has been initiated.

_____21.   VERIFY 0AOV-WX353, Release Tank Discharge Valve to Circ. Water Blowdown, LOCKED CLOSED.

     SUPERVISOR VERIFICATION _____

_____22.   RECORD time when key was removed from key lock switch for 0AOV-WX353, Release Tank Discharge Valve to Circ. Water Blowdown.   ___:___
(N/A if this flowpath was not used)

_____23.   VERIFY 0AOV-WX896, Release Tank Discharge Valve to Circ. Water Blowdown, LOCKED CLOSED.

     SUPERVISOR VERIFICATION _____

_____24.   RECORD time when key was removed from key lock switch for 0AOV-WX896, Release Tank Discharge Valve to Circ. Water Blowdown. _____:_____
(N/A if this flowpath was not used)

_____25.   CLOSE 0AOV-WX889 Release Tank 0WX01P Discharge Isolation Valve.

G.   26.   If Relay Block K1 at 0RE-PR001 was removed in step G.2., then

_____   a.   NOTIFY Shift Manager that the temporary Electrical Alterations being restored.

_____   b.   REPLACE Relay Block K1 at 0RE-PR001, AND

SUPERVISOR VERIFICATION _____

_____   c.   REMOVE the two placards stating "K1 RELAY REMOVED FOR LIQUID RELEASE", that were placed in Step G.2.c.

_____   d.   If the Electrical Alteration cannot be restored, process a temporary alteration.

27.   Backflush the 0PR01J radiation monitor as follows:

_____   a.   VERIFY release tank 0WX01T is less than 96%.

▼ **CAUTION**
Do not back flush the Radiation Monitor for a period of time such that the release tank level exceeds 97%. ▼

NOTE
Steps G.27.b. through G.27.n. may be omitted at OPS Supervisor discretion if 0RE-PR001 is INOPERABLE and AAR-BwOS RETS 2.1-1a has been initiated.

NOTE
NOTIFY the Control Room that you will be flushing 0PR01J and that they will be receiving an alarm on RM11.

_____   b.   VERIFY/OPEN 0WM897, WM Header Isolation Valve

_____   c.   CLOSE 0WX354, Release Tank Discharge to Process Rad Monitor System.

_____   d.   OPEN 0PR052, WX discharge to 0RE-PR001 Sample Connection.

_____   e.   OPEN 0PR050, 0PR01J Backflush Isolation Valve

G ___27. f.   OPEN 0WM898, 0PR01J WM Supply Header Valve

_____   g.   WAIT 1 minute

_____   h.   CLOSE 0PR5004, Skid 0PR01J Flow Isolation Valve

_____   i.   FLUSH 0PR01J, Radiation Monitor for 15 minutes

_____   j.   CLOSE 0PR050, 0PR01J Backflush Isolation Valve

_____   k.   CLOSE 0WM898, 0PR01J WM Supply Header Valve

_____   l.   OPEN 0PR5004, Skid 0PR01J Flow Isolation Valve

_____   m.   CLOSE 0PR052, WX discharge to 0RE-PR001 Sample Connection.

_____   n.   OPEN 0WX354, Release Tank Discharge to Process Rad Monitor System

          o.   Perform the following:

_____   1)   OPEN "NO EPN", 0PR01J Return to 0WX26T.

_____   2)   CLOSE "NO EPN", 0PR01J Return to 0WX01T.

_____   3)   Update Placard on Radwaste Control Panel to indicate that 0PR01J is lined up to 0WX26T.

28.   OPS Supervisor: I have reviewed Part G and have verified it is accurate and complete.

_____ /_____/_____
OPS Supervisor   Date   Time

H.   CONTROL ROOM SUPERVISOR RESPONSIBILITY

> **NOTE**
> If the current activity level recorded in step H.1. is greater than
> 1.31 E-4 µCi/ml, INITIATE a work request to decontaminate the
> 0RE-PR001 sample chamber.

_____1.   RECORD the current reading for 0RE-PR001 (0PS101).

_____µCi/ml   Date: _____

> **NOTE**
> Step H.2.a. is not required if 0RE-PR001 is inoperable and AAR
> 0BwOS RETS 2.1-1a has been initiated. Step H.2.b. is not required
> if 0RE-PR010 is inoperable and AAR 0BwOS RETS 2.1-1a has been
> initiated.

2.   SET the Rad Monitor 0RE-PR001 (0PS101) and 0RE-PR010 (0PS110) to their
     original setpoints as follows:

_____ a.   RESET the ALERT Alarm and HIGH Alarm setpoints for 0RE-PR001
              (0PS101) to their original values by performing the following:

              VERIFICATION _____

              1)   PLACE the RM-11 Console in SUPERVISOR MODE.

              2)   SELECT the ALERT alarm setpoint (channel item 10) to be
                   changed on the 0RE-PR001 (0PS101) CHAN ITEMS display by
                   KEYING in 10 and DEPRESSING the SEL key. (Following this
                   CHAN ITEM 10 should be displayed in reverse characters.)

              3)   ENTER the original ALERT alarm setpoint USING the format
                   XYZ ± AB. The CHAN ITEM 10 ALERT Alarm setpoint is
                   6.56E-5 µCi/ml, enter this as 6.56-5 and DEPRESS the ENTER
                   key. The new value will be displayed after a short delay.

              4)   SELECT the HIGH alarm setpoint (channel item 9) to be changed
                   on the 0RE-PR001 (0PS101) CHAN ITEMS display by KEYING in
                   9 and DEPRESSING the SEL key. (Following this CHAN ITEM 9
                   should be displayed in reverse characters.)

H.   2.   a.   5)   ENTER the original HIGH alarm setpoint USING the format XYZ ± AB. The CHAN ITEM 9 HIGH Alarm setpoint is 1.31E-4 µCi/ml, enter this as 1.31-4 and DEPRESS the ENTER key. The new value will be displayed after a short delay.

b.   RESET the ALERT and HIGH setpoints for 0RE-PR010 to their original values by performing the following:

VERIFICATION _____

1)   SELECT the ALERT alarm setpoint (channel item 10) to be changed on the 0RE-PR010 (0PS110) CHAN ITEMS display by KEYING in 10 and DEPRESSING the SEL key. (Following this CHAN ITEM 10 should be displayed in reverse characters.)

2)   ENTER the original ALERT alarm setpoint USING the format XYZ ± AB. The CHAN ITEM 10 ALERT Alarm setpoint is 5.73E-6 µCi/ml, enter this as 5.73-6 and DEPRESS the ENTER key. The new value will be displayed after a short delay.

3)   SELECT the HIGH alarm setpoint (channel item 9) to be changed on the 0RE-PR010 (0PS110) CHAN ITEMS display by KEYING in 9 and DEPRESSING the SEL key. (Following this CHAN ITEM 9 should be displayed in reverse characters.)

4)   ENTER the original HIGH alarm setpoint USING the format XYZ ± AB. The CHAN ITEM 9 HIGH Alarm setpoint is 8.19E-6 µCi/ml, enter this as 8.19-6 and DEPRESS the ENTER key. The new value will be displayed after a short delay.

5)   PLACE the RM-11 Console in the NORMAL MODE.

```
┌─────────────────────────────────────────────────────────────┐
│                           NOTE                               │
│  DO NOT isolate Circulating Water Blowdown until at least     │
│  three and one-half (3.5) hours after the release stop time   │
│  recorded in step G.20.a. to ensure the entire release tank   │
│  effluent has passed through the Circulating Water Blowdown   │
│  pipe to the Kankakee River.                                  │
│                                                               │
│  Control of Circulating Water Blowdown Flow Limitations may   │
│  be transferred to an Equipment Status Tag for the purpose of │
│  completing this package. The Equipment Status Tag must       │
│  specify the time and date for completion of the 3.5 hour     │
│  flush requirement. This method is most applicable when       │
│  performing multiple releases in one day. If control is       │
│  transferred to an Equipment Status Tag, Step H.3. may be     │
│  marked as "Condition Met".                                   │
└─────────────────────────────────────────────────────────────┘
```

H_____3.   3.5 hours or more after the time recorded in step G.20.a., REMOVE the placard stating "Liquid Release in Progress" at 0PM01J.

_____4.   RECORD the Time and Date "Liquid Release in Progress" placard is removed at 0PM01J:

Time: _____ : _____   Date: _____

5.   FORWARD this form to Health Physics to complete Section I.

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I.   HEALTH PHYSICS SUPERVISION

> **NOTE**
> If a computerized release program is available, you may attach the printout to this form and indicate "see attached" in the calculation spaces in step I.1. below.

_____1.   COMPLETE the table below for each isotope identified in step D.6.a.:

Isotope	Total Activity Released (µCi) *	Isotope	Total Activity Released (µCi)

Sum of activities above = _____

*   OBTAIN by multiplying each number in column #2 of table in step D.6.a. by total volume released from step G.20.e. (in ml)(ml=gal x 3785)

Total ml released = _____ ml

_____2.   Health Physics Supervision SHALL VERIFY compliance with 10CFR50 dose limits, as specified in ODCM Radioactive Effluent Technical Standard 12.3.2.A, by ENTERING release data into the 10CFR50 ODCM Liquid Release Program per BwRP 6110-8.

(Final)

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RELEASE TIME TABLE

RIVER FLOW (CFS)		MINIMUM RELEASE DURATION (MINUTES)											
		<60	61-120	121-180	181-240	241-300	301-360	361-390	391-420	421-450	451-480	481-510	>510
<1100	start after	23:30	23:30	23:30	23:30	23:30	23:30	23:30	23:30	23:30	23:30	23:30	23:30
	start before	07:30	06:30	05:30	05:00	04:30	04:00	03:30	03:00	02:30	02:00	01:30	01:00
1100-1300	start after	00:45	00:45	00:45	00:45	00:45	00:45	00:45	00:45	00:45	00:45	00:45	00:45
	start before	08:30	07:30	06:30	06:00	05:30	05:00	04:30	04:00	03:30	03:00	02:30	02:00
1301-1500	start after	02:00	02:00	02:00	02:00	02:00	02:00	02:00	02:00	02:00	02:00	02:00	02:00
	start before	09:45	08:45	07:45	07:15	06:45	06:15	05:45	05:15	04:45	04:15	03:45	03:15
1501-1800	start after	03:15	03:15	03:15	03:15	03:15	03:15	03:15	03:15	03:15	03:15	03:15	03:15
	start before	11:00	10:00	09:00	08:30	08:00	07:30	07:00	06:30	06:00	05:30	05:00	04:30
1801-2000	start after	04:00	04:00	04:00	04:00	04:00	04:00	04:00	04:00	04:00	04:00	04:00	04:00
	start before	12:15	11:15	10:15	09:45	09:15	08:45	08:15	07:45	07:15	06:45	06:15	05:45
2001-2400	start after	05:00	05:00	05:00	05:00	05:00	05:00	05:00	05:00	05:00	05:00	05:00	05:00
	start before	13:00	12:00	11:00	11:00	10:00	09:30	09:00	08:30	08:00	07:30	07:00	06:30
2401-2900	start after	06:00	06:00	06:00	06:00	06:00	06:00	06:00	06:00	06:00	06:00	06:00	06:00
	start before	14:00	13:00	12:00	12:00	11:00	10:30	10:00	09:30	09:00	08:30	08:00	07:30
2901-3500	start after	07:00	07:00	07:00	07:00	07:00	07:00	07:00	07:00	07:00	07:00	07:00	07:00
	start before	15:00	14:00	13:00	13:00	12:00	11:30	11:00	10:30	10:00	09:30	09:00	08:30
3501-4400	start after	08:00	08:00	08:00	08:00	08:00	08:00	08:00	08:00	08:00	08:00	08:00	08:00
	start before	16:00	15:00	14:00	14:00	13:00	12:30	12:00	11:30	11:00	10:30	10:00	09:30
4401-5600	start after	09:00	09:00	09:00	09:00	09:00	09:00	09:00	09:00	09:00	09:00	09:00	09:00
	start before	17:00	16:00	15:00	15:00	14:00	13:30	13:00	12:30	12:00	11:30	11:00	10:30
5601-7500	start after	10:00	10:00	10:00	10:00	10:00	10:00	10:00	10:00	10:00	10:00	10:00	10:00
	start before	18:00	17:00	16:00	16:00	15:00	14:30	14:00	13:30	13:00	12:30	12:00	11:30
>7501	start after	11:00	11:00	11:00	11:00	11:00	11:00	11:00	11:00	11:00	11:00	11:00	11:00
	start before	19:00	18:00	17:00	17:00	16:00	15:30	15:00	14:30	14:00	13:30	13:00	12:30

≈USGS

Real-Time Data for
Kankakee River near Wilmington, Il (05527500)

Disclaimer: USGS data on this page have not received Director's approval and as such are provisional and subject to revision. The data are released on the condition that neither the USGS nor the United States Government may be held liable for any damages resulting from their use.

Data from other agencies are displayed for informational purposes only. The USGS is not involved with the collection, checking, and analysis of other agency data. Questions and/or comments concerning other agency data should be directed to the respective agency

More information about the quality of real-time data is available.

Most recent reading

Date	Time (CST)	Stage (ft above datum)	Streamflow (cfs)	Datum (ft above NGVD)
04/20/2002	07:45:00	2.72	7580	510.86

Retrieve real-time data

Please select the type(s) of data and the number of days of data you wish to retrieve and the format you would like for the output. After you have selected the data type(s), days of data, and output format please select **Retrieve Data** to receive the data.

Data types to retrieve:
☑ Stage (ft above datum)
☑ Streamflow (cfs)

How many days of data?
◉ 7 days ○ 30 days

Output format:
◉ Graph (Tips on retrieving and saving graphs)
 Graph size:
 ◉ Large Graph
 ○ Small Graph

○ Tab-delimited text data file (Tips on retrieving and saving text data files)
 Date format:

Liquid Release L-02-049

Release Tank
◉ OWX01T   ○ OWX26T

Outage Tank per step A.7?
◉ Yes   ○ No

Release number	L-02-049
Tank level %	84	< 100%
Circ water rate	8000	gpm
Chemistry Release	311.0	gpm

Tank Volume	1.05E+08 ml
Act w/o H-3, NG	1.67E-03 Ci

Tank is below Admin Limit of 0.003 Curies

Rad Release Rate	416 gpm
Max Release Rate	311 gpm
Release Duration	78 min

ORE-PR001   Liquid Effluent
☐ Check if ORE-PR001 is in LCOAR

Background	6.86E-06	μCi/ml
Calculated Setpoint	6.83E-05	μCi/ml
High Setpoint	1.31E-04	μCi/ml
Alert Setpoint	6.83E-05	μCi/ml

ORE-PR010   Station Blowdown
☐ Check if ORE-PR010 is in LCOAR

Background	2.67E-06	μCi/ml
Calculated Setpoint	4.58E-06	μCi/ml
High Setpoint	8.19E-06	μCi/ml
Alert Setpoint	5.73E-06	μCi/ml

Column #		2	3	4	5
		Agree Ratio (max/min)	Average Tank Activity	Tech Spec Limit	Fraction of Limit	Unrestricted Area DWC Fraction
	8104		H-3	9.13E-02	1.00E-02	9.13E+00	3.42E-01
	04/20/2002 10:51		TOTAL	4.09E-05	TOTAL	9.62E+00	3.60E-01
	04/20/2002 11:09		Column #	2	3	4	5
			Agree Ratio (max/min)	Average Tank Activity	Tech Spec Limit	Fraction of Limit	Unrestricted Area DWC Fraction
Mn-54	9.55E-07			9.55E-07	3.00E-04	3.18E-03	1.19E-04
Co-57	6.69E-08			6.69E-08	6.00E-04	1.11E-04	4.17E-06
Co-58	4.02E-06			4.02E-06	2.00E-04	2.01E-02	7.52E-04
Co-60	1.01E-05			1.01E-05	3.00E-05	3.37E-01	1.26E-02
Kr-85	2.49E-05			2.49E-05	2.00E-04	1.25E-01	4.67E-03
Nb-95	3.46E-07			3.46E-07	3.00E-04	1.15E-03	4.32E-05
Te-123m	1.88E-07			1.88E-07	1.00E-04	1.88E-03	7.03E-05
Sb-125	3.24E-07			3.24E-07	3.00E-04	1.08E-03	4.04E-05

Liquid Scintillation Analyzer Model 2500TR

TRITIUM SAMPLE DATA SHEET

Serial Number# 40?003

Date: 4/20/2002

Analyst: JEW

CORRECTED

		BLANK	OWXOIT L-02-049			
1.	Sample Name					
2.	Date/Time Sample Obtained	N/A	1051 4/20/02			
3.	Sample Number	1				
4.	Count Duration (min)		2			
5.	Blank CPMA	10	5			
6.	DPM1	3.80	N/A	N/A	N/A	
7.	Sample Amount (g)	N/A	405226			N/A
8.	Tritium Activity (µCi/g)	2.0	2.0			
		N/A	0.0913			

*   For Water Sample Calculations Activity (µCi/g) = $\dfrac{DPM\ 1}{(2.22E6)(grams\ of\ sample)}$

*   For Silica Gel Calculations - See BwCP 220-2

Remarks: _____

APPROVED

APR 14 1996   (Final)

BRAIDWOOD
ON SITE REVIEW   1

CURRENT DATE: 20-APR-2002 12:01:10.90
STATION NAME: BRAIDWOOD

OWX01T RELEASE TK (GRAB ONLY)   RELEASE # L-02-049

GENERAL LIQUID RADIONUCLIDE ANALYSIS

CONFIGURATION FILE.....: SYS$SYSDEVICE:[CRU.SAMP]21P845A_SAMP_8104.CNF;1
BKGND SUBTRACTION FILE.:
DATE-TIME SAMPLE OBTAINED....: 20-APR-2002 10:51:00.00
DATE-TIME SAMPLE ANALYZED....: 20-APR-2002 11:09:43.99

COLLECTOR'S INITIALS...: JRW   ANALYST'S INITIALS......: JRW
DETECTOR SERIAL NUMBER..: 21P845A   GEOMETRY TYPE...........: MRLIQ450

ENERGY CALIB GAIN.......: 4.99970E-01 FWHM CALIB GAIN.........: 4.23070E-02
ENERGY CALIB OFFSET.....: 4.65430E-02 FWHM CALIB OFFSET.......: 2.08315E-01
DETECTOR SERIAL NUMBER..: 21P845A   ENERGY CALIBRATION TYPE..: Daily
SAMPLE CODE.............: RWOWX01T   SAMPLE VOLUME/MASS.......: 4.49690E+02
SAMPLE VOLUME/MASS UNITS: g   SAMPLE POINT............:
NUCLIDE LIBRARY........: LIQWASTE   INTERFERENCE FILE NAME...:
COUNT LIVE TIME.........................: 0 00:50:00.00
COUNT REAL TIME.........................: 0 00:50:01.91
CALIBRATION DATE........................: 9-DEC-1997 09:04:26.93
DEPARTMENT..............................: S2DB OWX01T
REMARK...:
DET COUNTS (IF CTS=0, PUT DET OOS AND CONTACT MANAGEMENT)..: 72419
TANK VOLUME (GALLONS)...................: 27636.

Summary of Nuclide Activity

Total number of lines in spectrum   11
Number of unidentified lines   1
Number of lines tentatively identified by NID 10   90.91%

Nuclide Type : VALID

Nuclide	Hlife	Decay	Wtd Mean Uncorrected UCI/g	Wtd Mean Decay Corr UCI/g	Decay Corr 1-Sigma Error	1-Sigma %Error	Flags
N-54	312.14D	1.00	9.548E-07	9.549E-07	1.127E-07	11.81	
O-57	271.70D	1.00	6.686E-08	6.687E-08	2.836E-08	42.41	
O-58	70.82D	1.00	4.019E-06	4.020E-06	0.308E-06	7.65	
O-60	5.27Y	1.00	1.010E-05	1.010E-05	0.052E-05	5.10	
R-85	10.72Y	1.00	2.494E-05	2.494E-05	1.149E-05	46.06	
B-95	35.06D	1.00	3.462E-07	3.464E-07	0.780E-07	22.52	
E-123M	119.70D	1.00	1.879E-07	1.879E-07	0.271E-07	14.44	
B-125	2.76Y	1.00	3.238E-07	3.238E-07	1.400E-07	43.25	
Total Activity :			4.094E-05	4.095E-05			

Nuclide Type : QIO

Nuclide	Hlife	Decay	Wtd Mean Uncorrected UCI/g	Wtd Mean Decay Corr UCI/g	Decay Corr 1-Sigma Error	1-Sigma %Error	Flags
NH-511	100.00Y	1.00	0.000E+00	0.000E+00	0.000E+00	0.00	
Total Activity :			0.000E+00	0.000E+00			

Grand Total Activity :   4.094E-05   4.095E-05

Flags: "K" = Keyline not found   "M" = Manually accepted
       "E" = Manually edited   "A" = Nuclide specific abn. limit

[r	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides
ι	122.25	93	471	0.81	244.42	241	8	41.8		CO-57
0	159.15	256	307	0.77	318.22	315	6	12.5		TE-123M
0	427.58	72	247	1.53	855.12	851	10	42.7		SB-125
9	510.85	664	341	2.40	1021.67	1014	16	7.1	1.15E+00	ANH-511
9	513.02	68	166	1.31	1026.02	1014	16	45.5		KR-85
0	765.81	148	199	1.58	1531.62	1526	13	21.4		NB-95
0	810.68	1617	181	1.46	1621.37	1616	11	3.0		CO-58
0	834.65	375	200	1.70	1669.31	1664	14	9.5		MN-54
0	1161.36	37	46	0.58	2322.77	2316	11	39.8		
0	1173.13	2829	114	1.80	2346.32	2338	17	2.1		CO-60
0	1332.44	2533	30	1.81	2664.96	2655	20	2.1		CO-60

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
	1161.36	37	46	0.58	2322.77	2316	11	1.22E-02	39.8	5.70E-01	

Flags: "T" = Tentatively associated

↳ I-135 not counted low Abundance

\ .ide Type: VALID

Nuclide	Energy	%Abn	%Eff	Uncorrected UCI/g	Decay Corr UCI/g	1-Sigma %Error	Status
MN-54	834.84	99.98*	7.880E-01	9.548E-07	9.549E-07	11.81	OK

Final Mean for 1 Valid Peaks = 9.549E-07+/- 1.127E-07 (11.81%)

| CO-57 | 122.06 | 85.60* | 3.248E+00 | 6.686E-08 | 6.687E-08 | 42.41 | OK |
| | 136.47 | 10.58 | 3.316E+00 | ----- | Line Not Found | ----- | Absent |

Final Mean for 1 Valid Peaks = 6.687E-08+/- 2.836E-08 (42.41%)

CO-58	810.77	99.40*	8.109E-01	4.019E-06	4.020E-06	7.65	OK
	863.93	0.68	7.617E-01	-----	Line Not Found	-----	Absent
	1674.68	0.52	4.106E-01	-----	Line Not Found	-----	Absent

Final Mean for 1 Valid Peaks = 4.020E-06+/- 3.077E-07 (7.65%)

| CO-60 | 1173.24 | 99.90 | 5.643E-01 | 1.005E-05 | 1.005E-05 | 7.32 | OK |
| | 1332.50 | 99.98* | 5.002E-01 | 1.015E-05 | 1.015E-05 | 7.12 | OK |

Final Mean for 2 Valid Peaks = 1.010E-05+/- 5.154E-07 (5.10%)

| SR-85 | 514.01 | 0.43* | 1.265E+00 | 2.494E-05 | 2.494E-05 | 46.06 | OK |

Final Mean for 1 Valid Peaks = 2.494E-05+/- 1.149E-05 (46.06%)

| -??? | 765.79 | 99.81* | 8.576E-01 | 3.462E-07 | 3.464E-07 | 22.52 | OK |

Final Mean for 1 Valid Peaks = 3.464E-07+/- 7.799E-08 (22.52%)

| -123M | 159.00 | 84.10* | 3.241E+00 | 1.879E-07 | 1.879E-07 | 14.44 | OK |

Final Mean for 1 Valid Peaks = 1.879E-07+/- 2.713E-08 (14.44%)

125	116.95	0.26	3.186E+00	-----	Line Not Found	-----	Absent
	176.33	6.79	3.109E+00	-----	Line Not Found	-----	Absent
	204.13	0.32	2.854E+00	-----	Line Not Found	-----	Absent
	208.09	0.24	2.817E+00	-----	Line Not Found	-----	Absent
	227.91	0.13	2.636E+00	-----	Line Not Found	-----	Absent
	380.43	1.52	1.680E+00	-----	Line Not Found	-----	Absent
	427.89	29.40*	1.505E+00	3.238E-07	3.238E-07	43.25	OK
	443.50	0.30	1.453E+00	-----	Line Not Found	-----	Absent
	463.38	10.45	1.394E+00	-----	Line Not Found	-----	Absent
	600.56	17.78	1.087E+00	-----	Line Not Found	-----	Absent
	606.64	5.02	1.076E+00	-----	Line Not Found	-----	Absent
	635.90	11.32	1.028E+00	-----	Line Not Found	-----	Absent
	671.41	1.80	9.752E-01	-----	Line Not Found	-----	Absent

Final Mean for 1 Valid Peaks = 3.238E-07+/- 1.400E-07 (43.25%)

.ide Type: QIO

d	Energy	%Abn	%Eff	Uncorrected UCI/g	Decay Corr UCI/g	1-Sigma %Error	Status
:	511.00	0.00*	1.270E+00	0.000E+00	0.000E+00	0.00	OK

Final Mean for 1 Valid Peaks = 0.000E+00+/- 0.000E+00 (0.00%)

Flag: "*" = Keyline

Nuclide	Half-life	Half-Life Ratio	Energy	%Abund	Activity (UCI/g)	1-Sigma %Error	Rejected by
I 2	2.30H	0.32	505.90	5.03	--- Not Found ---		Abun.
			522.65	16.10	--- Not Found ---		
			630.22	13.70	--- Not Found ---		
			667.72*	98.70	--- Not Found ---		
			671.60	5.20	--- Not Found ---		
			727.20	3.20	--- Not Found ---		
			772.60	76.20	--- Not Found ---		
			809.80	2.90	1.712E-04	12.87	
			812.20	5.60	--- Not Found ---		
			954.55	18.10	--- Not Found ---		
			1398.57	7.10	--- Not Found ---		
		% Abundances Found =		1.15	(Abn. Limit = 69.00%)		
I-134	52.60M	0.83	405.45	7.30	--- Not Found ---		Abun.
			540.83	7.80	--- Not Found ---		
			595.36	11.40	--- Not Found ---		
			621.79	10.60	--- Not Found ---		
			677.34	8.50	--- Not Found ---		
			766.68	4.10	1.473E-05	23.68	
			847.03*	95.40	--- Not Found ---		
			857.28	6.96	--- Not Found ---		
			884.09	65.30	--- Not Found ---		
			1072.55	15.30	--- Not Found ---		
			1136.16	9.70	--- Not Found ---		
			1806.84	5.70	--- Not Found ---		
		% Abundances Found =		1.65			

1   "*" = Keyline

No interference correction performed

Nuclide	Bckgnd Sum	Energy (keV)	MDA (UCI/g)
NA-24	8.	1368.63	6.8932E-08
CL-38	1.	1642.42	2.4031E-07
K-40	16.	1460.81	0.0000E+00
AR-41	19.	1293.64	1.1935E-07
CR-51	180.	320.08	6.7095E-07
MN-56	108.	846.76	1.6185E-07
CO-58SUM	7.	1620.00	0.0000E+00
FE-59	134.	1099.25	3.3441E-07
CU-64	6.	1345.88	1.2618E-05
NI-65	9.	1481.84	3.8413E-07
ZN-65	144.	1115.55	3.9053E-07
ZN-69M	118.	438.63	7.9329E-08
SE-75	227.	136.00	7.4218E-08
AS-76	146.	559.08	2.3077E-07
BR-82	140.	776.52	1.6578E-07
KR-85M	225.	151.19	6.5637E-08
KR-87	133.	402.58	2.1086E-07
KR-88	226.	196.32	2.2813E-07
KR-88SE	5.	1881.11	0.0000E+00
RB-88	1.	1836.00	8.4539E-07
SR-91	91.	1024.30	4.7556E-07
Y-92	206.	934.46	1.6342E-06
ZR-95	139.	756.72	2.4013E-07
NB-97	152.	657.92	1.2650E-07
NR-97	121.	743.36	1.3587E-07
MO-99	185.	140.51	4.4323E-08
TC-99M	185.	140.51	4.5135E-08
AG-110M	162.	306.81	4.5932E-07
SN-113	153.	657.76	1.2864E-07
SB-122	147.	391.70	1.1154E-07
SB-124	114.	564.24	1.3092E-07
SB124ESC	153.	602.73	1.1388E-07
SB124SUM	125.	669.00	0.0000E+00
TE-125M	14.	1248.60	0.0000E+00
SB-126	181.	109.28	1.5138E-05
SB-126M	124.	666.33	1.1160E-07
TA-131	122.	414.70	3.5076E-07
I-131	155.	496.31	1.9888E-07
TE-131M	133.	364.48	7.9784E-08
I-132	204.	163.93	2.2065E-06
TE-132	129.	667.72	1.4254E-07
XA-133	245.	228.16	6.5587E-08
I-133	133.	356.02	1.0166E-07
TE-133	123.	529.87	1.0542E-07
TE-133M	168.	81.00	1.7535E-07
I-134	214.	233.22	5.3676E-07
TE134SUM	156.	604.70	1.1570E-07
I-134	1.	1400.00	0.0000E+00
I-135	113.	847.03	2.4645E-07
XE-135	19.	1260.41	3.3111E-07
XE-135M	190.	249.79	6.4070E-08
I-136	127.	526.57	6.5283E-07
I-137	95.	818.50	1.1998E-07
CS-138	122.	661.66	1.2857E-07
	7.	1435.86	2.0403E-07
LA-140	203.	165.85	2.6053E-07
	149.	537.32	4.0394E-07

Nuclide	Bckgnd Sum	Energy (keV)	MDA (UCI/g)
LA-140	7.	1596.18	7.6607E-08
BA-141	215.	190.22	4.4123E-07
CE-141	202.	145.44	8.6193E-08
CE-144	175.	133.54	3.5019E-07
HF-181	119.	482.00	9.2877E-08
W-187	104.	685.74	4.0601E-07
BI-214	170.	609.32	2.6457E-07
PB-214	148.	351.90	0.0000E+00
NP-239	153.	106.12	1.7854E-07
511+511	16.	1321.77	0.0000E+00

Reviewed by: _____ ℛℋ _____   Date: ___420·02___

JOB PERFORMANCE MEASURE

TASK TITLE: **Activate the Emergency Response Data System (ERDS).**

JPM No.: **N-160**

REV: <u>0</u>

TPO No.: IV.F.ZP-04

K&A No.: (2.4.29)

TASK No.: ZP-007

K&A IMP: 2.6 / 4.0

TRAINEE:_____

EVALUATOR:_____

DATE:_____

The Trainee: PASSED _____ this JPM.

TIME STARTED: _____

FAILED _____

TIME FINISHED: _____

CRITICAL ELEMENTS: (*) 2,3

JPM TIME:_____ MINUTES

CRITICAL TIME: **N/A**

APPROX COMPLETION TIME **11** MINUTES

EVALUATION METHOD:

LOCATION:

____**X**____ PERFORM

_____ IN PLANT

_____ SIMULATE

__**X**__ SIMULATOR

GENERAL REFERENCES:

1. EP-MW-110-100 "ERO Computer Applications"

MATERIALS: Copy of EP-MW-110-100, Attachment 1.
PC with ERO Applications.

TASK STANDARDS:

1. Activate the electronic data link (ERDS).
2. Demonstrates the use of good Core Work Practices.

TASK CONDITIONS:

1. You are an extra NSO.
2. The Emergency Response Data System (ERDS) is not yet activated.

INITIATING CUES:

1. Plant conditions changed resulting in an upgrade of the Emergency classification from Unusual Event to Alert.
2. The Shift Manager has directed you to activate the Emergency Response Data System from the NSO desk for Unit 1 per EP-MW-110-100, Attachment 1.

Examiner's Note: Do Not allow examinee to select REAL Mode. See note next page.

1

PERFORMANCE CHECKLIST	STANDARD	SAT	UNSAT	N/A

RECORD START TIME _____

Note: To prevent actual activation of the ERDS, when the examinee gets to the point of selecting the mode (REAL, SIMULATOR, or EXERCISE) for ERDS activation from the GSEP Suite, ask which mode he would select. (Correct answer is REAL). Cue the examinee to select SIMULATOR.

		STANDARD	SAT	UNSAT	N/A
1.	Refer to EP-MW-110-100, Attachment 1.	Locate and Open • EP-MW-110-100, Attachment 1.	☐	☐	☐
*2.	Refer to EP-MW-110-100, Attachment 1.	Perform the following from PC keyboard:	☐	☐	☐
	(CUE: **Ask which mode examinee intends to select prior to actual selection, cue the examinee to select EXERCISE Mode.**)	• START MENU • SITE APPS • ERO Applications o ANSWER Question REAL • SELECT EXERCISE Mode			
*3.	Select ERDS Icon.	Perform the following to activate ERDS: • SELECT ERDS Icon • At the next screen, SELECT Braidwood Station. • Click OK. • At the next screen, enter the password "SCOUT". • Click OK. • Click box labeled 'Turn On' o Compare the status of ERDS programs on the screen to verify ERDS is on for the appropriate unit(s).	☐	☐	☐

(CUE:) THIS COMPLETES THIS JPM.

RECORD STOP TIME _____

COMMENTS:

N-160 (6/21/01)
ZD73EXAM

TASK CONDITIONS:

1. You are an extra NSO.
2. The Emergency Response Data System (ERDS) is not yet activated.

INITIATING CUES:

1. Plant conditions changed resulting in an upgrade of the Emergency classification from Unusual Event to Alert.
2. The Shift Manager has directed you to activate the Emergency Response Data System from the NSO desk for Unit 1 per EP-MW-110-100, Attachment 1.

N-160 (6/21/01)
ZD73EXAM

SIMULATOR SETUP INSTRUCTIONS

JPM NO: N-160

REQUIRED SIMULATOR MODE(S): Any

MALFUNCTION #'S: N/A

COMMENTS:

    1)   Ensure PC is operable and connectable to the GSEP Suite with ERDS OFF for Braidwood.

    2)   Go into the program and select any station but Braidwood.

    3)   When using this JPM multiple times, ensure ERDS is off prior to each start of the JPM. It must be "turned off" with the program button.

4

ERO COMPUTER APPLICATIONS

1. **PURPOSE**

    This procedure provides the methods for gathering information for use by the Emergency Response Organization.

2. **TERMS AND DEFINITIONS**

2.1 EXERCISE Mode - The programs under the ERO Applications (EX) groupings draw their data from the plant simulator. Data may be affected by actions of the players in the simulator.

2.2 REAL Mode - The programs under the ERO Applications (Real) grouping draw their data from the actual systems and computer inputs. Data will change as events and operator intervention occurs.

3. **MAIN BODY**

    NOTES: Computer programs are available for the emergency responder to gather and trend data. This data is essential to enable proper decisions and analysis of events as they occur.

    PC login instructions should be available at all ERO computer work stations and will provide guidance on the proper methods available to login to the network.

3.1 To access the ERO set of programs from a Windows networked computer, **PERFORM** the following:

3.1.1 **CLICK** on 'Start' in the Windows Task Bar (in the lower left hand corner of the screen)

3.1.2 **CLICK** on 'Site Apps'

3.1.3 **CLICK** on ERO Applications'

3.1.4 **SELECT** either 'Real Mode' or 'Exercise Mode' depending on the data source desired.

3.1.5 **SELECT** the desired program/category (described below).

3.2 A-MODEL (Within the ERO Applications Dose Assessment folder)

3.2.1 **CLICK** on the 'A-Model Logins' icon.

3.2.2 **CHOOSE** the station by clicking in the circle next to the station's name.

3.2.3 **CHOOSE** the program by clicking in the circle next to the program name. **REFER** to EP-MW-110-200, for specific instructions and information on the use of the A-Model program.

3.2.4 **CLICK** in the '*RUN*' box on the bottom of the screen to initiate the selected program.

    1. <u>ODCSADM</u> - ODCS Administration Program. This program requires a password to enter because it can be used to change the constants and conditions that control how the A-Model functions. When it is opened a menu appears listing all the functions that can be modified. These include: Core Damage status, factors and rates for calculations, etc.

    2. <u>ODCSCAL</u> - View A-Model Screens. This program can be used to view, **not** change, the automatic inputs and the calculated results that the A-Model program has. A series of screens will appear listing the available data. Data can be automatically updated or selected over a specified time period. The user should follow the prompts listed on the screen to move from one place to another within the program, inputs need to be through the keyboard as the computer's mouse will not work.

    3. <u>ODCSCR</u> - Control Room Program. This program can be used to set Clad Damage conditions, change A-Model clock and time, to check on A-Model status or to re-assign the A-Model automatic output for some stations.

    4. <u>ODCSPRINT</u> - ODCS Print A-Model Output. This program allows the user to view and /or print the messages and reports that A-Model generated over a period of time. Available dates are shown on the bottom of the screen.

3.3 <u>DAPAR (Within the ERO Applications Dose Assessment folder)</u>

3.3.1 **CLICK** on the DAPAR icon for the applicable station.

3.3.2 **REFER** to EP-MW-110-200, Attachment 2, for specific instructions on use of the DAPAR program.

3.4 <u>C-MODEL (Within the ERO Applications Dose Assessment folder)</u>

3.4.1 **CLICK** on the '*C-Model*' icon.

3.4.2 **CLICK** on Station and Unit desired.

3.4.3 **CLICK** on option 3 for Dose Assessment Models. **REFER** to EP-MW-110-200, Attachments 5-8, for specific instructions on use of each of the four C-Model programs.

3.4.4 **CLICK** on further options and respond to the prompts.

3.4.5   Screens may be printed by going to File: Print.

3.5   Emergency Response Data System (ERDS)

–   Refer to Attachment 1 to operate the ERDS application.

3.6   Plant Parameter Display System (PPDS)

–   Refer to Attachment 2 to operate the PPDS application.

3.7   Station Parameter Display System (SPDS)

A display of selected parameters known as the Safety Parameter Display System is presented. Items such as Rx. level, pressure and power are displayed as well as containment and effluent release status.

NOTE: Normally the current time is displayed, this can be changed using the "Edit" pull-down menu and clicking on "Time", then select the time and date to be viewed. The "View" pull-down menu can also be used to customize the display.

3.7.1   **CLICK** on the 'SPDS' icon.

3.7.2   **CLICK** on the unit and station desired.

3.7.3   **CLICK** on 'OK'.

3.8   Plant Status (ERDS Points)

This program will provide data derived from pre-established computer points. The data will reflect current data along with the computer point ID used to find that data. Available groupings of data include:

3.8.1   **CLICK** on the 'Plant Status (ERDS Points)' icon.

3.8.2   **CLICK** on the station desired.

3.8.3   **CHOOSE** the desired point(s) from the available listings.

–   Primary Coolant - shows data on Rx Pressure, level, and power.

–   Secondary Coolant - steam generator levels and pressures, (PWRs only)

–   Safety Injection - ECCS flows and aux tank levels, (BWRs; HPCI, RCIC, Core Spray) (PWRs; High and Low Pressure Safety Injection and Boron tank levels).

- <u>Containment</u> - primary containment pressure and temperature, H2 concentration and sump levels (and suppression pool temp. and pressure for BWRs).

- <u>Radiation Monitoring</u> - monitored readings for containment, effluent and process rad monitors.

- <u>Meteorological</u> - wind speed, wind direction and atmospheric stability.

NOTE: Any or all of the Point History Points displayed in the Plant Status Program can be launched into Point Trend by either clicking on a single point or, for additional points,

1. Hold down the 'SHIFT' key and then **CLICK** on as many points as is desired.

2. From the pull-down menus at the top of the page **SELECT** Graph.

3. , **SELECT** either 'Selected Points' or 'All Points'

4. The selected point history points will then launch into the Point Analysis Trend program.

3.9   <u>Point Analysis Trend</u>

This program will display computer point ID data in a graphical format. Up to 24 computer point IDs may be listed, this program contains many options for the user to display and search for data.

3.9.1   **CLICK** on the *'Point Analysis Trend'* icon.

3.9.2   **SELECT** the station and unit.

3.9.3   **ENTER** a known computer point ID <u>or</u> use the Search box to find a computer point ID.

3.9.4   **SELECT** the date and time for the data display, click in the boxes on the bottom of the screen and enter date and time if different from those listed.

3.9.5   To remove a computer point ID from the listing, **CLICK** on it once to highlight it, then press the *'REMOVE'* box.

3.9.6   **CLICK** either the Excel or Trend box at the bottom of the screen to initialize program.

3.9.7   <u>Search</u>

1. After selecting a station and unit, click on the Search box.

2. Click on the "Query" box, a new box will appear with 5 different search categories listed. Selecting any one of these and entering the search criteria will create a listing on the bottom of the page with computer points IDs that match the search criteria. The following are the commonly used search categories:

3. Point ID - enter anything you know about the computer point ID number, such as the letter descriptor (AM, R, W) etc. or the corresponding number (1, 25, 1000) and then click OK or press enter and the listing of computer point IDs corresponding to the search will be displayed on the bottom of the screen.

4. Description - enter a word or words that may be included in the description of the computer point ID. Click on OK or press enter.

5. Engineering Units - either enter the units of the computer point ID that you are looking for or use the pull-down arrow next to the box to identify all the possible units available. Click on OK or press enter.

6. When the desired point(s) are identified on the listing on the bottom of the page, double click on each point that you want (or use the "add" button) and observe that it appears in the selected point box at the top of the screen. When all points are identified, click on OK and the computer point IDs will be placed on the main screen.

7. The pulldown menu "File" can be used to create computer point groupings and call them up later when needed.

8. "Open Point" will load computer point IDs that were previously saved to a file location.

9. "Save Point" will bring up a screen asking for the file location to save the grouping to.

3.9.8 Display

1. When all desired computer points (up to 24) are listed on the main screen, click on the 'Trend' box to have the program create the graphical display | of the computer points.

2. The display is initially one-minute intervals of data over the last three hours. This is set up in rectangular boxes with gridlines, times, dates and the computer point values are all listed.

3. The display will automatically update itself as new data is received.

4. If all displays are not shown on the screen, **then** use the vertical scroll bar to move between the screens. A box at the top of the screen will indicate which display you are viewing out of however many possible.

3.9.9 Editing the Display

1. Using the "**Edit**" pull-down menu, the following options are available:

   A. Mode – allows the user to select from Real, Simulator, Exercise or Test Modes. SELECT either Real or Exercise as appropriate.

   B. Plant - shows a pull-down menu of available stations and units.

   C. Start Times - provides a calendar and clock to change the starting times of the display.

   D. Interval - normally set to 1 minute, can be changed by the hour or minute to display the data as necessary

   E. Network Timeout - normally set at 2 minutes as the default.

2. Using the "**View**" pull-down menu, the following options are available:

   A. General Data - when selected displays the rectangular box, dates, times and the graphical display of the data.

   B. Math Data - when selected will give the minimum, maximum, average and deviation of the data selected

   C. Grid Lines - when selected displays the horizontal and vertical gridlines within the box.

   D. Slider - Adds a small box below the display box. The Slider box may be moved by single clicking inside the Slider box and holding the mouse button down. While continuing to hold down the mouse button, the Slider box may be moved to the left or right, notice that the value derived the location of the dotted line changes as well.

3. Using the "**Type**" pull-down menu, the data displayed can be shown in various ways from a line graph to a 3D display.

3.10 Point History Help Files

The program contains an overview of all of the Point History Programs contained within the GSEP grouping. To get more information on any program or option within a program, this program can be used like a help program to give more details for the user.

NOTE: Any or all of the Point History Points displayed in the Point Image Program can be launched into Point Trend by either clicking on a single point or, for additional points, hold down the SHIFT key and then click on as many additional points as is desired. Then from the pull-down menus at the top of the page, select Graph, then either Selected points or All points. The selected point history points will then launch into the Point Analysis Trend program.

3.11   Point Image

A simplified one-line diagram is displayed showing the basic steam cycle for the selected station. Within the display are various flows, pressures and other measurements that are obtained from computer point IDs. Both the computer point ID and the data are displayed at various locations along the drawing. Current data is displayed.

3.11.1   **CLICK** on the 'Point Image' icon.

3.11.2   **CLICK** on the unit and station desired.

3.11.3   The executive display shows the Rx Power level and Generator output for each of the nuclear stations in a table format.

3.12   Significant Events Log (SEL)

This program allows the user to enter and view the log of significant events that have been created for an event.

–   **REFER** to Attachment 3 for step by step instructions on entering data into the SEL.

3.13   Station Priorities Log (SPL)

The purpose of the SPL is to enhance the communications between the TSC and the EOF concerning the major station priorities and activities that the TSC has decided on. It shall be the responsibility of the TSC to enter station priorities into the SPL. The EOF will view the entries and communicate the information to outside agencies.

–   **REFER** to Attachment 4 for step by step instructions on entering data into the SPL.

3.14   NewsWriter

–   Refer to Attachment 5 to operate the NewsWriter application.

4.   **ATTACHMENTS**

4.1   Attachment 1, ERDS Activation

4.2   Attachment 2, Plant Parameter Display System (PPDS) Operation

4.3   Attachment 3, Significant Events Log (SEL) Program Guidance

4.4   Attachment 4, Station Priorities Log (SPL) Program Guidance

4.5   Attachment 5, NewsWriter Users Guide

ATTACHMENT 1
ERDS Activation

Page 1 of 5

NOT APPLICABLE to Clinton Station, use Section 3

NOTE: Activating the ERDS program from the <u>Real Mode</u> will send actual plant data to the NRC's Incident Response Center in White Flint, Maryland.

Activating the ERDS program from the <u>Exercise Mode</u> will send exercise data to designated drill computer(s) only.

1. **ACCESS ERDS**

1.1 **CLICK** on the '*ERDS*' icon in the ERO Applications suite.

1.2 **SELECT** the affected station.

1.3 **CLICK** '*OK*'.

1.4 **ENTER** the Password (*Scout*) and click on '*OK*'.

2. **ERDS ACTIVATION**

2.1 **CLICK** on the box labeled '*Turn On*' to activate the program.

2.2 **COMPARE** the status of the ERDS programs on the screen to plant or PPDS outputs to **VERIFY** ERDS is on for the appropriate unit(s).

3. **ERDS TERMINATION**

3.1 **CLICK** on the box labeled '*Turn Off*' to deactivate the program.

3.2 The program will automatically stop, break the link with the NRC, and stop transmitting data for the unit that is turned off.