Job Performance Measure

Verify Flow Control Line

JPM Number: JPM552

Revision Number: 01

Date: 8/14/2020

Developed By: Bill Kiser / _____ 8/14/20
Instructor: Print / Sign — Date

Reviewed By: _____ / _____ _____
SME or Instructor: Print / Sign — Date

Reviewed By: _____ / _____ _____
Operations Representative: Print / Sign — Date

Approved By: _____ / _____ _____
Training Department: Print / Sign — Date

SRRS: 3D.105 (when utilized for operator initial or continuing training)

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

NOTE: All steps of this checklist should be performed upon initial validation.
Prior to JPM usage, revalidate JPM using steps 9 and 13 below.

1. Task description and number, JPM description and number are identified. _____
2. Knowledge and Abilities (K/A) references are included. _____
3. Performance location specified. (in-plant, control room, simulator, or other) _____
4. Initial setup conditions are identified. _____
5. Initiating cue (and terminating cue if required) are properly identified. _____
6. Task standards identified and verified by instructor or SME review. _____
7. Critical steps meet the criteria for critical steps and are identified with an asterisk (*). _____
8. IAW NUREG 1021 Appendix C, clearly identify the task standard (i.e., the predetermined qualitative or quantitative outcome) against which task performance will be measured. _____
9. Verify the procedure(s) referenced by this JPM reflects the current revision:
   Procedure: CPS 4008.01 Revision: 20e
   Procedure: _____ Revision: _____
   Procedure: _____ Revision: _____
   Procedure: _____ Revision: _____
10. Verify cues both verbal and visual are free of conflict. _____
11. Verify performance time is accurate. _____
12. If the JPM cannot be performed as written with proper responses, then revise the JPM. _____
13. When JPM is initially validated, sign and date JPM cover page. For subsequent validations, sign and date below: _____

_____ / _____ _____
SME / Instructor (Print/Sign) Date

_____ / _____ _____
SME / Instructor (Print/Sign) Date

_____ / _____ _____
SME / Instructor (Print/Sign) Date

Revision Record (Summary)

Revision #	Summary
00	11/2/17 – New JPM.
01	8/14/20 – Updated references.

SETUP INSTRUCTIONS

1. No setup is required for this JPM.

INITIAL CONDITIONS

A plant transient has resulted in entry into CPS 4008.01 Abnormal Reactor Coolant Flow. All immediate operator actions have been completed.

Reactor power is currently 39%.

INITIATING CUE

The Control Room Supervisor (CRS) has directed you to determine if plant operation is within the limits of CPS 4008.01 Abnormal Reactor Coolant Flow Figure 1, CPS Stability Control & Power/Flow Operating Map and determine required actions (if any) that need to be taken.

Fill in the JPM Start Time when the student acknowledges the Initiating Cue.

Information For Evaluator's Use:

UNSAT requires written comments on respective step.

* Denotes critical steps.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. The comment section should be used to document: the reason that a step is marked as unsatisfactory, marginal performance relating to management expectations, or problems the examinee had while performing the JPM. Comments relating to procedural or equipment issues should be entered and tracked using the site's appropriate tracking system.

Some operations that are performed from outside of the control room may require multiple steps. These items may be listed as individual steps in this JPM. It is acceptable for the candidate to direct the local operator to perform groups of procedure steps instead of calling for each individual item to be performed.

The timeclock starts when the candidate acknowledges the initiating cue.

JPM Start Time: _____ JPM Sequence #: _____ of _____

Task Standard:
The examinee will determine plant operation is not within normal operating limits of CPS 4008.01 Abnormal Reactor Coolant Flow Figure 1 CPS Stability Control & Power/Flow Operating Map and recommend a course of action to exit the Controlled Entry Region.

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
CUE	Provide the examinee with a copy of: • Initiating Cue (last page of JPM) • PPC Graphic (Attachment 1 of the JPM) • CPS 4008.01 Abnormal Reactor Coolant Flow				
NOTE:	JPM steps 1 and 2 can be performed in any order.				
*01	Examinee determines core flow using Attachment 1 and CPS 4008.01.	**a. Examinee determines that the Reactor Recirculation (RR) system is operating in single loop (RR Pump A is secured on RR PPC graphic).**	☐	☐	___
		b. Examinee observes that the "Core Flow From Core Plate Diff Press" computer point reads 0.0, indicating "white data" (low confidence / bad data) on the RR PPC graphic and cannot be used.	☐	☐	___
		c. Examinee obtains the value for "Core Plate Diff Press" from the RR PPC graphic (1.6 psid).	☐	☐	___

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
*01 (cont.)		**d. Examinee uses CPS 4008.01 Figure 2: Cycle-12 Core Plate dp vs Total Core Flow to determine that Total Core Flow is ~ 31 Mlb/hr (intersection of 1.6 psid and the curve).**	☐	☐	___
CUE	If asked, remind the examinee that Reactor Power is 39% per the initiating cue.				
02	Examinee determines reactor power.	Examinee determines Reactor Power is 39% from the initiating cue or from the evaluator cue.	☐	☐	___
*03	Examinee determines the reactor is operating in the Controlled Entry Region of Power/Flow Operating Map.	**Examinee plots the point on CPS 4008.01 Figure 1 corresponding to core flow and reactor power and determines the reactor is operating in the controlled entry region of the Power/Flow Operating Map.**	☐	☐	___
*04	Examinee determines required corrective actions.	**Examinee determines that entry into the CONTROLLED ENTRY REGION below the MELLLA limit is only permitted as part of a planned power change (ReMA identified), and that inadvertent or forced entry requires a prompt exit via reverse rod sequence or CRAM RODS.**	☐	☐	___
CUE	JPM is complete.				

JPM Stop Time: _____

JPM SUMMARY

Operator's Name: _____ **Emp. ID#:** _____

Job Title: ☐ EO ☐ RO ☐ SRO ☐ FS ☐ STA/IA ☐ SRO Cert

JPM Title: Verify Flow Control Line

JPM Number: JPM552 Revision Number: 01

Task Number and Title: 3302.01.99 Monitor the Reactor Recirculation System Operation in all Modes during Normal and Off-Normal Conditions

Task Standard: The examinee will determine plant operation is not within normal operating limits of CPS 4008.01 Abnormal Reactor Coolant Flow Figure 1 CPS Stability Control & Power/Flow Operating Map and recommend a course of action to exit the Controlled Entry Region.

K/A Number and Importance:

K/A System	K/A Number	Importance (RO/SRO)	
Generic	2.1.37	4.3	4.6

Suggested Testing Environment: Classroom

Alternate Path: ☐ Yes ☒ No SRO Only: ☐ Yes ☒ No Time Critical: ☐ Yes ☒ No

Reference(s):

Procedure: CPS 4008.01 Revision: 20e

Actual Testing Environment: ☐ Simulator ☐ Control Room ☐ In-Plant ☐ Other

Testing Method: ☐ Simulate ☒ Perform

Estimated Time to Complete: 15 minutes **Actual Time Used:** _____ minutes

EVALUATION SUMMARY:

Were all the Critical Elements performed satisfactorily? ☐ Yes ☐ No

The operator's performance was evaluated against standards contained within this JPM and has been determined to be: ☐ Satisfactory ☐ Unsatisfactory

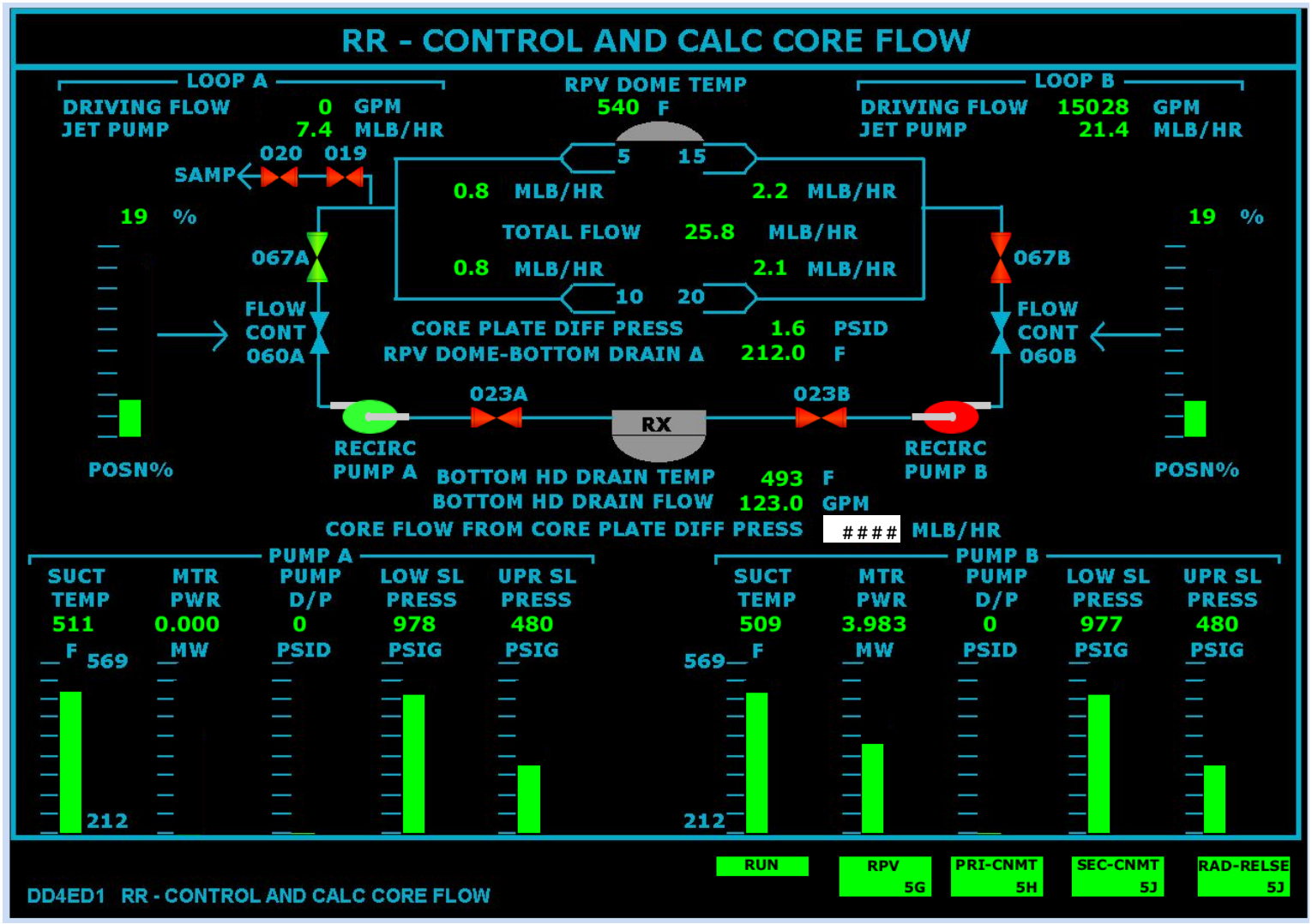
NOTE: Enter finalized grading, comments, and notes relevant to this evaluation in the associated TQ-AA-150-F03A/B. (See AR 4282419).

Evaluator's Name (Print): _____

Evaluator's Signature: _____ **Date**: _____

SRRS: 3D.105 (when utilized for operator initial or continuing training)

Attachment 1: RR – Control and Calc Core Flow



SRRS: 3D.100; There are no retention requirements for this section

INITIAL CONDITIONS

A plant transient has resulted in entry into CPS 4008.01 Abnormal Reactor Coolant Flow. All immediate operator actions have been completed.

Reactor power is currently 39%.

INITIATING CUE

The Control Room Supervisor (CRS) has directed you to determine if plant operation is within the limits of CPS 4008.01 Abnormal Reactor Coolant Flow Figure 1, CPS Stability Control & Power/Flow Operating Map and determine required actions (if any) that need to be taken.

Job Performance Measure

Accident Monitoring And Remote Shutdown Instrumentation Log

JPM Number: JPM505

Revision Number: 00

Date: 8/17/2020

Developed By:	Bill Kiser /		8/17/20
	Instructor: Print / Sign		Date
Reviewed By:	/		
	SME or Instructor: Print / Sign		Date
Reviewed By:	/		
	Operations Representative: Print / Sign		Date
Approved By:	/		
	Training Department: Print / Sign		Date

SRRS: 3D.105 (when utilized for operator initial or continuing training)

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

NOTE: All steps of this checklist should be performed upon initial validation.
Prior to JPM usage, revalidate JPM using steps 9 and 13 below.

1. Task description and number, JPM description and number are identified. _____
2. Knowledge and Abilities (K/A) references are included. _____
3. Performance location specified. (in-plant, control room, simulator, or other) _____
4. Initial setup conditions are identified. _____
5. Initiating cue (and terminating cue if required) are properly identified. _____
6. Task standards identified and verified by instructor or SME review. _____
7. Critical steps meet the criteria for critical steps and are identified with an asterisk (*). _____
8. IAW NUREG 1021 Appendix C, clearly identify the task standard (i.e., the predetermined qualitative or quantitative outcome) against which task performance will be measured. _____
9. Verify the procedure(s) referenced by this JPM reflects the current revision:
   Procedure: CPS 9000.10 Revision: 33c
   Procedure: _____ Revision: _____
   Procedure: _____ Revision: _____
   Procedure: _____ Revision: _____
10. Verify cues both verbal and visual are free of conflict. _____
11. Verify performance time is accurate. _____
12. If the JPM cannot be performed as written with proper responses, then revise the JPM. _____
13. When JPM is initially validated, sign and date JPM cover page. For subsequent validations, sign and date below: _____

_____ / _____ _____
SME / Instructor (Print/Sign) Date

_____ / _____ _____
SME / Instructor (Print/Sign) Date

_____ / _____ _____
SME / Instructor (Print/Sign) Date

Revision Record (Summary)

Revision #	Summary
00	8/17/20 – New JPM.

SETUP INSTRUCTIONS

1. IC Setup (N/A if administering JPM505 per step 2).
   a. Initialize the simulator to any suitable IC with the reactor operating in Mode 1.
   b. Fail the blue pen on 1LR-SM016 (Containment Pressure) to 2.60 psig. Set A05_A02_A12AR02_1 (1LR-CM016 – BLU PEN) final value to 0.5065.
   c. Freeze the simulator.
   d. Save to a different IC if JPM is being used more than once. IC-217 is saved for the ILT 19-1 NRC exam (pw 13852).
   e. This completes the setup for this JPM.

NOTE:	It is acceptable to use a similar IC to the IC listed above, provided the specific IC used is verified to be compatible with this and other JPMs that are scheduled to be run concurrently.

2. JPM Administration
   a. Reset to the IC saved after performing step 1 above. IC-217 is saved for the ILT 19-1 NRC exam (pw 13852).
   b. Open and execute Simulator Lesson Plan ILT 19-1 NRC Exam JPMs LP.
   c. Release JPM505 which will fail the blue pen on 1LR-SM016 (Containment Pressure) to 2.60 psig.
   d. When the above steps are completed for this and other JPMs to be run concurrently then validate, if not previously validated, the concurrently run JPMs using the JPM Validation Checklist.
   e. Save to a different IC if required.
   f. Freeze the simulator.

INITIAL CONDITIONS

The plant is operating in Mode 1.

You are the 'B' Reactor Operator (RO).

INITIATING CUE

CPS 9000.10, Accident Monitoring and Remote Shutdown Instrumentation Log was started on midshift but the operator was unable to complete it. The CRS has directed you to complete the remaining portions of CPS 9000.10 Accident Monitoring and Remote Shutdown Instrumentation Log.

Inform the CRS after completing CPS 9000.10 Accident Monitoring and Remote Shutdown Instrumentation Log.

Fill in the JPM Start Time when the student acknowledges the Initiating Cue.

Information For Evaluator's Use:

UNSAT requires written comments on respective step.

* Denotes critical steps.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. The comment section should be used to document: the reason that a step is marked as unsatisfactory, marginal performance relating to management expectations, or problems the examinee had while performing the JPM. Comments relating to procedural or equipment issues should be entered and tracked using the site's appropriate tracking system.

Some operations that are performed from outside of the control room may require multiple steps. These items may be listed as individual steps in this JPM. It is acceptable for the candidate to direct the local operator to perform groups of procedure steps instead of calling for each individual item to be performed.

The timeclock starts when the candidate acknowledges the initiating cue.

JPM Start Time: _____ JPM Sequence #: _____ of _____

Task Standard:
The examinee will complete the unfinished portion of CPS 9000.10 Accident Monitoring And Remote Shutdown Instrumentation Log and document all deficiencies identified during performance of the surveillance.

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
CUE	Provide the examinee with: • The Initiating Cue (last page of JPM) • A marked up copy of CPS 9000.10 Accident Monitoring And Remote Shutdown Instrumentation Log.				
NOTE:	Procedure steps can be performed in any order and therefore, JPM steps can be performed in any order.				
01	8.1.3.1 Channel Check Suppression Pool Water Level – High	Examinee locates recorders 1LR-CM030 and 1LR-CM031 on MCR panel 1H13-P601 (5064/5066), reads the red pens on both recorders and determines the readings are within 3 inches of each other and then initials the step.	☐	☐	___
02	8.1.3.2 Channel Check Suppression Pool Water Level - Low	Examinee locates recorders 1LR-SM014 and 1LR-SM016 on MCR panel 1H13-P601 (5064/5066), reads the red pens on both recorders and determines the readings are upscale and then initials the step.	☐	☐	___

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
03	8.1.4.1 Channel Check Primary Containment Pressure - High	Examinee locates recorders 1LR-CM030 and 1LR-CM031 on MCR panel 1H13-P601 (5064/5066), reads the blue pens on both recorders and determines the readings are downscale low and then initials the step.	☐	☐	___
***04**	8.1.4.2 Channel Check Primary Containment Pressure - Low	**Examinee locates recorders 1LR-SM014 and 1LR-SM016 on MCR panel 1H13-P601 (5064/5066), reads the blue pens on both recorders and subtracts the readings. The examinee will annotate the out of specification reading, inform the CRS that the channel check of containment pressure indications on 1LR-SM014 and 1LR-SM016 has failed.**	☐	☐	___
CUE	As the CRS, acknowledge the report and tell the examinee, "I will refer to Technical Specifications. Continue with the surveillance".				
***05**	8.1.10 Penetration Flow Path, Automatic PCIV Position.	Examinee locates valves: • 1FP092 and 1FP050 • 1CC049 and 1CC050 on MCR panel 1H13-P601 (5040) and verifies position indication exists by verifying open or closed indicating lights.	☐	☐	___

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
***05 (cont.)**	8.1.10 Penetration Flow Path, Automatic PCIV Position. (cont.)	**Examinee locates valves 1CC073 and 1CC074 on MCR panel 1H13-P601 (5040) and determines:** • **the position indicating lights are not available** • **secondary position indication (computer points) listed next to each valve must be pulled up to verify valve position (Closed or Not Closed).**			
NOTE:	Step ***05** is considered UNSAT if the examinee fails to identify position indication of any valves using either primary or secondary indications.				
CUE	If examinee requests that the breakers for 1CC073/74 be shut, acknowledge the request and respond “current plant conditions do not permit energizing 1CC073 or 1CC074. If informed that any position check failed, acknowledge the report (as CRS) and tell the examinee, “I will refer to Technical Specifications.				
CUE	JPM is complete.				
***06**	8.3 Notification of Completion.	**Examinee completes the “Comments/Deficiencies” block of CPS 9000.10 (page 11).**			
CUE	If examinee notifies CRS that the surveillance is complete, tell the examinee “Complete CPS 9000.10.”				
CUE	JPM is complete.				

JPM Stop Time: _____

JPM SUMMARY

Operator's Name: _____ **Emp. ID#:** _____

Job Title: ☐ EO ☐ RO ☐ SRO ☐ FS ☐ STA/IA ☐ SRO Cert

JPM Title: Accident Monitoring And Remote Shutdown Instrumentation Log

JPM Number: JPM505 Revision Number: 00

Task Number and Title: 900010.01 Accident Monitoring And Remote Shutdown Instrumentation Log

Task Standard: The examinee will complete the unfinished portion of CPS 9000.10 Accident Monitoring And Remote Shutdown Instrumentation Log.

K/A Number and Importance:

K/A System	K/A Number	Importance (RO/SRO)	
Generic	2.1.31	4.6	4.3

Suggested Testing Environment: Simulator

Alternate Path: ☐ Yes ☒ No SRO Only: ☐ Yes ☒ No Time Critical: ☐ Yes ☒ No

Reference(s):

Procedure: CPS 9000.10 Revision: 33c

Actual Testing Environment: ☒ Simulator ☐ Control Room ☐ In-Plant ☐ Other

Testing Method: ☐ Simulate ☒ Perform

Estimated Time to Complete: 15 minutes **Actual Time Used:** _____ minutes

EVALUATION SUMMARY:

Were all the Critical Elements performed satisfactorily? ☐ Yes ☐ No

The operator's performance was evaluated against standards contained within this JPM and has been determined to be: ☐ Satisfactory ☐ Unsatisfactory

NOTE: Enter finalized grading, comments, and notes relevant to this evaluation in the associated TQ-AA-150-F03A/B. (See AR 4282419).

Evaluator's Name (Print): _____

Evaluator's Signature: _____ **Date**: _____

SRRS: 3D.105 (when utilized for operator initial or continuing training)

INITIAL CONDITIONS

The plant is operating in Mode 1.

You are the 'B' Reactor Operator (RO).

INITIATING CUE

CPS 9000.10, Accident Monitoring and Remote Shutdown Instrumentation Log was started on midshift but the operator was unable to complete it. The CRS has directed you to complete the remaining portions of CPS 9000.10 Accident Monitoring and Remote Shutdown Instrumentation Log.

Inform the CRS after completing CPS 9000.10 Accident Monitoring and Remote Shutdown Instrumentation Log.

ACCIDENT MONITORING AND REMOTE SHUTDOWN INSTRUMENTATION LOG

SCOPE OF REVISION:

- Incorporated Specific Revs. 32a – 32b. Rev marks not retained.
- IR 1462014 Corrected computer point MC-BC801 from 807.
- IR 1461738 deleted computer points CM-BA011/012 SP Temp.
- Pages: 4, 6

❶ EDITORIAL Rev. 33a [Helton]: IR 25009276-02 - Corrected computer points for 1RE021 and 1RF021.

❷ Specific Rev. 33b [Frederick]: EC 621856 – Annotated initial blocks for 1PS037 and 1PS038 in section 8.1.10 with "N/A*" due to removal of 1PS037, abandonment of 1PS038, and isolation of containment penetration 1MC-210003. Modified wording in section 8.1.10 footnote to apply to 1PS037, 1PS038, and 1PS047.

❸ EDITORIAL Rev. 33c [Palmer]: IR 04289948-02 - Corrected gauge EIN

For Training Only

CONTINUOUS USE

ORIGINATOR: *Lee Anderson* **CLASS CODE:** *SNNN1*

SQR: *Ken Leffel* **APPROVAL DATE:** *01/17/2013*

CURRENT CHANGES TO GENERAL REVISION

	Change #	Date	List of Affected Pages
❶	33a	04/22/16	1, 7
❷	33b	04/27/18	1, 6
❸	33c	11/12/19	1, 9
❹			
❺			

1.0 PURPOSE

To perform a channel check of the Accident Monitoring Instrument parameters and Remote Shutdown Instrument parameters.

This procedure fully satisfies Channel Check requirements:

ITS SR 3.3.3.1.1:	Post Accident Monitoring Instrumentation per Table 3.3.3.1-1
ITS SR 3.3.3.2.1:	Remote Shutdown System Instrumentation per ORM Attach 1 (Items 12 - 14 N/A for CK)
ORM TR 4.2.17.1:	Hydrogen Monitoring Equipment

2.0 DISCUSSION/DEFINITIONS

2.1 Discussion

2.1.1 Frequency *«LBD-1, LBD-2, LBD-3»*

1. Normal Frequency - Once every 31 days
2. Other Triggers - None

2.2 Definitions

2.2.1 Channel Check (CK) [per ITS]: *A CHANNEL CHECK shall be the **qualitative** assessment, by observation, of channel **behavior** during operation. This determination shall include, **where possible**, comparison of the channel indication and status to other indications or status derived from independent instrument channels measuring the same parameter.*

When a monitored parameter for an instrument is found to be outside of its range, the qualitative method used to determine that the instrument is still operable should be documented in the surveillance's comment section.

2.2.2 Band: The maximum by which channels should disagree while performing a channel check.

The Band is based on maximum limits of instrument accuracy for the two instrument readings being compared.

3.0 RESPONSIBILITY

Operations Department Head is responsible for ensuring the proper implementation of this procedure.

4.0 **PRECAUTIONS** - None

5.0 **PREREQUISITES** Initial

5.1 This is a passive test and does not affect plant equipment, therefore, an impact statement is not required.

5.2 Notify Shift Management of the start of this test. XX/XX/XXXX / XX:XX (Date/Time) WDK

5.3 Established communications with the Operator performing field checks. WDK

6.0 **LIMITATIONS** - None

7.0 **MATERIALS/TEST EQUIPMENT** - None

8.0 **PROCEDURE**

8.1 **Post Accident Monitoring Instrumentation** *«LBD-1»*

8.1.1 Reactor Steam Dome Pressure

1. (Initial) Channel Check Reactor Steam Dome Pressure. (ITS SR 3.3.3.1.1 T1) [Band: 40 psig] WDK
   1) MCR P601 - 1B21-R623A, red pen, 1H13-P601, Div. 1
   2) MCR P601 - 1B21-R623B, red pen, 1H13-P601, Div. 2

8.1.2 Reactor Vessel Water Level

1. (Initial) Channel Check Reactor Vessel Water Level. (ITS SR 3.3.3.1.1 T2) [Band: 12 in.] WDK
   1) MCR P601 - 1B21-R623A, blue pen, 1H13-P601, Div. 1
   2) MCR P601 - 1B21-R623B, blue pen, 1H13-P601, Div. 2

8.1.3 Suppression Pool Water Level

1. (Initial) Channel Check Suppression Pool Water Level - High. (ITS SR 3.3.3.1.1 T3.a) [Band: 3 in.] _____
   1) MCR P601 - 1LR-CM030, red pen, Div. 1
   2) MCR P601 - 1LR-CM031, red pen, Div. 2
2. (Initial) Channel Check Suppression Pool Water Level - Low. (ITS SR 3.3.3.1.1 T3.b) [Band: 6 in.] _____

   ☞ 1LR-SM014 and 1LR-SM016 should be upscale high during normal plant operation.

   1) MCR P601 - 1LR-SM014, red pen, Div. 1

2) MCR P601 - 1LR-SM016, red pen, Div. 2

8.1 **Post Accident Monitoring Instrumentation** (cont'd)

8.1.4 Primary Containment Pressure

1. (Initial) Channel Check Primary Containment Pressure - High. (ITS SR 3.3.3.1.1 T9.a) [Band: 0.5 psi] _____

☞ 1LR-CM030 and 1LR-CM031 should be downscale low during normal plant operation.

1) MCR P601 - 1LR-CM030, blue pen, Div. 1

2) MCR P601 - 1LR-CM031, blue pen, Div. 2

2. (Initial) Channel Check Primary Containment Pressure - Low. (ITS SR 3.3.3.1.1 T9.b) [Band: 2.6 psi] _____

1) MCR P601 - 1LR-SM014, blue pen, Div. 1

2) MCR P601 - 1LR-SM016, blue pen, Div. 2

8.1.5 Drywell Pressure

1. (Initial) Channel Check Drywell Pressure. (ITS SR 3.3.3.1.1 T4) [Band: 1.2 psi] WDK

1) MCR P601 - 1PR-CM063, red pen, Div. 1

2) MCR P601 - 1PR-CM064, red pen, Div. 2

2. (Initial) Channel Check Drywell Pressure. (ITS SR 3.3.3.1.1 T4) [Band: 0.28 psi] WDK

1) Computer Point - B21DA008, Div. 1

2) Computer Point - B21DA009, Div. 2

8.1.6 Suppression Pool Bulk Water Temperature

☞ Monitoring each quadrant.

1. (Initial) Channel Check Suppression Pool Bulk Water Temperature. (ITS SR 3.3.3.1.1 T10) [Band: 4.5°F] WDK

1) MCR P678 - 1TR-CM334, Div. 1

2) MCR P678 - 1TR-CM335, Div. 2

8.1 **Post Accident Monitoring Instrumentation** (cont'd)

8.1.7 Drywell Area Radiation

1. (Initial) Channel Check Drywell High Range Gamma readings. (ITS SR 3.3.3.1.1 T6) [Band: None) WDK

☞ Drywell Monitors should read on first decade, due to wide variances and accuracy's, a specific band would not apply.

1) MCR P638 - 1RIX-CM059
2) MCR P639 - 1RIX-CM060

8.1.8 Primary Containment Area Radiation

1. (Initial) Channel Check Pri CNMT High Range Gamma readings. (ITS SR 3.3.3.1.1 T5) [Band: None] WDK

☞ Containment monitors typically will read down scale, lowest 1 x 10 to 0.

1) MCR P638 - 1RIX-CM061
2) MCR P639 - 1RIX-CM062

8.1.9 Drywell and Containment H_2 & O_2 Analyzer *«LBD-3»*

1. (Initial) Channel Check Drywell & CNMT H_2 Analyzer. (ORM TR 4.2.17.1) WDK

At panel 1H13-P867, initiate a manual analysis per 3315.01 and perform a channel check of H_2 concentration for each zone.
Screen 9 shows zones last reading obtained for each sample point. From main screen, go to screen 5 then to screen 9.

☞ Each H_2 monitor requires a minimum of two sample zones in Containment and two sample zones in the Drywell to perform its function.

1) Zone 1 (Drywell)
2) Zone 2 (Drywell)
3) Zone 3 (Drywell) (Disabled per EC 368665) **N/A**
4) Zone 4 (Containment)
5) Zone 5 (Containment)

Stop the analysis per CPS 3315.01, Containment Monitoring (CM).

8.1 **Post Accident Monitoring Instrumentation** (cont'd)

❷ 8.1.10 Penetration Flow Path, Automatic PCIV Position (ITS SR 3.3.3.1.1 T7)

1. (Initial) For each one of the valves listed in the checklist, check that position indication exists at the indicated primary locations on the checklist. If the primary indication is not available, use the secondary indication.

Valve	Initial	Primary	Secondary	Valve	Initial	Primary	Secondary
1PS038	N/A*	1H13-P638	PS-BC814	1CC127	WDK	1H13-P800	CC-BC813
1PS005	WDK	1H13-P638	PS-BC802	1CC060	WDK	1H13-P800	CC-BC810
1PS010	WDK	1H13-P638	PS-BC804	1CC054	WDK	1H13-P800	CC-BC804
1PS017	WDK	1H13-P638	PS-BC806	1CC072	WDK	1H13-P800	CC-BC806
1PS023	WDK	1H13-P638	PS-BC808	1CC071	WDK	1H13-P800	CC-BC811
1PS032	WDK	1H13-P638	PS-BC810	1CC053	WDK	1H13-P800	CC-BC808
1PS035	WDK	1H13-P638	PS-BC812	1FC008	WDK	1H13-P800	FC-BC802
1PS055	WDK	1H13-P638	PS-BC821	1FC007	WDK	1H13-P800	FC-BC803
1PS069	WDK	1H13-P638	PS-BC823	1FC037	WDK	1H13-P800	FC-BC804
1CM047	WDK	1H13-P638	CM-BC802	1FC036	WDK	1H13-P800	FC-BC801
1CM048	WDK	1H13-P638	CM-BC801	1FP051	WDK	1H13-P800	FP-BC801
1CM011	WDK	1H13-P638	CM-BC803	1FP052	WDK	1H13-P800	FP-BC805
1CM012	WDK	1H13-P638	CM-BC804	1FP054	WDK	1H13-P800	FP-BC802
1PS037	N/A*	1H13-P639	PS-BC813	1FP053	WDK	1H13-P800	FP-BC806
1PS047	N/A*	1H13-P639	PS-BC819	1HG001	WDK	1H13-P800	HG-BC801
1PS004	WDK	1H13-P639	PS-BC801	1HG004	WDK	1H13-P800	HG-BC802
1PS009	WDK	1H13-P639	PS-BC803	1HG005	WDK	1H13-P800	HG-BC803
1PS016	WDK	1H13-P639	PS-BC805	1HG008	WDK	1H13-P800	HG-BC804
1PS022	WDK	1H13-P639	PS-BC807	1IA005	WDK	1H13-P800	IA-BC811
1PS031	WDK	1H13-P639	PS-BC809	1IA006	WDK	1H13-P800	IA-BC814
1PS034	WDK	1H13-P639	PS-BC811	1SA030	WDK	1H13-P800	SA-BC822
1PS056	WDK	1H13-P639	PS-BC822	1SA029	WDK	1H13-P800	SA-BC821
1PS070	WDK	1H13-P639	PS-BC824	1IA012B	WDK	1H13-P800	IA-BC817
1CM023	WDK	1H13-P639	CM-BC806	1IA013B	WDK	1H13-P800	IA-BC818
1CM022	WDK	1H13-P639	CM-BC805	0RA026	WDK	1H13-P800	RA-BC800
1CM025	WDK	1H13-P639	CM-BC807	0RA027	WDK	1H13-P800	RA-BC801
1CM026	WDK	1H13-P639	CM-BC808	1SF002	WDK	1H13-P800	SF-BC803
❶0MC009	WDK	1H13-P870	MC-BC801	1SF001	WDK	1H13-P800	SF-BC801
0MC010	WDK	1H13-P870	MC-BC802	1SF004	WDK	1H13-P800	SF-BC802
1CY016	WDK	1H13-P870	CY-BC807	1VR001A	WDK	1H13-P800	VR-BC801
1CY017	WDK	1H13-P870	CY-BC808	1VR002A	WDK	1H13-P800	VR-BC802
1FP092		1H13-P800	FP-BC803	1VR001B	WDK	1H13-P800	VR-BC803
1FP050		1H13-P800	FP-BC804	1VR002B	WDK	1H13-P800	VR-BC804
1CC073		1H13-P800	CC-BC805	1VQ004B	WDK	1H13-P800	VQ-BC806
1CC049		1H13-P800	CC-BC803	1VQ004A	WDK	1H13-P800	VQ-BC801
1CC074		1H13-P800	CC-BC812	1VQ006B	WDK	1H13-P800	VQ-BC808
1CC050		1H13-P800	CC-BC807	1VQ006A	WDK	1H13-P800	VQ-BC802

* ITS SR 3.3.3.1.1 T7[(a)] does not apply due to penetration flow path permanently isolated.

8.1 **Post Accident Monitoring Instrumentation** (cont'd)

8.1.10 Penetration Flow Path, Automatic PCIV Position (cont'd)

Valve	Initial	Primary	Secondary	Valve	Initial	Primary	Secondary
1VR006A	WDK	1H13-P800	VR-BC806	1E12-F021	WDK	1H13-P601	RH-BC815
1VR006B	WDK	1H13-P800	VR-BC807	1E12-F023	WDK	1H13-P601	RH-BC810
1VR007B	WDK	1H13-P800	VR-BC809	1E12-F024A	WDK	1H13-P601	RH-BC813
1VR007A	WDK	1H13-P800	VR-BC808	1E12-F024B	WDK	1H13-P601	RH-BC814
1VR036	WDK	1H13-P800	VR-DC001	1E12-F008	WDK	1H13-P601	RH-BC804
1VR041	WDK	1H13-P800	VR-DC002	1E12-F009	WDK	1H13-P601	RH-BC831
1VR035	WDK	1H13-P800	VR-DC003	1B21-F022B	WDK	1H13-P601	B21-DC044
1VR040	WDK	1H13-P800	VR-DC004	1B21-F022D	WDK	1H13-P601	B21-DC045
1VP015A	WDK	1H13-P801	VP-BC802	1B21-F022A	WDK	1H13-P601	B21-DC043
1VP004A	WDK	1H13-P801	VP-BC801	1B21-F022C	WDK	1H13-P601	B21-DC042
1VP015B	WDK	1H13-P801	VP-BC804	1B21-F016	WDK	1H13-P601	MS-BC860
1VP004B	WDK	1H13-P801	VP-BC803	1B21-F019	WDK	1H13-P601	MS-BC859
1WO002A	WDK	1H13-P801	WO-BC803	1B21-F067B	WDK	1H13-P601	MS-BC856
1WO001A	WDK	1H13-P801	WO-BC801	1B21-F067D	WDK	1H13-P601	MS-BC858
1VP014A	WDK	1H13-P801	VP-BC807	1B21-F067A	WDK	1H13-P601	MS-BC855
1VP005A	WDK	1H13-P801	VP-BC805	1B21-F067C	WDK	1H13-P601	MS-BC857
1VP014B	WDK	1H13-P801	VP-BC808	1B21-F028B	WDK	1H13-P601	B21-DC047
1VP005B	WDK	1H13-P801	VP-BC806	1B21-F028D	WDK	1H13-P601	B21-DC049
1WO001B	WDK	1H13-P801	WO-BC802	1B21-F028A	WDK	1H13-P601	B21-DC046
1WO002B	WDK	1H13-P801	WO-BC804	1B21-F028C	WDK	1H13-P601	B21-DC048
1E22-F023	WDK	1H13-P601	HP-BC804	1RE022	WDK	1H13-P601	RE-BC801
1E51-F076	WDK	1H13-P601	RI-BC818	1RF022	WDK	1H13-P601	RF-BC801
1E51-F063	WDK	1H13-P601	RI-BC816	❶ 1RE021	WDK	1H13-P601	RE-BC804
1E51-F064	WDK	1H13-P601	RI-BC804	❶ 1RF021	WDK	1H13-P601	RF-BC804
1E51-F077	WDK	1H13-P601	RI-BC806	1G33-F001	WDK	1H13-P680	RT-BC825
1E51-F078	WDK	1H13-P601	RI-BC807	1G33-F004	WDK	1H13-P680	RT-BC821
1E51-F031	WDK	1H13-P601	RI-BC802	1G33-F053	WDK	1H13-P680	RT-BC828
1E21-F012	WDK	1H13-P601	LP-BC804	1G33-F054	WDK	1H13-P680	RT-BC824
1E12-F497	WDK	1H13-P601	RH-BC811	1G33-F040	WDK	1H13-P680	RT-BC827
1E12-F496	WDK	1H13-P601	RH-BC812	1G33-F039	WDK	1H13-P680	RT-BC823
1E12-F037A	WDK	1H13-P601	RH-BC829	1G33-F028	WDK	1H13-P680	RT-BC826
1E12-F037B	WDK	1H13-P601	RH-BC830	1G33-F034	WDK	1H13-P680	RT-BC822
1E12-F053A	WDK	1H13-P601	RH-BC808	1WX019	WDK	1H13-P680	WX-BC802
1E12-F053B	WDK	1H13-P601	RH-BC809	1WX020	WDK	1H13-P680	WX-BC801

8.2 **Remote Shutdown System Instrument Functions** *«LBD-2, LBD-4»*

(ITS SR 3.3.3.2.1 - Instrumentation per ORM Attachment 1)

8.2.1 RPV Pressure

1. (Initial) Channel Check RPV Pressure. (ORM Att. 1 - Item 6) [Band: 60 psig] WDK
   1) RSP - C61-R011, Div. 1
   2) RSP - C61-R510, Div. 2

8.2.2 RPV Level

1. (Initial) Channel Check RPV Level. (ORM Att. 1 - Item 5) [Band: 24 in.] WDK
   1) RSP - C61-R010, Div. 1
   2) RSP - C61-R509, Div. 2

8.2.3 Suppression Pool Level

1. (Initial) Channel Check Suppression Pool Level. (ORM Att. 1 - Item 4) [Band: 6 in.] WDK
   1) RSP - C61-R504, Div. 1
   2) RSP - C61-R511, Div. 2

8.2.4 Upper & Lower Drywell Temperatures

1. (Initial) Channel Check Upper & Lower Drywell Temperatures. (ORM Att. 1 - Items 7/8) [Band: None] WDK
   1) RSP - C61-R501, Upper
   2) RSP - C61-R502, Lower

8.2.5 Suppression Pool Temperatures

1. (Initial) Channel Check SRV 51D Suppression Pool Temps. (ORM Att. 1 - Item 1) [Band: 10°F] WDK
   1) RSP - C61-R506, SRV 51D, Div. 1
   2) RSP - C61-R513, SRV 51D, Div. 2
2. (Initial) Channel Check SRV 51C Suppression Pool Temps. (ORM Att. 1 - Item 2) [Band: 10°F] WDK
   1) RSP - C61-R507, SRV 51C, Div. 1
   2) RSP - C61-R514, SRV 51C, Div. 2
3. (Initial) Channel Check SRV 51G Suppression Pool Temps. (ORM Att. 1 - Item 3) [Band: 10°F] WDK
   1) RSP - C61-R508, SRV 51G, Div. 1
   2) RSP - C61-R512, SRV 51G, Div. 2

8.2 **Remote Shutdown System Instrument Functions** (cont'd)
(ITS SR 3.3.3.2.1 - Instrumentation per ORM Attachment 1)

8.2.6 SX Strainer Outlet Discharge Pressure

1. (Initial) Channel Check SX Div 1 Strn Outlt Disch Pressure. (ORM Att. 1 - Item 9 (Div 1)) [Band: 10 psig] WDK

   1) RSP - C61-R503, Div. 1

   2) MCR P601 - 1PI-SX028, Div. 1

2. (Initial) Channel Check SX Div 2 Strn Outlt Disch Pressure. (ORM Att. 1 - Item 9 (Div 2)) [Band: 10 psig] WDK

   1) Screenhouse 1SX12J - 1PI-SX024B, Div. 2

   2) MCR P601 - 1PI-SX030, Div. 2

8.2.7 RCIC Condensate Storage Tank Level

1. (Initial) Channel Check RCIC Cond Storage Tank Level. (ORM Att. 1 - Item 10) [Band: 0.9 ft] WDK

   1) RSP - C61-R505, Div. 1

   2) MCR P862 - 1E51-N801, Div. 1

8.2.8 RHR Loop Flow

1. (Initial) Channel Check Div. 1 RHR Loop Flow. (ORM Att. 1 - Item 11 (Div. 1)) [Band: 500 gpm] WDK

   1) RSP - C61-R005, Div. 1

❸ 2) MCR P601 - 1E12-R603A, RHR A, Div. 1

2. (Initial) Channel Check Div. 2 RHR Loop Flow. (ORM Att. 1 - Item 11 (Div. 2)) [Band: None] WDK

   ☞ Div 2 RHR pump flow is determined by RHR pump discharge pressure instrumentation at 1H22-P021 (listed below).

   1) RHR B Pump Room 1H22-P021 - 1E12-R008B, RHR B, Div. 2

8.3 **NOTIFICATION OF COMPLETION**

Notify SMngt upon test completion. _____ _____
Date/Time Initial

9.0 **ACCEPTANCE CRITERIA**

9.1 **OPERABILITY Requirements** - Failure to meet the Acceptance Criteria shall constitute a failure to comply with the applicable ITS LCO/ORM OR. ITS/ORM should be immediately reviewed to identify Action Statements needed for implementation. Refer to Supplemental Review Sheet for applicable ITS LCOs/ORM ORs.

9.1 **Operability Requirements**

9.1.1 The applicable Control Room Operator Surveillance Log Data Sheet has been satisfactorily completed or applicable ITS/ORM/ODCM actions have been taken. *«LBD-1, LBD-2, LBD-3»*

9.1.2 "Band" values between channels are not exceeded.

If the values are exceeded, further evaluation of channel performance (calibration and/or NSED review) is warranted prior to declaring instrumentation inoperable.

Implement CPS 1401.09, Control Of System And Equipment Status when "Band" values are exceeded.

9.1.3 A H_2/O_2 monitor requires a minimum of two sample zones in the Containment and two sample zones in the Drywell to perform its function.

9.2 OTHER Requirements - None

10.0 **FINAL CONDITIONS** - None

11.0 **REFERENCES**

11.1 LBD-1: ITS SR 3.3.3.1.1 Table 3.3.3.1-1 *«2.1.1, 8.1, 9.1.1»*

11.2 LBD-2: ITS SR 3.3.3.2.1 *«2.1.1, 8.2, 9.1.1»*

11.3 LBD-3: ORM TR 4.2.17.1 *«2.1.1, 8.1.9, 9.1.1»*

11.4 LBD-4: ORM Attachment 1 *«8.2»*

11.5 USAR 7.4.1.4, 7.4.2.4, 7.5.2.4

11.6 CPS 3315.01, Containment Monitoring (CM)

11.7 K-2929-0001A, Sentry Operation Manual

12.0 **APPENDICES** - None

13.0 **DOCUMENTS** - None

ACCIDENT MONITORING AND REMOTE SHUTDOWN INSTRUMENTATION LOG

SUPPLEMENTAL REVIEW SHEET

Corrective Action Taken

Operability Requirements:

ITS LCOs: 3.3.3.1 3.3.3.2

ORM ORs: 2.2.17

ODCM ORs: None

As applicable:

Initiated Condition Report No. _____

Initiated Work Document No. _____

Comments/Deficiencies

_____

_____

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SMngt: _____
(Signature) (Date)

Job Performance Measure

Perform a Manual Jet Pump Operability

JPM Number: JPM512

Revision Number: 03

Date: 8/18/2020

Developed By:	Bill Kiser /		8/18/20
	Instructor: Print / Sign		Date
Reviewed By:	/		
	SME or Instructor: Print / Sign		Date
Reviewed By:	/		
	Operations Representative: Print / Sign		Date
Approved By:	/		
	Training Department: Print / Sign		Date

SRRS: 3D.105 (when utilized for operator initial or continuing training)

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

NOTE: All steps of this checklist should be performed upon initial validation.
Prior to JPM usage, revalidate JPM using steps 9 and 13 below.

1. Task description and number, JPM description and number are identified. _____
2. Knowledge and Abilities (K/A) references are included. _____
3. Performance location specified. (in-plant, control room, simulator, or other) _____
4. Initial setup conditions are identified. _____
5. Initiating cue (and terminating cue if required) are properly identified. _____
6. Task standards identified and verified by instructor or SME review. _____
7. Critical steps meet the criteria for critical steps and are identified with an asterisk (*). _____
8. IAW NUREG 1021 Appendix C, clearly identify the task standard (i.e., the predetermined qualitative or quantitative outcome) against which task performance will be measured. _____
9. Verify the procedure(s) referenced by this JPM reflects the current revision:
   Procedure: CPS 9041.01 Revision: 36c
   Procedure: CPS 9041.01D001 Revision: 34b
   Procedure: _____ Revision: _____
   Procedure: _____ Revision: _____
10. Verify cues both verbal and visual are free of conflict. _____
11. Verify performance time is accurate. _____
12. If the JPM cannot be performed as written with proper responses, then revise the JPM. _____
13. When JPM is initially validated, sign and date JPM cover page. For subsequent validations, sign and date below: _____

_____ / _____ _____
SME / Instructor (Print/Sign) Date

_____ / _____ _____
SME / Instructor (Print/Sign) Date

_____ / _____ _____
SME / Instructor (Print/Sign) Date

Revision Record (Summary)

Revision #	Summary
00	12/5/5 – New format and numbering convention, revalidated. This replaces JPM 012202J005. Revision number reset to 00.
01	6/14/13 – Updated to new template and numbering convention. This replaces 90410101LAN01.
02	6/12/16 – Updated references.
03	8/18/20 – Updated JPM format.

SETUP INSTRUCTIONS

1. No setup is required for this JPM.

INITIAL CONDITIONS

You are the extra RO.

The computerized method of performing CPS 9041.01 Jet Pump Operability Test is not available at this time.

Plant conditions are as follows:

- Reactor is operating at 96% power.
- RR Pumps 'A' and 'B' are operating in fast speed.
- APRM calibrations are NOT in progress.

INITIATING CUE

CPS 9041.01 Jet Pump Operability Test was started on midshift – completed through step 8.1.3. The Control Room Supervisor (CRS) has directed you to complete the remaining portions of CPS 9041.01. Document results on CPS 9041.01D001 Jet Pump Operability Test Data Sheet.

No Engineer is available to provide judgements or evaluations.

Report to the CRS after completing the task.

Fill in the JPM Start Time when the student acknowledges the Initiating Cue.

Information For Evaluator's Use:

UNSAT requires written comments on respective step.

* Denotes critical steps.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. The comment section should be used to document: the reason that a step is marked as unsatisfactory, marginal performance relating to management expectations, or problems the examinee had while performing the JPM. Comments relating to procedural or equipment issues should be entered and tracked using the site's appropriate tracking system.

Some operations that are performed from outside of the control room may require multiple steps. These items may be listed as individual steps in this JPM. It is acceptable for the candidate to direct the local operator to perform groups of procedure steps instead of calling for each individual item to be performed.

The timeclock starts when the candidate acknowledges the initiating cue.

JPM Start Time: _____ JPM Sequence #: _____ of _____

Task Standard:
The examinee will complete CPS 9041.01 Jet Pump Operability Test and determine:

- Recirc Loop A Loop Flow % Deviation is outside the Acceptance Value and steps 8.3.2, 8.3.3 and 8.3.4 may NOT be omitted.
- Jet Pump 19 Flow % Deviation is outside its Acceptance Value.

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
CUE	Provide the examinee with a copy of: • Initiating Cue (last page of JPM) • Marked up copy of CPS 9041.01 Jet Pump Operability Test • Marked up copy of CPS 9041.01D001 Jet Pump Operability Test Data Sheet • Attachment 1 Data for Section 8.1 and 8.2 • Calculator				
***01**	Step 8.1.4 Calculate the % deviation of the indicated loop flow from the established loop using the data sheet formula.	**Examinee calculates Loop Flow % Deviation using the formula listed and records the following values:** **Recirc Loop A:** • Indicated flow – 32,500 gpm • Established flow – 28,800 gpm • **Loop Flow % Deviation – 12.3% to 13.3%**	☐	☐	___

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
***01** (cont.)		**Recirc Loop B:** • Indicated flow – 31,000 gpm • Established flow – 29,200 gpm • **Loop Flow % Deviation – 5.7% to 6.7%** Examinee checks the box for step 8.1.4 in CPS 9041.01.	☐	☐	___
CUE	If the examinee reports that the 'A' RR Loop % deviation is outside the ±10% acceptance value, acknowledge the report and cue the examinee to complete the surveillance and report any remaining data outside the acceptance criteria of CPS 9041.01.				
02	Step 8.2.1 Records Indicated Total Core Flow.	Examinee records Indicated Total Core Flow (Attachment 1). • Indicated Total Core Flow – 77.0 mlbm/hr	☐	☐	___
***03**	Step 8.2.2 Calculates Total Recirc Loop Flow.	**Examinee calculates Total Recirc Loop Flow using the formula listed and records the following values:** • Loop A Indicated flow – 32,500 gpm • Loop B Indicated flow – 31,000 gpm • **Total flow – 63,500 gpm**	☐	☐	___

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
***04**	Step 8.2.3.1 Determines and records Established Total Core Flow. (Step 8.2.3.2 is N/A)	**Examinee uses Figure 2a from CPS 9041.01 to determine Established Core Flow and records the following:** • **81,000 – 83,000 lbm/hr** Examinee checks the box for step 8.2.3.1 in CPS 9041.01.	☐	☐	___
***05**	Step 8.2.4 Calculates Core Flow % Deviation.	**Examinee calculates Core Flow % Deviation using the formula listed and records the following values:** • Indicated flow – 77 mlbm/hr • Established flow – 81 to 83 mlbm/hr • **Core Flow % Deviation – -4.9% to -7.2%** Examinee checks the box for step 8.2.4 in CPS 9041.01.	☐	☐	___
CUE	Provide the examinee with a copy of Attachment 2 Jet Pump Flows for Section 8.3				
***06**	Step 8.3.1 Records Jet Pump Flow.	Examinee records Jet Pump Flows in mlbm/hr (Attachment 2).	☐	☐	___
	Determines steps 8.3.2, 8.3.3 and 8.3.4 must be completed.	**Examinee determines steps 8.3.2, 8.3.3 and 8.3.4 must be completed due to step 8.1.4 failing to meet the Acceptance Value (Recirc Loop A).**	☐	☐	___

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
***06** (cont.)	Records sum of each loop's jet pump flows.	Examinee records the sum of each loop's jet pump (JP) flows: Loop A (JP 1 thru 10) – 37.97 mlbm/hr Loop B (JP 11 thru 20) – 39.08 mlbm/hr Examinee checks the box for step 8.3.1 in CPS 9041.01.	☐	☐	___
***07**	Step 8.3.2 Calculates the Average Jet Pump Flow for each recirc loop.	**Examinee calculates Average Jet Pump Flow for each recirc loop using Formula #1 and records the following values:** • **Loop A – 3.797 mlbm/hr** • **Loop B – 3.908 mlbm/hr**	☐	☐	___

<table>
<tr><th>STEP</th><th>ELEMENT</th><th>STANDARD</th><th>SAT</th><th>UNSAT</th><th>Comment Number</th></tr>
<tr><td>*08</td><td>Step 8.3.3

Calculates the Jet Pump Flow % Deviation for each jet pump in each recirc loop.</td><td>Examinee calculates the Jet Pump Flow % Deviation for each jet pump in each recirc loop using Formula #1 and records the following values:
<table>
<tr><th>JP</th><th>%Dev</th><th>JP</th><th>%Dev</th></tr>
<tr><td>1</td><td>5.08</td><td>11</td><td>2.61</td></tr>
<tr><td>2</td><td>5.08</td><td>12</td><td>2.61</td></tr>
<tr><td>3</td><td>- 1.76</td><td>13</td><td>- 1.23</td></tr>
<tr><td>4</td><td>- 0.71</td><td>14</td><td>- 1.48</td></tr>
<tr><td>5</td><td>0.08</td><td>15</td><td>- 1.23</td></tr>
<tr><td>6</td><td>0.34</td><td>16</td><td>- 1.48</td></tr>
<tr><td>7</td><td>- 1.76</td><td>17</td><td>- 1.23</td></tr>
<tr><td>8</td><td>- 0.97</td><td>18</td><td>- 2.51</td></tr>
<tr><td>9</td><td>- 1.76</td><td>19</td><td>6.70</td></tr>
<tr><td>10</td><td>- 3.61</td><td>20</td><td>- 2.76</td></tr>
</table>
Examinee checks the box for step 8.3.3 in CPS 9041.01.</td><td>☐</td><td>☐</td><td>___</td></tr>
</table>

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
***09**	Step 8.3.4.1 Compares Jet Pump Flow % Deviation to the Acceptance Criteria.	Examinee compares the calculated jet pump flow % deviation calculated in step 8.3.3 to the acceptance criteria on Table 1 – Fast Speed (80-100% Power). **Examinee notes that jet pump (JP) 19 is outside the acceptance criteria.** Examinee checks the box for step 8.3.4.1 in CPS 9041.01.	☐	☐	___
CUE	If the examinee reports that jet pump 19 outside the acceptance value, acknowledge the report.				
10	Step 8.4 Determines Engineering evaluation was not performed .	Examinee reviews Initiating Cue and determines that there was no Engineer available to perform an evaluation. Step is N/A.	☐	☐	___
11	Step 8.5 Notifies SMngt of the completion of the test.	Examinee notifies SMngt that test is complete.	☐	☐	___
CUE	If the examinee reports that the test is complete, acknowledge the report. JPM is complete.				

JPM Stop Time: _____

JPM SUMMARY

Operator's Name: _____ **Emp. ID#:** _____

Job Title: ☐ EO ☐ RO ☐ SRO ☐ FS ☐ STA/IA ☐ SRO Cert

JPM Title: Perform a Manual Jet Pump Operability

JPM Number: JPM512 Revision Number: 03

Task Number and Title: 904101.01 Perform the Jet Pump Operability Test

Task Standard: The examinee will complete CPS 9041.01 Jet Pump Operability Test and determine:

- Recirc Loop A Loop Flow % Deviation is outside the Acceptance Value and steps 8.3.2, 8.3.3 and 8.3.4 may NOT be omitted.
- Jet Pump 19 Flow % Deviation is outside its Acceptance Value.

K/A Number and Importance:

K/A System	K/A Number	Importance (RO/SRO)	
Generic	2.2.12	3.7	4.1

Suggested Testing Environment: Classroom

Alternate Path: ☐ Yes ☒ No SRO Only: ☐ Yes ☒ No Time Critical: ☐ Yes ☒ No

Reference(s):

Procedure: CPS 9041.01 Revision: 36c
CPS 9041.01D001 Revision: 34b

Actual Testing Environment: ☐ Simulator ☐ Control Room ☐ In-Plant ☐ Other

Testing Method: ☐ Simulate ☒ Perform

Estimated Time to Complete: 20 minutes **Actual Time Used:** _____ minutes

EVALUATION SUMMARY:

Were all the Critical Elements performed satisfactorily? ☐ Yes ☐ No

The operator's performance was evaluated against standards contained within this JPM and has been determined to be: ☐ Satisfactory ☐ Unsatisfactory

NOTE: Enter finalized grading, comments, and notes relevant to this evaluation in the associated TQ-AA-150-F03A/B. (See AR 4282419).

Evaluator's Name (Print): _____

Evaluator's Signature: _____ **Date**: _____

SRRS: 3D.105 (when utilized for operator initial or continuing training)

Attachment 1: Data for CPS 9041.01 Sections 8.1 and 8.2

B33DA013	INDICATED Loop A Flow	32,500 gpm
B33DA014	INDICATED Loop B Flow	31,000 gpm
B33DA009	B33-F060A Recirc FCV Position	RVDT 61%
B33DA010	B33-F060B Recirc FCV Position	RVDT 61%
B33DA022	Loop A Jet Pump Flow	40.76 mlbm/Hr
B33DA023	Loop B Jet Pump Flow	42.69 mlbm/Hr
B33NA001	Indicated Total Core Flow	77.0 mlbm/Hr

Attachment 2: Data for CPS 9041.01 Sections 8.3

Jet Pump Number	Jet Pump Flow (mlbm/hr)
JP 1	3.99
JP 2	3.99
JP 3	3.73
JP 4	3.77
JP 5	3.80
JP 6	3.81
JP 7	3.73
JP 8	3.76
JP 9	3.73
JP 10	3.66
JP 11	4.01
JP 12	4.01
JP 13	3.86
JP 14	3.85
JP 15	3.86
JP 16	3.85
JP 17	3.86
JP 18	3.81
JP 19	4.17
JP 20	3.80

INITIAL CONDITIONS

You are the extra RO.

The computerized method of performing CPS 9041.01 Jet Pump Operability Test is not available at this time.

Plant conditions are as follows:

- Reactor is operating at 96% power.
- RR Pumps ‘A’ and ‘B’ are operating in fast speed.
- APRM calibrations are NOT in progress.

INITIATING CUE

CPS 9041.01 Jet Pump Operability Test was started on midshift – completed through step 8.1.3. The Control Room Supervisor (CRS) has directed you to complete the remaining portions of CPS 9041.01. Document results on CPS 9041.01D001 Jet Pump Operability Test Data Sheet.

No Engineer is available to provide judgements or evaluations.

Report to the CRS after completing the task.

JET PUMP OPERABILITY TEST DATA SHEET

SCOPE OF REVISION:

- Incorporated Temp Change 33a:
  Recirc Loop Flow for B pump to 7900 gpm per ECR 368217.
- Due to statistical differences between indicated
  RVDT/LVDT data readings during CPS 2214.01:
  1) Added separate Figures 1c & 1d for LVDT position indication.
  2) Distinction between use of FCV Position via RVDT or LVDT added.

❶ Specific Rev. 34a [Landin]: EDITORIAL - IR 291959-09: Added data limitations associated with performing surveillance during slow speed pump operations.

❷ Specific Rev. 34b [Jeans]:
Update Slow Speed A Recirc Loop Flow for Cycle 12 per CPS 2214.01.

For Training Only

CONTINUOUS USE

ORIGINATOR: *Thomas J. Landin* **CLASS CODE:** *SNND1*

SQR: *Kenneth Sheffield* **APPROVAL DATE:** *02/03/05*

CURRENT CHANGES TO GENERAL REVISION

	Change #	Date	List of Affected Pages
❶	34a	06/28/05	1, 6
❷	34b	10/03/08	1, 3
❸			
❹			
❺			

JET PUMP OPERABILITY TEST DATA SHEET

☞ Procedure normally performed via Appendix A: Performance of Computerized CPS 9041.01D001. Refer to 2.1.7 criteria.

PREREQUISITES **Initial**

5.1.1 RR system in TWO LOOP operation with: WDK

(place check mark in appropriate box)

1. Fast speed pumps and either:

   1) Loop flow mismatch maintained within 5% of rated core flow (4.225 mlbm/hr) when effective core flow is ≥ 70% of rated core flow (59.15 mlbm/hr), ☒

   OR

   2) Loop flow mismatch maintained within 10% of rated core flow (8.45 mlbm/hr) when effective core flow is < 70% of rated core flow (59.15 mlbm/hr). N/A

2. Slow speed pumps with FCVs full open (~ 90% indicated). N/A

5.1.2 RR system in SINGLE LOOP operation with: N/A

(place check mark in appropriate box)

Circle operating loop: **A** or **B**

1. The operating pump in fast speed and its associated FCV at the desired position, ☐

   OR

2. The operating pump is in slow speed with its associated FCV full open (~ 90% indicated). ☐

5.2 Reactor power using OD-3, 3D Monicore or APRM. 96 %

5.3 SMngt notified of test start.

XX:XX XX/XX/XXXX WDK

Time _____ Date _____

_____

Performer

JET PUMP OPERABILITY TEST DATA SHEET (cont'd)

8.1 **Indicated Recirc Loop Flow versus Established Loop Flow based on FCV Position**

8.1.1 Record INDICATED Loop A Flow. 32,50 gpm

Record INDICATED Loop B Flow. 31,000 gpm

B33DA013 (Loop A) and B33DA014 (Loop B) are normally used. If these points are unavailable, see procedure step, and make a note about which alternate method is used in the COMMENTS/DEFICIENCIES section.

8.1.2 Record Recirc FCV position:

B33-F060A: B33DA009: ☒ RVDT ☐ LVDT; or ☐ P680 61 %

B33-F060B: B33DA010: ☒ RVDT ☐ LVDT; or ☐ P680 61 %

8.1.3.1 If slow speed Recirc Pumps, then use the following: N/A

ESTABLISHED		ESTABLISHED	
Loop A Flow	7600 gpm	Loop B Flow	7900 gpm

8.1.3.2 If fast speed Recirc Pumps, using Figure 1a(1b) [RVDT] or 1c(1d) [LVDT], and the FCV position from step 8.1.2, determine the following:

ESTABLISHED		ESTABLISHED	
Loop A Flow	28,800 gpm	Loop B Flow	29,200 gpm

8.1.3.3 If in SINGLE LOOP, using Figure 1e(1f) [RVDT] or 1g(1h) [LVDT] and the FCV position from step 8.1.2, determine the following: N/A

ESTABLISHED		ESTABLISHED	
Loop A Flow	_____ gpm	Loop B Flow	_____ gpm

8.1.4 Determine Loop Flow % Deviation using ESTABLISHED loop flow (step 8.1.3.1, or 8.1.3.2, or 8.1.3.3), and INDICATED loop flow (step 8.1.1) (If using engineering judgment N/A this step.):

$$\frac{\text{(INDICATED) - (ESTABLISHED)}}{\text{(ESTABLISHED)}} \times 100 = \text{Loop Flow \% Deviation}$$

Recirc Loop A	Loop Flow % Deviation	Acceptance Value
( ) gpm - ( ) gpm / ( ) gpm X 100	= _____ %	± 10%

Recirc Loop B	Loop Flow % Deviation	Acceptance Value

$$\frac{(\quad)\ \text{gpm} - (\quad)\ \text{gpm}}{(\quad)\ \text{gpm}} \times 100 = \underline{\qquad} \%$$ ± 10%

JET PUMP OPERABILITY TEST DATA SHEET (cont'd)

8.2 **Indicated Total Core Flow versus Established Total Core Flow**

8.2.1 Record Indicated Total Core Flow using computer point B33NA001 (or recorder B33-R613, JET PUMP FLOW/CORE PLATE dP).

Indicated Total Core Flow: _____ mlbm/hr

8.2.2 Calculate Total Recirc Loop Flow:

Loop A flow gpm (step 8.1.1) + Loop B flow gpm (step 8.1.1) = Total Recirc Loop Flow

(_____) gpm + (_____) gpm = _____ gpm

8.2.3 Determine and record Established Total Core Flow using Figure 2 curve(s) and Total Recirc Loop Flow from step 8.2.2.

Established Total Core Flow: _____ mlbm/hr

8.2.4 Calculate Core Flow % Deviation using Established Total Core Flow (step 8.2.3), and Indicated Total Core Flow (step 8.2.1) (If using engineering judgment, N/A this step):

$$\frac{\text{(INDICATED) - (ESTABLISHED)}}{\text{(ESTABLISHED)}} \times 100 = \text{Core Flow \% Deviation}$$

	Core Flow % Deviation	Acceptance Value
$\frac{(\quad) \text{ mlbm/hr} - (\quad) \text{ mlbm/hr}}{(\quad) \text{ mlbm/hr}} \times 100 =$	_____ %	± 10%

8.3 **Indicated Jet Pump Flow/dP Versus Established Jet Pump Flow/dP**

8.3.1 Determine Jet Pump Flow % Deviation from average using Formula #1, or Jet Pump dP % Deviation from average using Formula #2 (P619 dP meter scales are in %) for each Jet Pump in each operating loop, and record on Table 1 (computer

generated spreadsheet for the calculated values may be used) (If using engineering judgment N/A step 8.3.4.):

Table 1: JP FLOW/dP and DEVIATION DATA TABLE

Jet Pump (JP) Number	8.3.1 Jet Pump Flow (mlbm/hr)	8.3.3 Jet Pump % DEV Flow	8.3.1 Jet Pump dP (%)	8.3.3 Jet Pump % DEV dP	8.3.4 Initial
JP 1					
JP 2					
JP 3					
JP 4					
JP 5					
JP 6					
JP 7					
JP 8					
JP 9					
JP 10					
Sum 1 - 10					
8.3.2 AVERAGE JP FLOW		**8.3.2 AVERAGE JP dP**			
JP 11					
JP 12					
JP 13					
JP 14					
JP 15					
JP 16					
JP 17					
JP 18					
JP 19					
JP 20					
Sum 11 - 20					
8.3.2 AVERAGE JP FLOW		**8.3.2 AVERAGE JP dP**			

8.4 If an Engineering evaluation was performed, are jet pumps OPERABLE? (N/A if not performed.) Attach copy of any justification.

YES / NO

_____
Reactor Engineer

8.5 SMngt notified of the completion of the test.

_____	_____
Date / Time	Initial

JET PUMP OPERABILITY TEST DATA SHEET

SUPPLEMENTAL REVIEW SHEET

Corrective Action Taken

❶

NOTE

- *Since refueling activities (fuel assembly replacement or shuffle, as well as any modifications to fuel support orifice size or core plate bypass flow) can affect the relationship between core flow, jet pump flow, and recirculation loop flow, these relationships may need to be re-established each cycle.*
- *Similarly, initial entry into extended single recirculation loop operation may also require establishment of these relationships.*
- *During the initial weeks of operation under such conditions, while baselining new "established patterns", engineering judgment of the daily surveillance results is used to detect significant abnormalities which could indicate a jet pump failure.*
- *During slow speed pump operation, even with an updated slow speed flow relationship, there may be potential for not meeting the acceptance criteria due to the data being at or just above the flow instrument's threshold response.*

Under the above bulleted conditions, it is acceptable to use engineering judgment to determine operability.

Jet pump operability in an operating loop is verified when at least two of the following criteria are satisfied for each operating loop: [ITS SR 3.4.3.1]

1. *Recirculation loop drive flow versus flow control valve position differs by ≤ 10% from established patterns. [step 8.1.4, ITS LCO 3.4.3.1 (a)]*
2. *Recirculation loop drive flow versus total core flow differs by ≤ 10% from established patterns. [step 8.2.4, ITS LCO 3.4.3.1 (b)]*
3. *Each jet pump diffuser to lower plenum differential pressure differs by ≤ 20% from established patterns, or each jet pump flow differs by ≤ 10% from established patterns. [step 8.3.4, ITS LCO 3.4.3.1 (c)]*

Operability Requirements:

ITS LCOs: 3.4.3.1 (a) 3.4.3.1 (b) 3.4.3.1 (c)

ORM ORs: None

ODCM ORs: None

As applicable:

Initiated Condition Report No. _____

Initiated Work Document No. _____

Comments/Deficiencies

_____

_____

_____

_____

_____

Review and Approval

SMngt Review: _____

(Signature) (Date)

Job Performance Measure

RT Pump Shutdown

JPM Number: JPM475

Revision Number: 01

Date: 8/19/2020

Developed By: Bill Kiser / _____ 8/19/20
Instructor: Print / Sign — Date

Reviewed By: _____ / _____ _____
SME or Instructor: Print / Sign — Date

Reviewed By: _____ / _____ _____
Operations Representative: Print / Sign — Date

Approved By: _____ / _____ _____
Training Department: Print / Sign — Date

SRRS: 3D.105 (when utilized for operator initial or continuing training)

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

NOTE: All steps of this checklist should be performed upon initial validation.
Prior to JPM usage, revalidate JPM using steps 9 and 13 below.

1. Task description and number, JPM description and number are identified. _____
2. Knowledge and Abilities (K/A) references are included. _____
3. Performance location specified. (in-plant, control room, simulator, or other) _____
4. Initial setup conditions are identified. _____
5. Initiating cue (and terminating cue if required) are properly identified. _____
6. Task standards identified and verified by instructor or SME review. _____
7. Critical steps meet the criteria for critical steps and are identified with an asterisk (*). _____
8. IAW NUREG 1021 Appendix C, clearly identify the task standard (i.e., the predetermined qualitative or quantitative outcome) against which task performance will be measured. _____
9. Verify the procedure(s) referenced by this JPM reflects the current revision:
   Procedure: CPS 3303.01 Revision: 38
   Procedure: CPS 3303.01V001 Revision: 20a
   Procedure: RP-AA-203 Revision: 6
   Procedure: _____ Revision: _____
10. Verify cues both verbal and visual are free of conflict. _____
11. Verify performance time is accurate. _____
12. If the JPM cannot be performed as written with proper responses, then revise the JPM. _____
13. When JPM is initially validated, sign and date JPM cover page. For subsequent validations, sign and date below: _____

_____ / _____ _____
SME / Instructor (Print/Sign) Date

_____ / _____ _____
SME / Instructor (Print/Sign) Date

_____ / _____ _____
SME / Instructor (Print/Sign) Date

Revision Record (Summary)

Revision #	Summary
00	4/10/18 – New JPM.
01	8/19/20 – Updated references.

SETUP INSTRUCTIONS

1. No setup is required for this JPM.

INITIAL CONDITIONS

RWCU Recirc Pump 'B' 1G33-C001B has been secured due to a leaking seal per CPS 3303.01 Reactor Water Cleanup (RT) section 8.1.4 Removing RWCU Pump(s) From Service.

INITIATING CUE

Determine:

1) the total dose required to support a pre-job brief of two Equipment Operators tasked with performing CPS 3303.01 section 8.1.4.4 to isolate and vent the 'B' RWCU Pump, and

2) the margin each Operator will have to the yearly admin dose limit after performing the task.

The following amplifying information is provided:

- Equipment Operator #1 has 700 mr radiation dose YTD.
- Equipment Operator #2 has 500 mr radiation dose YTD.
- Equipment Operator #1 will be performing steps 8.1.4.4.1, 8.1.4.4.2, and 8.1.4.4.3 of CPS 3303.01 Reactor Water Cleanup (RT).
- Equipment Operator #2 will be performing steps 8.1.4.4.4, 8.1.4.4.6, 8.1.4.4.7, and 8.1.4.4.8 of CPS 3303.01 Reactor Water Cleanup (RT)
- Expected total dose for each operator based on the following:
    - Equipment Operator #1: 3 minutes at 1G33-F013B, 3 minutes at 45B, and 6 minutes at 43B.
    - For Equipment Operator #2: 2 minutes performing 8.1.4.4.4 and 3 minutes performing 8.1.4.4.6, 8.1.4.4.7, and 8.1.4.4.8.
    - The 30 cm dose is the whole body dose to be received.
    - No dose will be received during the transit to and from each component.

Inform the Shift Manager when the task is complete.

Fill in the JPM Start Time when the student acknowledges the Initiating Cue.

Information For Evaluator's Use:

UNSAT requires written comments on respective step.

* Denotes critical steps.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. The comment section should be used to document: the reason that a step is marked as unsatisfactory, marginal performance relating to management expectations, or problems the examinee had while performing the JPM. Comments relating to procedural or equipment issues should be entered and tracked using the site's appropriate tracking system.

Some operations that are performed from outside of the control room may require multiple steps. These items may be listed as individual steps in this JPM. It is acceptable for the candidate to direct the local operator to perform groups of procedure steps instead of calling for each individual item to be performed.

The timeclock starts when the candidate acknowledges the initiating cue.

JPM Start Time: _____ JPM Sequence #: _____ of _____

Task Standard:
The examinee will determine the total dose and margin to the annual admin dose limit for each operator.

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
CUE	Provide the examinee with a copy of: • Initiating Cue (last page of JPM) • CPS 3303.01 Reactor Water Cleanup (RT) • CPS 3303.01V001 Reactor Water Cleanup Valve Lineup • JPM475 Attachments 1 – 4: Survey maps RP-1137-04, RP-1126-04, RP-1136-05 and RP-1192-03 • Selected RP Procedures for Admin JPMs • Calculator				
***01**	Examinee determines total dose for each operator.	**Examinee determines total dose for Operator #1 is 95 mrem.** Operator #1 Procedure Step / Valve / Dose Rate (mr/hr) / Time (min) / Dose (mr) 8.1.4.4.1 / 13B / 700 / 3 / 35 8.1.4.4.2 / 45B / 400 / 3 / 20 8.1.4.4.3 / 43B / 400 / 6 / 40 Total Dose / 95	☐	☐	___

<table>
<tr><th>STEP</th><th>ELEMENT</th><th>STANDARD</th><th>SAT</th><th>UNSAT</th><th>Comment Number</th></tr>
<tr><td>*01
(cont.)</td><td></td><td>Examinee determines total dose for Operator #2 is 25 mrem.
<table>
<tr><th colspan="5">Operator #2</th></tr>
<tr><td>Procedure Step</td><td>Valve</td><td>Dose Rate (mr/hr)</td><td>Time (min)</td><td>Dose (mr)</td></tr>
<tr><td>8.1.4.4.4</td><td>005B</td><td>300</td><td>2</td><td>10</td></tr>
<tr><td>8.1.4.4.6,
8.1.4.4.7,
8.1.4.4.8</td><td>10B / 11B</td><td>300</td><td>3</td><td>15</td></tr>
<tr><td></td><td></td><td></td><td>Total Dose</td><td>25</td></tr>
</table></td><td>☐</td><td>☐</td><td>___</td></tr>
<tr><td>CUE</td><td colspan="5">If asked, cue the examinee that 1G33-F005B is located at point A on Survey Map RP-1126-4, and 1G33-F010B & 11B are located at point B on Survey Map RP-1126-4.</td></tr>
<tr><td rowspan="2">*02</td><td rowspan="2">Examinee calculates margin to the admin dose limit for both Operators.</td><td>Examinee determines Operator #1 will have a margin of 1205 mrem to the annual admin dose limit after completing the task.
2000 mr – 700 mr - 95 mr = 1205 mr</td><td>☐</td><td>☐</td><td>___</td></tr>
<tr><td>Examinee determines Operator #2 will have a margin of 1475 mrem to the annual admin dose limit after completing the task.
2000 mr – 500 mr - 25 mr = 1475 mr</td><td>☐</td><td>☐</td><td>___</td></tr>
<tr><td>CUE</td><td colspan="5">JPM is complete.</td></tr>
</table>

JPM Stop Time: _____

JPM SUMMARY

Operator's Name: _____ **Emp. ID#:** _____

Job Title: ☐ EO ☐ RO ☐ SRO ☐ FS ☐ STA/IA ☐ SRO Cert

JPM Title: RT Pump Shutdown

JPM Number: JPM475 Revision Number: 01

Task Number and Title: 102405.01 Apply the administrative requirements of ALARA program elements

Task Standard: At the completion of this JPM the examinee will have determined the total dose and margin to the annual admin dose limit for each operator.

K/A Number and Importance:

K/A System	K/A Number	Importance (RO/SRO)	
Generic	2.3.13	3.4	3.8

Suggested Testing Environment: Classroom

Alternate Path: ☐ Yes ☒ No SRO Only: ☐ Yes ☒ No Time Critical: ☐ Yes ☒ No

Reference(s):

Procedure:	CPS 3303.01	Revision:	37b
	CPS 3303.01V001		20a
	RP-AA-203		6

Actual Testing Environment: ☐ Simulator ☐ Control Room ☐ In-Plant ☐ Other

Testing Method: ☐ Simulate ☒ Perform

Estimated Time to Complete: 10 minutes **Actual Time Used:** _____ minutes

EVALUATION SUMMARY:

Were all the Critical Elements performed satisfactorily? ☐ Yes ☐ No

The operator's performance was evaluated against standards contained within this JPM and has been determined to be: ☐ Satisfactory ☐ Unsatisfactory

NOTE: Enter finalized grading, comments, and notes relevant to this evaluation in the associated TQ-AA-150-F03A/B. (See AR 4282419).

Evaluator's Name (Print): _____

Evaluator's Signature: _____ **Date**: _____

SRRS: 3D.105 (when utilized for operator initial or continuing training)

Attachment 1 – Survey Map RP-1137-04

RP- 1137-04
11/28/2009

CPS RADIOLOGICAL SURVEY SHEET

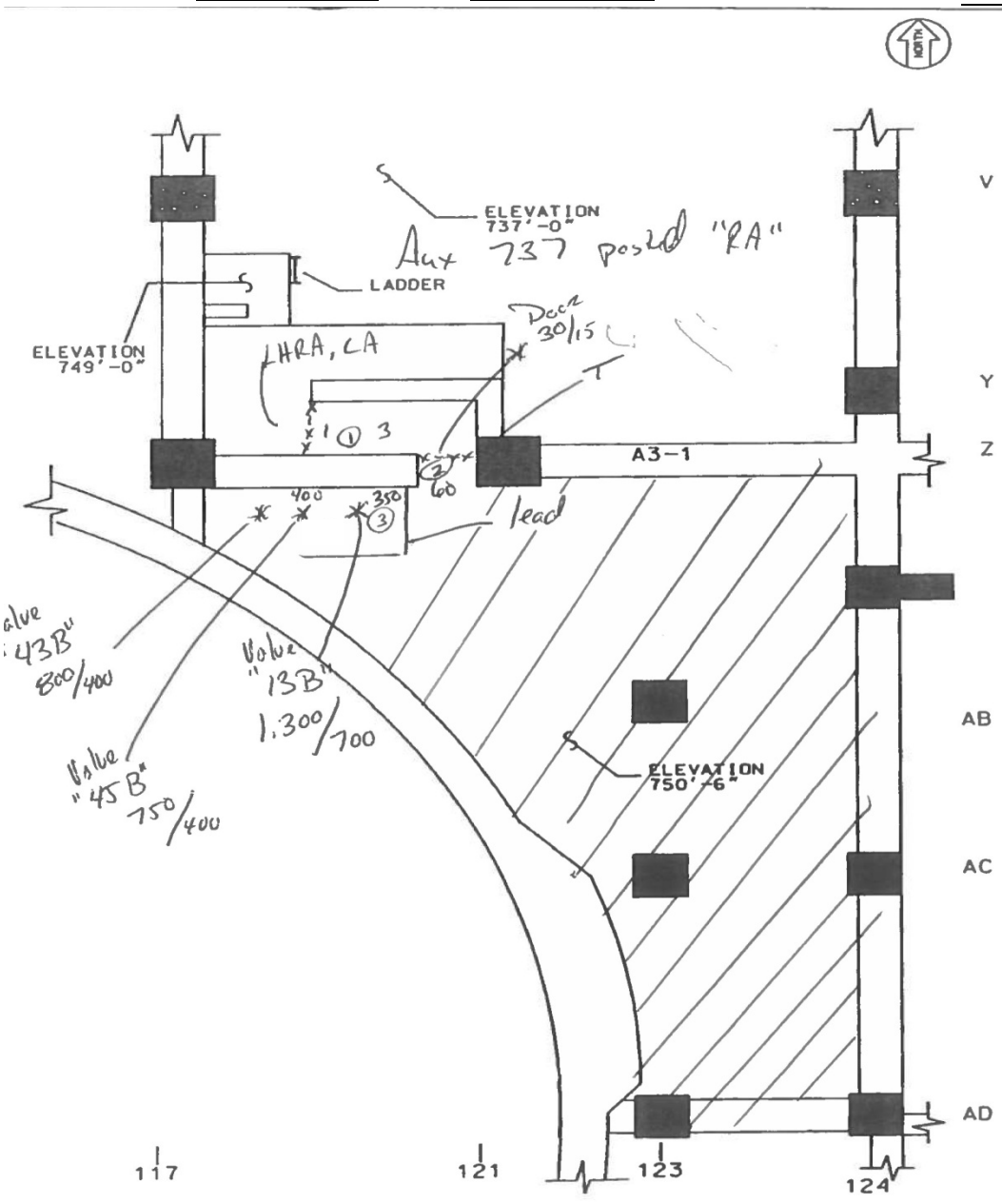
Aux. Building – 750'EL.
RT Mezzanine

Survey Index No: XX/XX/XXXX (Date) - 21 (IndexNo)

Date: XX/XX/XXXX Time: XX:XX
Type: ☒ RWP ☐ Other:
Performed By: A. Radcontech
Counted By: A. Nothertech
Reviewed By: R.P. Sup Date: XX/XX/XXXX

	RADIATION	CONTAMINATION
Inst. Type	Telepole	L-177
Serial #	334721	19265
Cal Due Date	xx/xx/xxxx	xx/xx/xxxx

Rx Power 98% Bkgd. 100 (cpm)



Smear/Location No	dpm/100cm²	Smear/Location No	/
1	<1K		
2	<1K		
3	2K		

Remarks:
MRRR/RWP: CL-ILT-XX-XXXXX

To support removing 'B' RWCU Pump from service.

/// Not Surveyed

Tech Dose Received: 3.4 mR

Notes: Gross Masslinn (~100 ft²)

1. Gen. Area Dose Rates in mRem/hr.
2. * # / # = Contact/30cm Dose Rates
3. Smears Taken at Circled Locations
4. X X = Radiological Boundary
5. RCA = Radiological Control Area
6. CA = Contaminated Area
7. HCA = High Contamination Area
8. RA = Radiation Area
9. HRA = High Radiation Area
10. LHRA= Locked High Radiation Area
11. T = Transfer Area
12. CAB = Clean Area Boundary

SRRS: 3D.100; There are no retention requirements for this section

Attachment 2 – Survey Map RP-1126-04

RP- 1126-04
11/28/2009

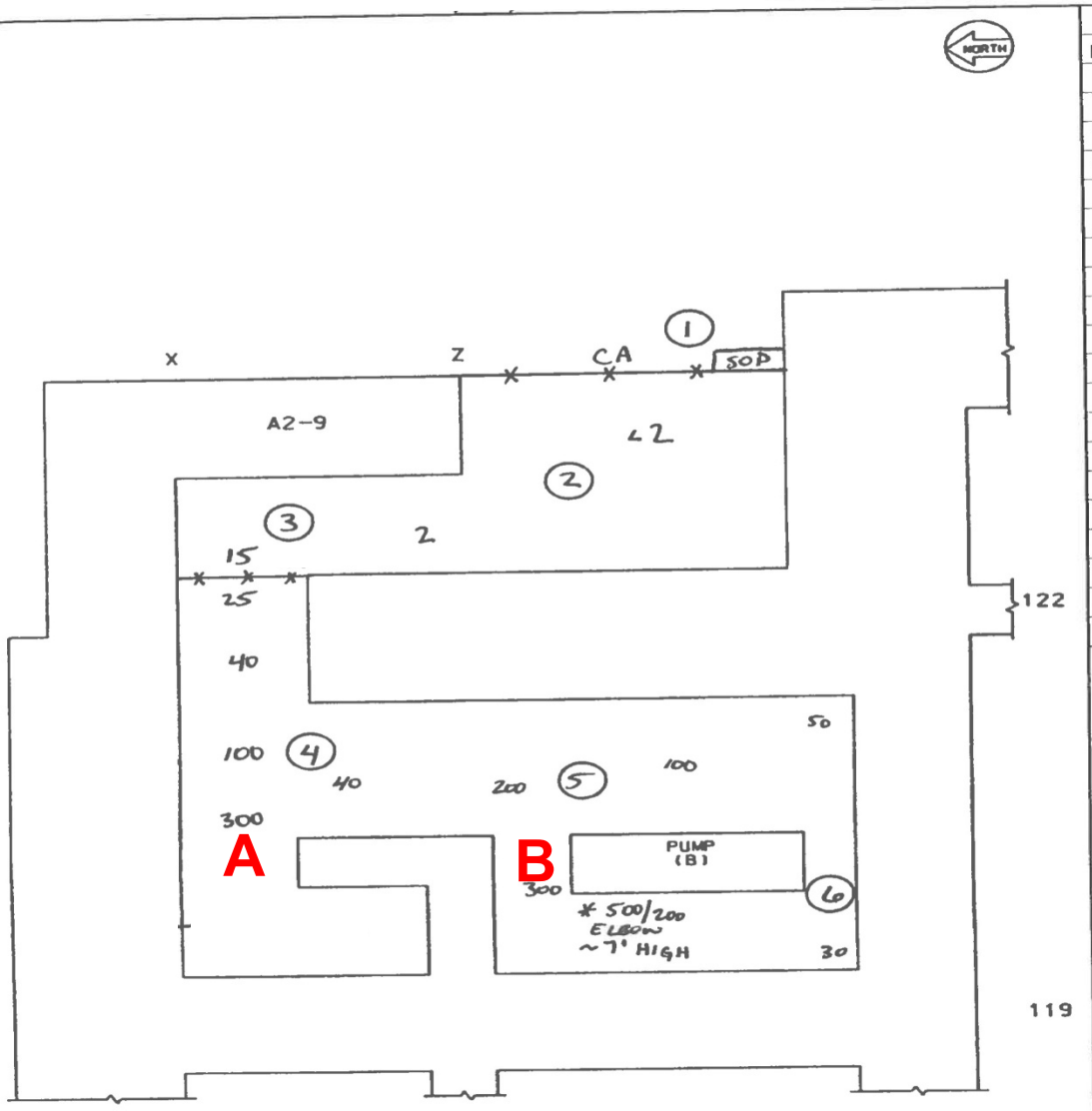
CPS RADIOLOGICAL SURVEY SHEET

Aux. Building – 737'EL.
Reactor Water Cleanup Pump 'B'

Survey Index No: XX/XX/XXXX (Date) - 13 (IndexNo)

Date: XX/XX/XXXX Time: XX:XX
Type: ☒ RWP ☐ Other:
Performed By: A. Radcontech
Counted By: A. Nothertech
Reviewed By: R.P. Sup Date: XX/XX/XXXX

	RADIATION	CONTAMINATION
Inst. Type	R02A	L-177
Serial #	78050	327040
Cal Due Date	xx/xx/xxxx	xx/xx/xxxx
	Rx Power 98%	Bkgd. 100 (cpm)



Smear/Location No	dpm/100cm²	Smear/Location No	N/A
1	< 1K		
2	< 1K		
3	2 K		
4	15 K		
5	20 K		
6	40 K		
	N/A		

Remarks:
MRRR/RWP: CL-ILT-XX-XXXXX

To support removing 'B' RWCU Pump from service.

Tech Dose Received: 23 mR

Notes: Gross Masslinn (~100 ft²)

1. Gen. Area Dose Rates in mRem/hr.
2. * # / # = Contact/30cm Dose Rates
3. Smears Taken at Circled Locations
4. -X-X- = Radiological Boundary
5. RCA = Radiological Control Area
6. CA = Contaminated Area
7. HCA = High Contamination Area
8. RA = Radiation Area
9. HRA = High Radiation Area
10. LHRA= Locked High Radiation Area
11. T = Transfer Area
12. CAB = Clean Area Boundary

SRRS: 3D.100; There are no retention requirements for this section

Attachment 3 – Survey Map RP-1136-05

RP- 1136-05
11/28/2009

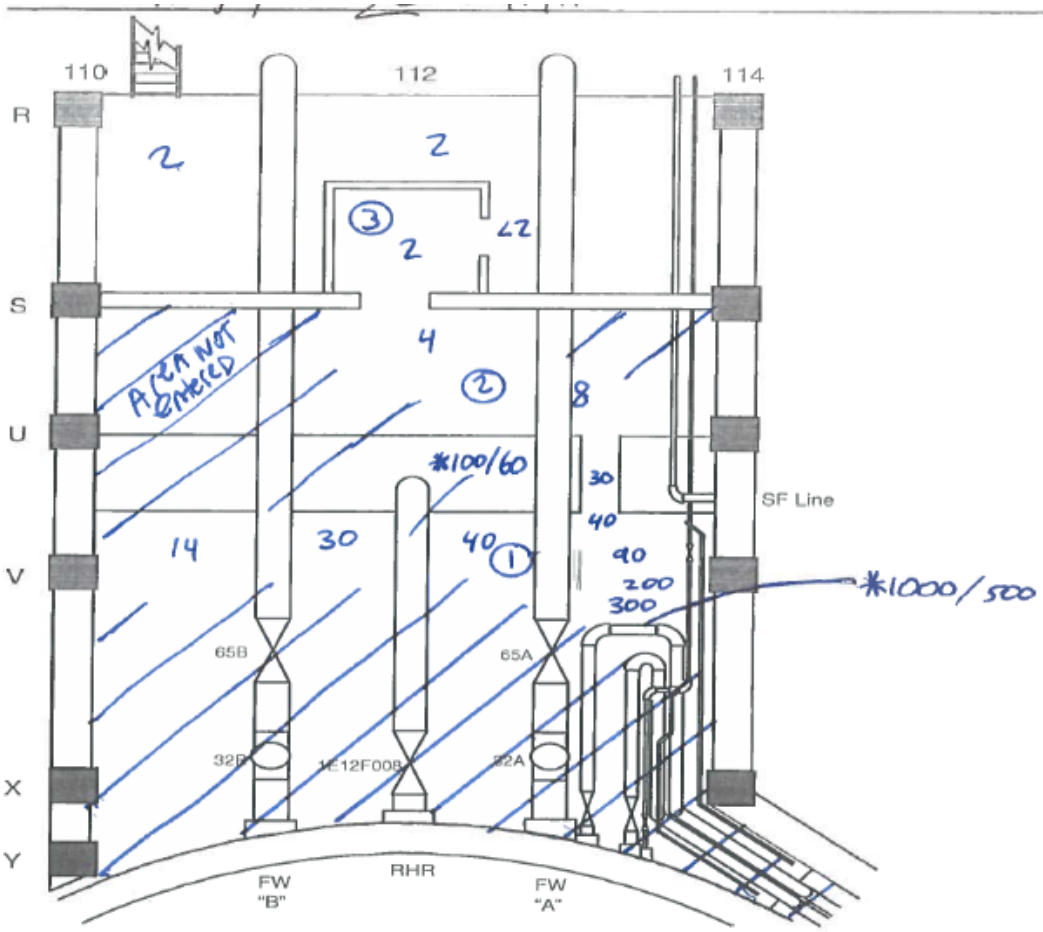
CPS RADIOLOGICAL SURVEY SHEET

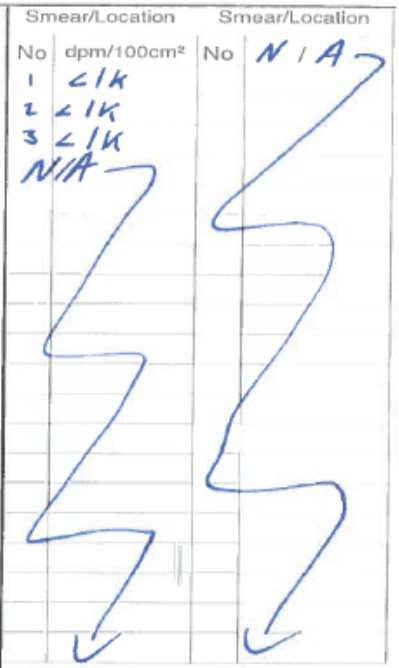
Aux. Building – 750'EL.
Aux. Building Steam Tunnel

Survey Index No: XX/XX/XXXX (Date) - 8 (IndexNo)

Date: XX/XX/XXXX Time: XX:XX
Type: ☒ RWP ☐ Other:
Performed By: A. Radcontech
Counted By: A. Nothertech
Reviewed By: R.P. Sup Date: XX/XX/XXXX

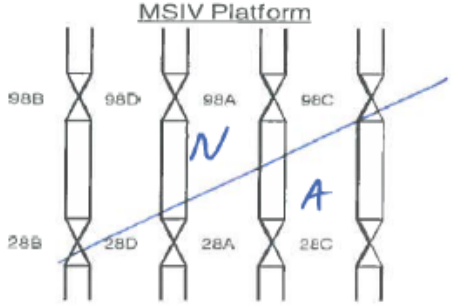
	RADIATION	CONTAMINATION
Inst. Type	R02A	L-177
Serial #	3316	327099
Cal Due Date	xx/xx/xxxx	xx/xx/xxxx
	Rx Power 98%	Bkgd. 100 (cpm)

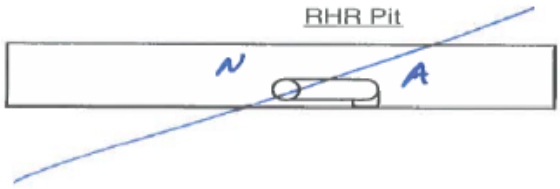




Remarks:
MRRR/RWP: CL-ILT-XX-XXXXX

To support removing 'B' RWCU Pump from service.





Tech Dose Received: 6 mR

Notes: Gross Masslinn (~100 ft²)

1. Gen. Area Dose Rates in mRem/hr.
2. * # / # = Contact/30cm Dose Rates
3. Smears Taken at Circled Locations
4. X X = Radiological Boundary
5. RCA = Radiological Control Area
6. CA = Contaminated Area
7. HCA = High Contamination Area
8. RA = Radiation Area
9. HRA = High Radiation Area
10. LHRA= Locked High Radiation Area
11. T = Transfer Area
12. CAB = Clean Area Boundary

SRRS: 3D.100; There are no retention requirements for this section

Attachment 4 – Survey Map RP-1192-03

RP- 1192-03
11/28/2009

CPS RADIOLOGICAL SURVEY SHEET

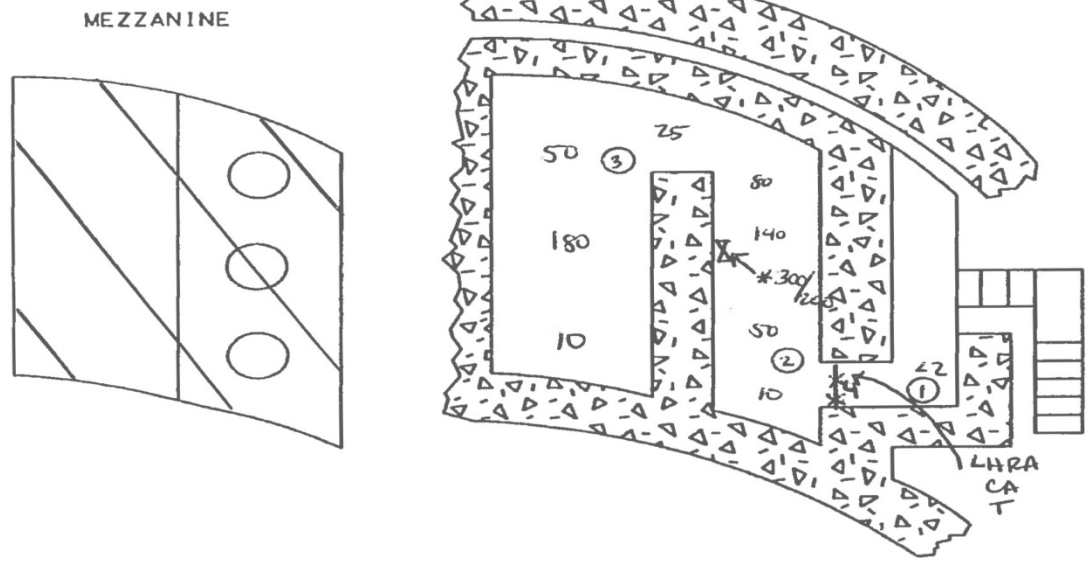
Containment – 789'EL.
RT HX Room (B)

Survey Index No: XX/XX/XXXX (Date) - 10 (IndexNo)

Date: XX/XX/XXXX Time: XX:XX
Type: ☒ RWP ☐ Other:
Performed By: A. Radcontech
Counted By: A. Nothertech
Reviewed By: R.P. Sup Date: XX/XX/XXXX

	RADIATION	CONTAMINATION
Inst. Type	R02A	L-177
Serial #	76965	327099
Cal Due Date	xx/xx/xxxx	xx/xx/xxxx

Rx Power 98% Bkgd. 100 (cpm)



Smear/Location No	dpm/100cm²	Smear/Location No	
1	<1K		N/A
2	10K		
3	35K		
	N/A		

Remarks:
MRRR/RWP: CL-ILT-XX-XXXXX

To support removing 'B' RWCU Pump from service.

Tech Dose Received: 0.5 mR

Notes: Gross Masslinn (~100 ft²)

1. Gen. Area Dose Rates in mRem/hr.
2. * # / # = Contact/30cm Dose Rates
3. Smears Taken at Circled Locations
4. X X = Radiological Boundary
5. RCA = Radiological Control Area
6. CA = Contaminated Area
7. HCA = High Contamination Area
8. RA = Radiation Area
9. HRA = High Radiation Area
10. LHRA= Locked High Radiation Area
11. T = Transfer Area
12. # N = Neutron Dose Rate (mRem/hr)

INITIAL CONDITIONS

RWCU Recirc Pump 'B' 1G33-C001B has been secured due to a leaking seal per CPS 3303.01 Reactor Water Cleanup (RT) section 8.1.4 Removing RWCU Pump(s) From Service.

INITIATING CUE

Determine:

1) the total dose required to support a pre-job brief of two Equipment Operators tasked with performing CPS 3303.01 section 8.1.4.4 to isolate and vent the 'B' RWCU Pump, and

2) the margin each Operator will have to the yearly admin dose limit after performing the task.

The following amplifying information is provided:

- Equipment Operator #1 has 700 mr radiation dose YTD.
- Equipment Operator #2 has 500 mr radiation dose YTD.
- Equipment Operator #1 will be performing steps 8.1.4.4.1, 8.1.4.4.2, and 8.1.4.4.3 of CPS 3303.01 Reactor Water Cleanup (RT).
- Equipment Operator #2 will be performing steps 8.1.4.4.4, 8.1.4.4.6, 8.1.4.4.7, and 8.1.4.4.8 of CPS 3303.01 Reactor Water Cleanup (RT)
- Expected total dose for each operator based on the following:
    - Equipment Operator #1: 3 minutes at 1G33-F013B, 3 minutes at 45B, and 6 minutes at 43B.
    - For Equipment Operator #2: 2 minutes performing 8.1.4.4.4 and 3 minutes performing 8.1.4.4.6, 8.1.4.4.7, and 8.1.4.4.8.
    - The 30 cm dose is the whole body dose to be received.
    - No dose will be received during the transit to and from each component.

Inform the Shift Manager when the task is complete.

REACTOR WATER CLEANUP VALVE LINEUP

SCOPE OF REVISION:

- **C1R12**:
  - Incorporated Specific Rev's 19a-f. Rev marks not retained.
  - Incorporated EC 371878: Deletes valve 1G33-F315. (Pg. 8)

❶ Specific rev 20a [Tom Clay]: AR 650225 Changed positions of valves 1G33-F602A and 1G33-F604A from OPEN to LOCKED OPEN.

CONTINUOUS USE

ORIGINATOR: *Samuel S. Russ* **CLASS CODE:** *SNND1*

SQR: *Thomas J. Landin* **APPROVAL DATE:** *01/05/2010*

CURRENT CHANGES TO GENERAL REVISION

	Change #	Date	List of Affected Pages
❶	20a	04/26/10	1, 9
❷			
❸			
❹			
❺			

REACTOR WATER CLEANUP VALVE LINEUP

Plant Status when lineup initiated:
Mode ____1 ____2 ____3 ____4 ____5

Reason for Lineup:_____

Full Lineup ☐ Partial Lineup ☐

Positioner(s) Printed Name/Sample Int. and Signature	Checker(s) Printed Name/Sample Int. and Signature
/	/
/	/
/	/
/	/
/	/

Remarks:

_____

_____

_____

_____

_____

_____

_____

_____

Review and Approval

Shift Supervision: _____
Printed Name / Signature / Date / Time

* Asterisks placed by component identifiers mean that the component position may change during plant operations from the required positions.

REACTOR WATER CLEANUP VALVE LINEUP

Component	Description	Position	Initial
	Containment Building - Steam Tunnel		
1G33-F037	RWCU Rtn Hdr Test Conn	SHUT	**IV** /
1G33-F038	RWCU Rtn Hdr Test Conn	SHUT	**IV** /
1G33-F059	RWCU Pumps Disch Hdr Test Conn	SHUT	**IV** /
1G33-F060	RWCU Pumps Disch Hdr Test Conn	SHUT	**IV** /
1G33-F067	Drn Flow Hdr Test Conn	SHUT	**IV** /
1G33-F068	Drn Flow Hdr Test Conn	SHUT	**IV** /
1G33-F032	Drn Flow Hdr Isol	LOCKED OPEN	**IV** /
1G33-F345	Regen Hx Inlt Hdr Inst Rt	OPEN	**IV** /
1G33-F020	F/D Inlt Hdr Samp Isol (West, 20' above)	OPEN	**IV** /
1G33-F375	F/D Inlt Hdr Samp Isol (West, 20' above)	OPEN	**IV** /
1G33-F349	NRHX Outlet Hdr Test Conn (West, 20'above)	SHUT	**IV** /
1G33-F420	NRHX Outlet Hdr Test Conn (West, 20'above)	SHUT	**IV** /
1G33-F306	RWCU Rtn Hdr Inst Rt	OPEN	**IV** /
1G33-F360	RWCU Rtn Hdr Drn	SHUT	**IV** /
1G33-F361	RWCU Rtn Hdr Drn	SHUT	**IV** /
1IA362	Instrument Air Inlet Block To 1Y-1G33K001 Valve (CNMT 760' AZM 26° outer steam tunnel wall at outer corner)	OPEN	**IV** /
1IA364	IA To 1G33-F033	OPEN	**IV** /
1G33-F362	Regen Hx Byp Hdr Drn	SHUT	**IV** /
1G33-F363	Regen Hx Byp Hdr Drn	SHUT	**IV** /
1G33-F366	NRHX Outlt Hdr Drn	SHUT	**IV** /
1G33-F367	NRHX Outlt Hdr Drn	SHUT	**IV** /
1G33-F350	Drn Flow Hdr Inst Rt	OPEN	**IV** /
1G33-F346A	Drn Flow Hdr Inst Rt	OPEN	**IV** /
1G33-F346B	Drn Flow Hdr Inst Rt	SHUT	**IV** /
1IA-788	IA To 1WX019 (765', 335° AZ)	OPEN	**IV** /
1WX339	1WX019 IA Isolation Valve	OPEN	**IV** /

REACTOR WATER CLEANUP VALVE LINEUP

Component	Description	Position	Initial
	CNMT 803', 1G33-B001A **Mezzanine above RWCU F/D Valve Room**		
1G33-F021A	F/D A Outlt Hdr Samp Isol	OPEN	**IV** /
1G33-F374A	F/D A Outlt Hdr Samp Isol	OPEN	**IV** /
1G33-F021B	F/D B Outlt Hdr Samp Isol	OPEN	**IV** /
1G33-F374B	F/D B Outlt Hdr Samp Isol	OPEN	**IV** /
1G33-F372	F/D Outlt Hdr Vent	SHUT	**IV** /
1G33-F373	F/D Outlt Hdr Vent	SHUT	**IV** /
	CNMT 803'		
	1G33-B001A Heat Exchanger A Area		
1G33-F105A*	Regen Hx A Inlt	LOCKED OPEN	**IV** /
1G33-F303A*	NRHX A Outlt	LOCKED SHUT	**IV** /
1G33-F304A*	RWC Rtn Inlt To Regen Hx A	LOCKED OPEN	**IV** /
1G33-F354A	Regen Hx A Inlt Inst Rt	OPEN	**IV** /
1G33-F355A	Regen HX A Outlt Inst Rt	OPEN	**IV** /
1G33-F356A	NRHX A Outlt Inst Rt	OPEN	**IV** /
1G33-F016A	Regen Hx AA Shell Vent (Top of Regen Hx AA)	SHUT	**IV** /
1G33-F017A	Regen Hx AA Shell Vent (Top of Regen Hx AA)	SHUT	**IV** /
1G33-F014A	Regen Hx AA Tube Drn (Bott of Regen Hx AA)	SHUT	**IV** /
1G33-F015A	Regen HX AA Tube Drn (Bott of Regen Hx AA)	SHUT	**IV** /
1G33-F022A	Regen HX AA Tube Drn (Bott of Regen Hx AA)	SHUT	**IV** /
1G33-F023A	Regen HX AA Tube Drn (Bott of Regen Hx AA)	SHUT	**IV** /
1G33-F018A	Regen Hx AA Shell Drn	SHUT	**IV** /
1G33-F019A	Regen HX AA Shell Drn	SHUT	**IV** /
1G33-F073A	Shell Side Crossover Drn	SHUT	**IV** /
1G33-F074A	Shell Side Crossover Drn	SHUT	**IV** /
1G33-F016B	Regen HX AB Shell Vent (Top of Regen Hx AB)	SHUT	**IV** /
1G33-F017B	Regen HX AB Shell Vent (Top of Regen Hx AB)	SHUT	**IV** /
1G33-F014B	Regen HX AB Tube Drn (Bott of Regen Hx AB)	SHUT	**IV** /
1G33-F015B	Regen HX AB Tube Drn (Bott of Regen Hx AB)	SHUT	**IV** /

REACTOR WATER CLEANUP VALVE LINEUP

Component	Description	Position	Initial
	CNMT 803' (cont'd)		
	1G33-B001A Heat Exchanger A Area	(cont'd)	
1G33-F022B	Regen Hx AB Tube Drn (Bott of Regen Hx AB)	SHUT	**IV** /
1G33-F023B	Regen Hx AB Tube Drn (Bott of Regen Hx AB)	SHUT	**IV** /
1G33-F018B	Regen Hx AB Shell Drn	SHUT	**IV** /
1G33-F019B	Regen Hx AB Shell Drn	SHUT	**IV** /
1G33-F016C	Regen Hx AC Shell Vent (Top of Regen Hx AC)	SHUT	**IV** /
1G33-F017C	Regen Hx AC Shell Vent (Top of Regen Hx AC)	SHUT	**IV** /
1G33-F014C	Regen Hx AC Tube Drn (Bott of Regen Hx AC)	SHUT	**IV** /
1G33-F015C	Regen Hx AC Tube Drn (Bott of Regen Hx AC)	SHUT	**IV** /
1G33-F022C	Regen Hx AC Tube Drn (Bott of Regen Hx AC)	SHUT	**IV** /
1G33-F023C	Regen Hx AC Tube Drn (Bott of Regen Hx AC)	SHUT	**IV** /
1G33-F018C	Regen Hx AC Shell Drn	SHUT	**IV** /
1G33-F019C	Regen Hx AC Shell Drn	SHUT	**IV** /
1G33-F378A	Regen Hx A Rtn Outlt Hdr Vent	SHUT	**IV** /
1G33-F379A	Regen Hx A Rtn Outlt Hdr Vent	SHUT	**IV** /
1G33-F378B	Regen Hx A Rtn Inlt Hdr Vent	SHUT	**IV** /
1G33-F379B	Regen Hx A Rtn Inlt Hdr Vent	SHUT	**IV** /
	1G33-B002A, Non-Regenerative Hx		
1G33-F026A	NRHX AA Shell Vent	SHUT	**IV** /
1G33-F026B	NRHX AB Shell Vent	SHUT	**IV** /
1G33-F049A	NRHX AA Shell Drn	SHUT	**IV** /
1G33-F049B	NRHX AB Shell Drn	SHUT	**IV** /
1G33-F024A	NRHX AA Tube Drn	SHUT	**IV** /
1G33-F024B	NRHX AB Tube Drn	SHUT	**IV** /
1G33-F025A	NRHX AA Tube Drn	SHUT	**IV** /
1G33-F025B	NRHX AB Tube Drn	SHUT	**IV** /
1G33-F029A	NRHX AA Tube Drn	SHUT	**IV** /
1G33-F029B	NRHX AB Tube Drn	SHUT	**IV** /
1G33-F030A	NRHX AA Tube Drn	SHUT	**IV** /
1G33-F030B	NRHX AB Tube Drn	SHUT	**IV** /

1RE024A	Shell Side Crossover Drn	SHUT	**IV** /

REACTOR WATER CLEANUP VALVE LINEUP

Component	Description	Position	Initial
	CNMT 803' (cont'd)		
	1G33-B001B, Heat Exchanger B Area		
1G33-F105B*	Regen Hx B Inlt	LOCKED OPEN	**IV** /
1G33-F303B*	NRHX B Outlt	LOCKED SHUT	**IV** /
1G33-F304B*	RWC Rtn Inlt To Regen Hx B	LOCKED OPEN	**IV** /
1G33-F354B	Regen Hx B Inlt Inst Rt	OPEN	**IV** /
1G33-F355B	Regen Hx B Outlt Inst Rt	OPEN	**IV** /
1G33-F356B	NRHX B Outlt Inst Rt	OPEN	**IV** /
1G33-F016D	Regen Hx BA Shell Vent (Top of Regen Hx BA)	SHUT	**IV** /
1G33-F017D	Regen Hx BA Shell Vent (Top of Regen Hx BA)	SHUT	**IV** /
1G33-F014D	Regen Hx BA Tube Drn (Bott of Regen Hx BA)	SHUT	**IV** /
1G33-F015D	Regen Hx BA Tube Drn (Bott of Regen Hx BA)	SHUT	**IV** /
1G33-F022D	Regen Hx BA Tube Drn (Bott of Regen Hx BA)	SHUT	**IV** /
1G33-F023D	Regen Hx BA Tube Drn (Bott of Regen Hx BA)	SHUT	**IV** /
1G33-F018D	Regen Hx BA Shell Drn (Bott of Regen Hx BA)	SHUT	**IV** /
1G33-F019D	Regen Hx BA Shell Drn (Bott of Regen Hx BA)	SHUT	**IV** /
1G33-F073B	Shell Side Crossover Drn	SHUT	**IV** /
1G33-F074B	Shell Side Crossover Drn	SHUT	**IV** /
1G33-F016E	Regen Hx BB Shell Vent (Top of Regen Hx BB)	SHUT	**IV** /
1G33-F017E	Regen Hx BB Shell Vent (Top of Regen Hx BB)	SHUT	**IV** /
1G33-F014E	Regen Hx BB Tube Drn (Bott of Regen Hx BB)	SHUT	**IV** /
1G33-F015E	Regen Hx BB Tube Drn (Bott of Regen Hx BB)	SHUT	**IV** /
1G33-F022E	Regen Hx BB Tube Drn (Bott of Regen Hx BB)	SHUT	**IV** /
1G33-F023E	Regen Hx BB Tube Drn (Bott of Regen Hx BB)	SHUT	**IV** /
1G33-F018E	Regen Hx BB Shell Drn (Bott of Regen Hx BB)	SHUT	**IV** /
1G33-F019E	Regen Hx BB Shell Drn (Bott of Regen Hx BB)	SHUT	**IV** /
1G33-F016F	Regen Hx BC Shell Vent (Top of Regen Hx BC)	SHUT	**IV** /
1G33-F017F	Regen Hx BC Shell Vent (Top of Regen Hx BC)	SHUT	**IV** /

REACTOR WATER CLEANUP VALVE LINEUP

Component	Description	Position	Initial
	CNMT 803' (cont'd)		
	1G33-B001B, Heat Exchanger B Area	(cont'd)	
1G33-F014F	Regen Hx BC Tube Drn (Bott of Regen Hx BC)	SHUT	**IV** /
1G33-F015F	Regen Hx BC Tube Drn (Bott of Regen Hx BC)	SHUT	**IV** /
1G33-F022F	Regen Hx BC Tube Drn (Bott of Regen Hx BC)	SHUT	**IV** /
1G33-F023F	Regen Hx BC Tube Drn (Bott of Regen Hx BC)	SHUT	**IV** /
1G33-F018F	Regen Hx BC Shell Drn (Bott of Regen Hx BC)	SHUT	**IV** /
1G33-F019F	Regen Hx BC Shell Drn (Bott of Regen Hx BC)	SHUT	**IV** /
1G33-F376A	Regen Hx B Outlt Hdr Vent	SHUT	**IV** /
1G33-F377A	Regen Hx B Outlt Hdr Vent	SHUT	**IV** /
1G33-F376B	Regen Hx B Inlt Hdr Vent	SHUT	**IV** /
1G33-F377B	Regen Hx B Inlt Hdr Vent	SHUT	**IV** /
1G33-F364	F/D Byp Hdr Vent	SHUT	**IV** /
1G33-F365	F/D Byp Hdr Vent	SHUT	**IV** /
	1G33-B002B, Non-Regenerative Hx		
1G33-F026C	NRHX BA Shell Vent	SHUT	**IV** /
1G33-F026D	NRHX BB Shell Vent	SHUT	**IV** /
1G33-F049C	NRHX BA Shell Drn	SHUT	**IV** /
1G33-F049D	NRHX BB Shell Drn	SHUT	**IV** /
1G33-F024C	NRHX BA Tube Drn	SHUT	**IV** /
1G33-F024D	NRHX BB Tube Drn	SHUT	**IV** /
1G33-F025C	NRHX BA Tube Drn	SHUT	**IV** /
1G33-F025D	NRHX BB Tube Drn	SHUT	**IV** /
1G33-F029C	NRHX BA Tube Drn	SHUT	**IV** /
1G33-F029D	NRHX BB Tube Drn	SHUT	**IV** /
1G33-F030C	NRHX BA Tube Drn	SHUT	**IV** /
1G33-F030D	NRHX BB Tube Drn	SHUT	**IV** /
1RE024B	Shell Side Crossover Drn	SHUT	**IV** /

REACTOR WATER CLEANUP VALVE LINEUP

Component	Description	Position	Initial
	CNMT 744'		
1G33-F344A	RWCU Suct Hdr Flow Inst Rt (Az 75°)	OPEN	**IV** ___/___
1G33-F344B	RWCU Suct Hdr Flow Inst Rt (Az 75°)	OPEN	**IV** ___/___
1G33-F351A	RWCU Suct Hdr Flow Inst Rt (Az 45°)	OPEN	**IV** ___/___
1G33-F351B	RWCU Suct Hdr Flow Inst Rt (Az 45°)	OPEN	**IV** ___/___
1G33-F343	RPV Bottom Hd Drn Inst Rt (Az 290°)	OPEN	**IV** ___/___
	Inside Drywell		
1G33-F108	RWC Suct Hdr Test Conn (737', 0°)	SHUT	**IV** ___/___
1G33-F109	RWC Suct Hdr Test Conn (737', 0°)	SHUT	**IV** ___/___
1G33-F421	RWC Suct Hdr Vent Isol (725', 50°)	SHUT	**IV** ___/___
1G33-F422	RWC Suct Hdr Vent (725', 50°)	SHUT	**IV** ___/___
1G33-F311B	Recirc Loop A Suct Vlv Lk Det Isol (723')	LOCKED OPEN	**IV** ___/___
1G33-F103*	Bottom Hd Drn Suct M.O.V. Byp (723' Azm 25° MID 3' Up) ☞ Initial position is SHUT and is restored per CPS 3303.01.	LOCKED THROTTLED (33 turns closed from full open position)	**CV** ___/___

O

REACTOR WATER CLEANUP VALVE LINEUP

Component	Description	Position	Initial
	Aux Bldg 737'		
	RWCU Pump, 1G33-C001A		
1G33-F008A	RWCU Pump A Drn	SHUT	**IV** ___/___
1G33-F009A	RWCU Pump A Drn	SHUT	**IV** ___/___
1G33-F010A*	RWCU Pump A Vent	OPEN	**IV** ___/___
1G33-F011A*	RWCU Pump A Vent	OPEN	**IV** ___/___
1G33-F005A*	RWCU Pump A Suct Isol	SHUT	**IV** ___/___
1G33-F307A	RWCU Pump A Suct Inst Rt	OPEN	**IV** ___/___
1G33-F308A	RWCU Pump A Suct Hdr Drn	SHUT	**IV** ___/___
1G33-F309A	RWCU Pump A Suct Hdr Drn	SHUT	**IV** ___/___
1G33-F310A	RWCU Pump A Disch Inst Rt	OPEN	**IV** ___/___
1CC045A	RWCU Pump A CCW Inlet Isol	OPEN	**IV** ___/___
1G33-F600A	RWCU Pump A CCW Inlet Isol	OPEN	**IV** ___/___
1G33-F601A	RWCU Pump A CCW Pedestal Clr Isol	OPEN	**IV** ___/___
1G33-F602A	RWCU Pump A Cover Cooler Isol	LOCKED OPEN	**IV** ___/___
1G33-F611A	RWCU Pump A Seal Cooler Vent	SHUT	**IV** ___/___
1G33-F604A	RWCU Pump A Brg Cooler Isol	LOCKED OPEN	**IV** ___/___
1G33-F605A	RWCU Pump A CCW Outlet Isol	OPEN	**IV** ___/___
1CC046A	RWCU Pump A CCW Outlet	OPEN	**IV** ___/___
1G33-F404A	RWCU Pump A Seal Vent Isol	SHUT	**IV** ___/___
1G33-F405A	RWCU Pump A Seal Vent	SHUT	**IV** ___/___

1G33-F417A	RWCU Pump A Casing Drn Test Conn	SHUT	**IV** /

REACTOR WATER CLEANUP VALVE LINEUP

Component	Description	Position	Initial
	Aux Bldg 737' (cont'd)		
	RWCU Pump, 1G33-C001B		
1G33-F008B	RWCU Pump B Drn	SHUT	**IV** ___/___
1G33-F009B	RWCU Pump B Drn	SHUT	**IV** ___/___
1G33-F010B*	RWCU Pump B Vent	OPEN	**IV** ___/___
1G33-F011B*	RWCU Pump B Vent	OPEN	**IV** ___/___
1G33-F005B*	RWCU Pump B Suct Isol	SHUT	**IV** ___/___
1G33-F307B	RWCU Pump B Suct Inst Rt	OPEN	**IV** ___/___
1G33-F308B	RWCU Pump B Suct Hdr Drn	SHUT	**IV** ___/___
1G33-F309B	RWCU Pump B Suct Hdr Drn	SHUT	**IV** ___/___
1G33-F310B	RWCU Pump B Disch Inst Rt	OPEN	**IV** ___/___
1CC045B	RWCU Pump B CCW Inlet Isol	OPEN	**IV** ___/___
1G33-F600B	RWCU Pump B CCW Inlet Isol	OPEN	**IV** ___/___
1G33-F601B	RWCU Pump B CCW Pedestal Clr Isol	OPEN	**IV** ___/___
1G33-F602B	RWCU Pump B Cover Cooler Isol	OPEN	**IV** ___/___
1G33-F611B	RWCU Pump B Seal Cooler Vent	SHUT	**IV** ___/___
1G33-F604B	RWCU Pump B Brg Cooler Isol	OPEN	**IV** ___/___
1G33-F605B	RWCU Pump B CCW Outlet Isol	OPEN	**IV** ___/___
1CC046B	RWCU Pump B CCW Outlet Isol	OPEN	**IV** ___/___
1G33-F404B	RWCU Pump B Seal Vent Isol	SHUT	**IV** ___/___
1G33-F405B	RWCU Pump B Seal Vent	SHUT	**IV** ___/___
1G33-F417B	RWCU Pump B Casing Drn Test Conn	SHUT	**IV** ___/___

REACTOR WATER CLEANUP VALVE LINEUP

Component	Description	Position	Initial
	Aux Bldg 737' (cont'd)		
	RWCU Pump, 1G33-C001C		
1G33-F008C	RWCU Pump C Drn	SHUT	**IV** ___/___
1G33-F009C	RWCU Pump C Drn	SHUT	**IV** ___/___
1G33-F010C*	RWCU Pump C Vent	OPEN	**IV** ___/___
1G33-F011C*	RWCU Pump C Vent	OPEN	**IV** ___/___
1G33-F005C*	RWCU Pump C Suct Isol	SHUT	**IV** ___/___
1G33-F307C	RWCU Pump C Suct Inst Rt	OPEN	**IV** ___/___
1G33-F308C	RWCU Pump C Suct Hdr Drn	SHUT	**IV** ___/___
1G33-F309C	RWCU Pump C Suct Hdr Drn	SHUT	**IV** ___/___
1G33-F310C	RWCU Pump C Disch Inst Rt	OPEN	**IV** ___/___
1CC045C	RWCU Pump C CCW Inlet Isol	OPEN	**IV** ___/___
1G33-F600C	RWCU Pump C CCW Inlet Isol	OPEN	**IV** ___/___
1G33-F601C	RWCU Pump C CCW Pedestal Clr Isol	OPEN	**IV** ___/___
1G33-F602C	RWCU Pump C Cover Cooler Isol	OPEN	**IV** ___/___
1G33-F611C	RWCU Pump C Seal Cooler Vent	SHUT	**IV** ___/___
1G33-F604C	RWCU Pump C Brg Cooler Isol	OPEN	**IV** ___/___
1G33-F605C	RWCU Pump C CCW Outlet Isol	OPEN	**IV** ___/___
1CC046C	RWCU Pump C CCW Outlet Isol	OPEN	**IV** ___/___
1G33-F404C	RWCU Pump C Seal Vent Isol	SHUT	**IV** ___/___
1G33-F405C	RWCU Pump C Seal Vent	SHUT	**IV** ___/___
1G33-F417C	RWCU Pump C Casing Drn Test Conn	SHUT	**IV** ___/___

REACTOR WATER CLEANUP VALVE LINEUP

Component	Description	Position	Initial
	Aux Bldg 737' (cont'd)		
	Aux Bldg Steam Tunnel		
1G33-F347A	Drn Flow Hdr Inst Rt	OPEN	**IV** /
1G33-F347B	Drn Flow Hdr Inst Rt	OPEN	**IV** /
1G33-F348A	RWCU Rtn Hdr Flow Inst Rt	OPEN	**IV** /
1G33-F348B	RWCU Rtn Hdr Flow Inst Rt	OPEN	**IV** /
1G33-F352A	Drn Flow Hdr Flow Inst Rt	OPEN	**IV** /
1G33-F352B	Drn Flow Hdr Flow Inst Rt	OPEN	**IV** /
1G33-F353A	RWCU Rtn Hdr Flow Inst Rt	OPEN	**IV** /
1G33-F353B	RWCU Rtn Hdr Flow Inst Rt	OPEN	**IV** /
1G33-F069	Drn Flow Hdr Test Conn	SHUT	**IV** /
1G33-F070	Drn Flow Hdr Test Conn	LOCKED SHUT	**IV** /
1G33-F071	Drn Flow Hdr Test Conn	SHUT	**IV** /
1G33-F072	Drn Flow Hdr Test Conn	SHUT	**IV** /
1G33-F055	RWCU Rtn Hdr Test Conn	LOCKED SHUT	**IV** /
1G33-F056	RWCU Rtn Hdr Test Conn	SHUT	**IV** /
1G33-F057	RWC Rtn Hdr Test Conn	LOCKED SHUT	**IV** /
1G33-F058	RWCU Rtn Hdr Test Conn	SHUT	**IV** /
1G33-F342A*	RWCU to RHR Hdr Isol	LOCKED OPEN	**IV** /
1G33-F342B*	RWCU to RHR Hdr Isol (West side)	LOCKED OPEN	**IV** /
1G33-F075	RWC Check Valve Test Connection	SHUT	**IV** /
1G33-F076	RWC Check Valve Test Connection	SHUT/ Capped	**IV** /
1G33-F002	RWCU Pumps Suct Hdr Test Conn	LOCKED SHUT	**IV** /
1G33-F003	RWCU Pumps Suct Hdr Test Conn	SHUT	**IV** /

REACTOR WATER CLEANUP VALVE LINEUP

Component	Description	Position	Initial
	Aux Bldg Steam Tunnel at 762' Penetration 1MC-74 @ AZ 355°		
1G33-F428	1MC-74 Inbrd Test Conn	SHUT	**IV** /
1G33-F429	1MC-74 Outboard Test Conn	SHUT	**IV** /
1G33-F065	RWCU Pumps Suct Hdr Test Conn	SHUT	**IV** /
1G33-F066	RWCU Pumps Suct Hdr Test Conn	SHUT	**IV** /
1G33-F061	RWCU Pumps Disch Hdr Test Conn	LOCKED SHUT	**IV** /
1G33-F062	RWCU Pumps Disch Hdr Test Conn	SHUT	**IV** /
1G33-F063	RWCU Pumps Disch Hdr Test Conn	SHUT	**IV** /
1G33-F064	RWCU Pumps Disch Hdr Test Conn	SHUT	**IV** /
1IA854	IA To 1G33-F041	OPEN	**IV** /
1IA1040	IA To 1WX020 (767', Z-110)	OPEN	**IV** /
1WX340	1WX020 IA Isolation Valve	OPEN	**IV** /
	Aux Bldg, 755' Mezzanine		
1G33-F043A*	RWCU Pump A Suct Isol	SHUT	**IV** /
1G33-F013A*	RWCU Pump A Disch Isol	SHUT	**IV** /
1G33-F045A*	RWCU Pump A Disch Orif Isol	SHUT	**IV** /
1G33-F043B*	RWCU Pump B Suct Isol	SHUT	**IV** /
1G33-F013B*	RWCU Pump B Disch Isol	SHUT	**IV** /
1G33-F045B*	RWCU Pump B Disch Orif Isol	SHUT	**IV** /
1G33-F043C*	RWCU Pump C Suct Isol	SHUT	**IV** /
1G33-F013C*	RWCU Pump C Disch Isol	SHUT	**IV** /

1G33-F045C*	RWCU Pump C Disch Orif Isol	SHUT	**IV** /
1G33-F370	Drn Flow To RW Relief Hdr Drn	SHUT	**IV** /
1G33-F371	Drn Flow To RW Relief Hdr Drn	SHUT	**IV** /
1G33-F368	RWCU Pumps Disch Hdr Drn	SHUT	**IV** /
1G33-F369	RWCU Pumps Disch Hdr Drn	SHUT	**IV** /