Facility: Catawba	Week of Examination: April, 2001	
Examination Level: SRO		Operating Test #1, #2, #3
Administrative Topic/Subject Description		Describe method of evaluation: 1. ONE Administrative JPM, OR 2. TWO Administrative Questions
A.1	2.1.18 2.9/3.0	Perform the Required Actions for a Procedure Discrepancy
	2.1.26 2.2/2.6	Determine Amount of Boration Required to Cooldown from Mode 3 to Mode 5.
A.2	2.2.24 2.6/3.8	Perform a Review of a R&R Procedure
A.3	2.3.6 2.1/3.1	Review and Authorize a Gaseous Waste Release Form
A.4	2.4.41 2.3/4.1	Classify an Event and Complete the Emergency Notification Form

CATAWBA
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

JPM 2S/ADMIN

Perform a Manual Shutdown Margin Calculation
For NCS Cooldown to 140° F.

CANDIDATE _____

EXAMINER _____

CATAWBA
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:

Perform a manual shutdown margin calculation for NCS Cooldown to 140° F.

Alternate Path:

N/A

Facility JPM #:

OP-CN-RT-RB-108 (Modified)

K/A Rating(s):

GKA 2.1.25 (2.8/3.1)

Task Standard:

Determine if adequate shutdown margin exists per Technical Specifications for a cooldown of the NC System to 140° F.

Preferred Evaluation Location:

Simulator __X__ In-Plant _____

Preferred Evaluation Method:

Perform __X__ Simulate _____

References:

OP/0/A/6100/006 (Reactivity Balance Calculation)
Unit One Reactor Operating Data Book. (R.O.D. Book)

Validation Time: 15 min. **Time Critical:** No

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Candidate: _____ Time Start : _____
NAME Time Finish: _____

Performance Rating: SAT _____ UNSAT _____ Performance Time _____

Examiner: _____ _____/_____
NAME SIGNATURE DATE

==========

COMMENTS

_____

_____

_____

Simulator Setup

N/A.

READ TO OPERATOR

DIRECTION TO TRAINEE:

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

Unit One experienced a Reactor Trip 5 hours ago
The Reactor Coolant System was borated to allow cooldown to commence on the previous shift
The Reactivity Computer (REACT) is out-of-service
Current boron concentration is 1607 ppm.
Core Life is 130 EFPD
Current T-Ave is 340 °F.
Current Samarium value is 890 PCM
Current Iodine is 4689 atms/cc
Current Xenon is 5007 atms/cc.
All control rods fully inserted except M-4 on D Bank which is currently at 112 steps.
Management has determined a cooldown to 140 °F is required to make necessary repairs prior to the unit being started up.

INITIATING CUE:

You are instructed to determine if adequate Shutdown Margin exists per Tech Specs to allow a cooldown to 140 °F per OP/0/A/6100/006 (Reactivity Balance Calculation).

Verification of calculations is waived.

JPM OVERALL STANDARD:

Candidate determines required Boron concentration for NCS cooldown to 140 °F., compares to current Boron concentration and determines that Shutdown Margin is adequate for the cooldown.

STEP 1: The Candidate determines OP/0/A/6100/006 Enclosure 4.4 is the appropriate procedure for the calculation. STANDARD: The Candidate determines OP/0/A/6100/006 Enclosure 4.4 is the appropriate procedure for calculation and obtains a current copy. **Examiner's Cue: When the candidate locates the appropriate procedure, give him/her a copy of OP/0/A/6100/006 Enclosure 4.4.** COMMENTS:	___SAT ___UNSAT
STEP 2: Review Limits and Precautions. STANDARD: Examinee reviews Limits and Precautions. **Examiner's Note: The candidate may review the Limits and Precautions prior to beginning Enclosure 4.4.** COMMENTS:	___SAT ___UNSAT
STEP 3: If performing a manual calculation, N/A Section 2.2. STANDARD: Step 2.2 marked N/A. COMMENTS:	___SAT ___UNSAT

STEP 4: Record data required in step 2.3. STANDARD: Operator determines the following using the initial conditions. Unit: 1 Date/Time: Current Date/Time Present NC System Boron Concentration: 1607 ppm Present NC System T-AVG: 340° F Desired NC System T-AVG: 140° F Present Cycle Burnup: 130 EFPD Present Difference from Equilibrium Samarium Worth: 890 pcm Date and time of last valid Iodine and Xenon Concentrations: Iodine Concentration: 4689 atm/cc Xenon Concentration: 5007 atm/cc COMMENTS:	___SAT ___UNSAT
STEP 5: Select the HIGHEST boron concentration for the T-AVG's between the range of present and desired T-AVG's at current cycle burnup per Section 5.11 of the R.O.D. Manual (Step 2.4) STANDARD: Determine the HIGHEST boron concentration for the T-AVG's to be 1432 ppm per section 5.11 of the R.O.D. Manual. **EXAMINER'S NOTE: The highest boron concentration for the temperature range occurs at 200° F for a burnup of 130 EFPD. (1432 ppm). The candidate should use the curve for 1% shutdown margin below 200°F and the curve for 1.3% shutdown margin above 200°F.** COMMENTS:	**CRITICAL STEP** ___SAT ___UNSAT

STEP 6: Calculate additional boron concentration penalties: Calculate untrippable RCCA penalty: (Step 2.5.1) STANDARD: Determines there is **one** untrippable RCCA(s) not fully inserted. Determines the penalty to be 160 ppm. COMMENTS:	**CRITICAL STEP** ___SAT ___UNSAT
STEP 7: Enter Zero power physics testing penalty: 100 ppm if physics testing is not complete, otherwise, enter 0 ppm.(Step 2.5.2) STANDARD: Enters 0 ppm for Zero power physics testing penalty in step 2.5.2. ****EXAMINERS CUE: Zero Power Physics Testing has been completed** COMMENTS:	___SAT ___UNSAT
STEP 8: Calculate total additional boron concentration penalty (Step 2.5.3). STANDARD: Determines total boron penalty to be 160 ppm since there is (1) untrippable, not fully inserted rod and zero power physics testing is complete. COMMENTS:	**CRITICAL STEP** ___SAT ___UNSAT

STEP 9: Calculate total required boron concentration for SDM. (Step 2.6). STANDARD: Calculates a required SDM boron concentration of 1432 pcm + 160 ppm (Total Boron penalty) and comes up with a Total Required Boron of 1592 ppm Boron Concentration for SDM (Xenon Free). COMMENTS:	**CRITICAL STEP** ___SAT ___UNSAT
STEP 10: Determine the Boron Difference between Required Boron Concentration from SDM and current NC Boron Concentration (Step 2.7). A. Total Required Boron Concentration for SDM **1592** ppm B. Present NC System Boron Concentration **1607** ppm Boron Difference (A – B) **-15** ppm STANDARD: Calculates a Boron difference of **-15** ppm. Candidate reads the note following Step 2.7 **NOTE: A negative boron difference in Step 2.7 implies that SDM is maintained for Xenon free conditions. A positive boron difference means that SDM is maintained using a Xenon credit and/or boration.** **EXAMINER'S NOTE: The Candidate determines no boration is required and SDM is met with the current Boron concentration.** COMMENTS:	**CRITICAL STEP** ___SAT ___UNSAT
STEP 11 Determine the Xenon Credit as follows (Step 2.8). STANDARD: Determines from Step 2.7 that SDM is maintained for Xenon Free conditions and N/A's step 2.8. COMMENTS:	___SAT ___UNSAT

STEP 12: Sign the appropriate space. STANDARD: Signs "Performed By" with today's date and time COMMENTS:	___SAT ___UNSAT
This JPM is complete	

TIME STOP: _____

CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

Unit One experienced a Reactor Trip 5 hours ago
The Reactor Coolant System was borated to allow cooldown to commence on the previous shift
The Reactivity Computer (REACT) is out-of-service
Current boron concentration is 1607 ppm.
Core Life is 130 EFPD
Current T-Ave is 340 °F.
Current Samarium value is 890 PCM
Current Iodine is 4689 atms/cc
Current Xenon is 5007 atms/cc.
All control rods fully inserted except M-4 on D Bank which is currently at 112 steps.
Management has determined a cooldown to 140 °F is required to make necessary repairs prior to the unit being started up.

INITIATING CUE:

You are instructed to determine if adequate Shutdown Margin exists per Tech Specs to allow a cooldown to 140 °F per OP/0/A/6100/006 (Reactivity Balance Calculation).

Verification of calculations is waived.

2001 NRC EXAM SRO ADMIN JPM SET	
JPM #	Title
S-1/ADMIN	Perform the Required Actions for a Procedure Discrepancy
S-2/ADMIN	Perform a Manual Shutdown Margin Calculation for NCS Cooldown to 140° F.
S-3/ADMIN	Perform a Review of a R&R Procedure
S-4/ADMIN	Review and Authorize a Gaseous Waste Release Document
S-5/ADMIN	Classify an Event and Complete the Emergency Notification Form

CATAWBA
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

JPM 1S/ADMIN

Perform the Required Actions for a Procedure Discrepancy

CANDIDATE _____

EXAMINER _____

CATAWBA
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:

Perform the Required Actions for a Procedure Discrepancy

Alternate Path:

N/A

Facility JPM #:

OP-CN-AE-NSD 704-1

K/A Rating(s):

GKA 2.1.18 (2.9/3.0)

Task Standard:

Candidate determines that Steam Generator 1C, Water Level Monitor system is out of tolerance and completes a Procedure Discrepancy Process Form, and completes steps 12.2 through 12.3 of PT/1/A/4600/002A (Mode 1 Periodic Surveillance items)

Preferred Evaluation Location:

Simulator ___ In-Plant __X__

Preferred Evaluation Method:

Perform __X__ Simulate _____

References:

PT/1/A/4600/002A (Mode 1 Periodic Surveillance Items) Rev. 173
NSD 704 (Technical Procedure Use and Adherence) Rev. 8

Validation Time: ____ min **Time Critical:** No

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Candidate: _____ Time Start : _____
NAME Time Finish: _____

Performance Rating: SAT _____ UNSAT _____ Performance Time _____

Examiner: _____ _____/_____
NAME SIGNATURE DATE

==========

COMMENTS

_____

_____

_____

Simulator Setup

N/A.

READ TO OPERATOR

DIRECTION TO TRAINEE:

I will explain the initial conditions, and state the task to be performed. All steps shall be performed for this JPM. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

Unit 1 is at 100% power

PT/1/A/4600/002A (Mode 1 Periodic Surveillance Items) for the semi daily surveillance on night shift has just been performed.

INITIATING CUE:

You are the CRSRO on Unit 1. Review the copy of PT/1/A/4600/002A (Mode 1 Periodic Surveillance Items) just performed and complete steps 12.2 and 12.3 of PT/1/A/4600/002A (Mode 1 Periodic Surveillance Items). There are presently no outstanding Tech Spec items that affect the Mode 1 Periodic Surveillance Items.

JPM OVERALL STANDARD:

The candidate reviews PT/1/A/4600/002A (Mode 1 Periodic Surveillance Items) and determines that Steam Generator 1C Water Level Monitor system out of tolerance. The candidate will then complete a Procedure Discrepancy Process Form and steps 12.2 and 12.3 of PT/1/A/4600/002A (Mode 1 Periodic Surveillance Items), noting the discrepancy.

EXAMINER's CUE: Provide candidate with a completed copy of PT/1/A/6400/002A (Mode 1 Periodic Surveillance Items)	
STEP 1: Candidate reviews procedure and recognizes Surveillance item #18 for Steam Generator 1C (Water Level Monitor Channel Check) is incorrect. . STANDARD: Candidate recognizes the math error in item #18 and makes correction. (65.8 – 61.7 = 4.1) Determines that the acceptance criteria is not met. Marks this as Item #1 for the Procedure Discrepancies Process Record. COMMENTS:	**CRITICAL STEP** ___SAT ___UNSAT
STEP 2: Evaluate the acceptance criteria by performing one of the following: (Step 12.2) STANDARD: Candidate determines that the acceptance criteria is not met and that step 12.2.2 is applicable. Determines that one channel of Steam Generator Water Level indication is inoperable. **EXAMINER'S CUE: If asked, tell candidate that Channel 3 is the inoperable channel.** COMMENTS:	**CRITICAL STEP** ___SAT ___UNSAT

STEP 3: Notify the Unit/WCC SRO that the acceptance criteria is NOT met. (Step 12.2.2) STANDARD: Candidate simulates calling the Unit 1 SRO at ext. 3276 or the WCC SRO at ext.3258. *****CUE: This is Bill Everett. I understand 1C Steam Generator Level Channel III did not meet the acceptance criteria for the Mode 1 Periodic Surveillance Items. I will make the required TSAIL entry. The TSAIL entry number is C1-01-01354.*** COMMENTS:	**CRITICAL STEP** ___SAT ___UNSAT
STEP 4: Initiate a PIP to document test failure. (Step 12.2.2) STANDARD: Candidate indicates a PIP should be generated using a LAN connected computer. *****CUE: PIP 01-02437 has been generated.*** COMMENTS:	___SAT ___UNSAT
STEP 5: Document all issues on a procedure discrepancy sheet step 12.2.21) STANDARD: Candidate locates a procedure discrepancy sheet. ***EXAMINER CUE: Once located, give the candidate a copy of the Procedure Discrepancy Process Form.*** COMMENTS:	___SAT ___UNSAT

STEP 6: Candidate enters ID No. in Section (1) on Procedure Discrepancies Process Record. STANDARD: Candidate enters "PT/1/A/4600/002A" in Section 1 COMMENTS:	**CRITICAL STEP** ___SAT ___UNSAT
STEP 7: Candidate enters Procedure Title in Section (3). STANDARD: Candidate enters "Mode 1 Periodic Surveillance Items". COMMENTS:	**CRITICAL STEP** ___SAT ___UNSAT
STEP 8: Candidate enters Date(s) Performed in Section (4). STANDARD: Candidate enters present date. COMMENTS:	**CRITICAL STEP** ___SAT ___UNSAT

STEP 9. Candidate completes Section (5). STANDARD: Candidate enters the following information in Section (5) of the Procedures Discrepancies Process Form: • No: Item #1 • Procedure Section: Enclosure 13.1 • Description of Discrepancy: 1C Steam Generator Level Channel 3 inoperable* • Corrective Action: TSAIL #C1-01-01354* • Deficiency: No • Signature: Signature of candidate • Completion Date: Present date **EXAMINER NOTE: Items denoted by an asterisk are critical.** COMMENTS:	**CRITICAL STEP** ___SAT ___UNSAT
This JPM is complete.	

TIME STOP: _____

CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

Unit 1 is at 100% power

PT/1/A/4600/002A (Mode 1 Periodic Surveillance Items) for the semi daily surveillance on night shift has just been performed.

INITIATING CUE:

You are the CRSRO on Unit 1. Review the copy of PT/1/A/4600/002A (Mode 1 Periodic Surveillance Items) just performed and complete steps 12.2 and 12.3 of PT/1/A/4600/002A (Mode 1 Periodic Surveillance Items). There are presently no outstanding Tech Spec items that affect the Mode 1 Periodic Surveillance Items.

Form 35285 (-88)

Duke P. Company
PROCEDURE DISCREPANCIES
PROCESS RECORD

(1) ID No. PT/1/A/4600/002A

(2) Station: CATAWBA NUCLEAR STATION

(3) Procedure Title: Mode 1 PERIODIC SURVEILLANCE ITEMS

(4) Date(s) Performed: TODAY'S DATE

(5) Discrepancy Processing:

No.	Procedure Section	Description Of Discrepancy	Corrective Action	Deficiency Yes	Deficiency No	Signature	Completion Date
1	13.1 #18	STEAM GENERATOR 1C CH #3 Water Level IS INOPERABLE	TSAIL # 1354		✓	CANDIDATE	TODAY

Form 35285 (7-88)

Duke Power Company
PROCEDURE DISCREPANCIES
PROCESS RECORD

(1) ID No. _____

(2) Station: CATAWBA NUCLEAR STATION

(3) Procedure Title: _____

(4) Date(s) Performed: _____

(5) Discrepancy Processing:

No.	Procedure Section	Description Of Discrepancy	Corrective Action	Deficiency		Signature	Completion Date
				Yes	No		

#11 MJ

(806-97)

Duke Power Company
PROCEDURE PROCESS RECORD

(1)ID No. PT/1/A/4600/002A
Revision No. 173

PREPARATION

(2) Station CATAWBA NUCLEAR STATION

(3) Procedure Title MODE 1 PERIODIC SURVEILLANCE ITEMS

(4) Prepared By [signature] Date 10-6-00

(5) Requires 10CFR50.59 evaluation?
☒ Yes (New procedure or revision with major changes)
☐ No (Revision with minor changes)
☐ No (To incorporate previously approved changes)

(6) Reviewed By [signature] (QR) Date 10-10-00

Cross-Disciplinary Review By _____ (QR) NA Date _____

Reactivity Mgmt. Review By _____ (QR) NA Date _____

(7) Additional Reviews

Reviewed By _____ Date _____

Reviewed By _____ Date _____

(8) Temporary Approval *(if necessary)*

By _____ (SRO/QR) Date _____

By _____ (QR) Date _____

(9) Approved By [signature] Date 10-18-2000

PERFORMANCE (Compare with control copy every 14 calendar days while work is being performed.)

(10) Compared with Control Copy [signature] Date today's Date

Compared with Control Copy _____ Date _____

Compared with Control Copy _____ Date _____

(11) Date(s) Performed TODAY'S DATE

Work Order Number (WO#) _____

COMPLETION

(12) Procedure Completion Verification

☑ Yes ☐ N/A Check lists and/or blanks properly initialed, signed, dated, or filled in N/A, as appropriate?

☑ Yes ☐ N/A Listed enclosures attached?

☐ Yes ☑ N/A Data sheets attached, completed, dated, and signed?

☐ Yes ☑ N/A Charts, graphs, etc. attached, dated, identified, and marked?

☑ Yes ☐ N/A Procedure requirements met?

Verified By [signature] Date TODAY'S DATE

(13) Procedure Completion Approved _____ Date _____

(14) Remarks *(attach additional pages, if necessary)*

Chg 173A - 1-18-01 - replace pg 35 Enc 13.1

INFORMATION ONLY

Duke Power Company Catawba Nuclear Station **Mode 1 Periodic Surveillance Items** **Continuous Use**	Procedure No. PT/1/A/4600/002A Revision No. 173 Electronic Reference No. CN005G9I

Mode 1 Periodic Surveillance Items

1. Purpose

1.1 To verify compliance with technical specification surveillance items which have a frequency of verification from once per twelve hours (semi-daily) to once per seven days (weekly).

1.2 To give guidance for the proper operation of various instruments and/or systems.

2. References

2.1 Technical Specifications

2.2 FSAR Chapter 16 Selected Licensee Commitments

3. Time Required

3.1 Manpower - One NCO

3.2 Frequency - Time

3.2.1	Semi-daily, daily	-	One hour thirty minutes [Day shift (0700-1000)] [Night shift (1900-2200)]
3.2.2	Weekly	-	Two hours[Day shift, Sunday (0700-1000)]

4. Prerequisite Tests

None

5. Test Equipment

None

6. Limits and Precautions

None

7. Required Unit Status

RSK Mode 1

8. Prerequisite System Condition

None

9. Test Method

9.1 A visual inspection shall be made to verify various systems' instrumentation is operating properly and/or indicating acceptable values or system status.

9.2 The OAC shall be used for various required calculations, when operable. When inoperable, manual calculations will be performed per PT/1/A/4600/009 (Loss of Operator Aid Computer).

9.3 Performance of this PT will include all the applicable surveillance items based on the frequency of the surveillance.

10. Data Required

10.1 Enclosure 13.1 (Periodic Surveillance Items Data)

10.2 Enclosure 13.2 (Loose Parts Monitor Data) as required

11. Acceptance Criteria

11.1 Enclosures 13.1 (Periodic Surveillance Items Data) and 13.2 (Loose Parts Monitor Data) contain acceptance criteria for individual surveillance items.

11.2 Channel checks meet the acceptance criteria when the redundant channels are within the tolerances listed in Enclosure 13.1 (Periodic Surveillance Items Data). Redundant channels may be checked on either the OAC, control room or local gauges. The acceptance criteria shall <u>NOT</u> be met by checking the same channel on two redundant indications such as a control room gauge and the OAC.

11.3 Discrepancies on instrument channel checks due to transient conditions may be evaluated to determine instrument operability. Where other independent means can be used to verify instrument operability, the intent of the channel check is met.

12. Procedure

NOTE:	1. If the Operator Aid Computer (OAC) becomes inoperable, perform the applicable steps requiring the Operator Aid Computer per PT/1/A/4600/009 (Loss of Operator Aid Computer).
	2. If an Operator Aid Computer Point is inoperable, perform the applicable surveillance item using the available control room or local indication.

12.1 Complete Enclosure 13.1 (Periodic Surveillance Items Data) for the applicable surveillance items as described in the following steps:

12.1.1 Perform the surveillance items in Enclosure 13.1 (Periodic Surveillance Items Data) based on frequency (semi-daily, daily and weekly).

12.1.2 Frequency Requirements:

12.1.2.1 Day shift and night shift will perform the semi-daily surveillance items.

12.1.2.2 The daily surveillance items will be performed along with the semi-daily items of the shift specified.

12.1.2.3 Day shift will perform weekly surveillance items along with the performance of the semi-daily items on Sunday or the day specified. These items are identified by a **(W)** or **(day of week)** in the SHIFT INITIALS column.

12.1.2.4 The non-shaded blocks under the SHIFT INITIALS column are for the operators to sign off in for the performed surveillance items that meet their acceptance criteria.

12.1.3 Numbers in parenthesis refer to notes and qualifying conditions specific to the surveillance requirement. These conditions are explained at the bottom of that page.

12.1.4 N/A all sign offs <u>NOT</u> required based on the frequency of the surveillance.

12.1.5 <u>IF</u> a surveillance item exists with a qualifying condition, <u>AND</u> plant conditions are such that the qualifying condition is <u>NOT</u> met, the item may be N/A'd and initialed.

12.2 Evaluate the acceptance criteria by performing one of the following:

_____ 12.2.1 Verify the acceptance criteria specified in Section 11 is met.

OR

_____ 12.2.2 **IF** the acceptance criteria is **NOT** met, perform the following:

☐ Notify the Unit/WCC SRO that the acceptance criteria is **NOT** met.

_____ _____/_____
Unit/WCC SRO Contacted Date Time

☐ Initiate a PIP to document the test failure.

☐ Document all issues on a procedure discrepancy sheet.

_____ 12.3 **IF** any discrepancy is noted during the performance of this test that does **NOT** keep the test from meeting the acceptance criteria, it shall be given to the Unit/WCC SRO for evaluation via a discrepancy sheet.

_____ 12.4 This test was completed to satisfy the following requirement(s):

☐ Semi-daily
☐ Daily
☐ Weekly

_____ 12.5 Submit PT/1/A/4600/002A (Mode 1 Periodic Surveillance Items) to the Unit/WCC SRO.

13. Enclosures

13.1 Periodic Surveillance Items Data

13.2 Loose Parts Monitor Data

Enclosure 13.1

Periodic Surveillance Items Data

#	SURVEILLANCE ITEM (Tech Spec Reference)	ACCEPTANCE CRITERIA	QUALIFYING CONDITIONS	COMPUTER POINT ID	DAY SHIFT INITIALS	NIGHT SHIFT INITIALS
1	Turbine Impulse Pressure Channel Check	Each indication is within 32 psig of the other channel.		C1A0737 C1A0851		REK
2	Shutdown and Control Rod Position Indication System (SR 3.1.4.1)	A. OAC demand for all shutdown and control rod banks agree within ± 1 step of its control board indication.	(1)	Shutdown Banks A-E Demand C1P1546 - C1P1550 Control Rod Banks A-D Demand C1P1390 - C1P1393		REK
		B. Each shutdown and control rod OAC DRPI indication agrees within ± 1 step of each shutdown and control rod indication on DRPI.	(1)(2)			REK
		C. Rod position indication system and demand position indication system shall agree on rod position within ± 12 steps.	(1)(2)(3)	C1P1551 - C1P1559		REK

(1) If the acceptance criteria of Surveillance Item 2A or 2B **NOT** met, contact the Shift Work Manager to notify Rod Control System Engineer for guidance on operability determination.

(2) Digital Rod Position Indication for individual rods may be obtained from the OAC Control Rod Position Information, RODS.

(3) Required every 4 hours when the rod position deviation monitor (OAC Points C1P1551 through C1P1559) is inoperable, as indicated by points C1L4406 or C1L4407 in alarm, or points with NCAL quality code and/or magenta quality color. Record data on PT/1/A/4600/009 (Loss of Operator Aid Computer).

#	SURVEILLANCE ITEM (Tech Spec Reference)	ACCEPTANCE CRITERIA	QUALIFYING CONDITIONS	COMPUTER POINT ID	DAY SHIFT INITIALS	NIGHT SHIFT INITIALS
3	Shutdown and Control Rod Position (SR 3.1.4.1)	Each rod's indicated position shall be within ± 12 steps of its group step demand position.	(4)(5)	C1P1546 - C1P1550 C1P1390 - C1P1393		RCK
4	Shutdown Rod Position (SR 3.1.5.1)	All shutdown banks shall be within the limits specified in the COLR as indicated by DRPI indication (± 4 steps)	(4)(6)			RCK
5	Power Range Monitor Channel Check (SR 3.3.1.1, Table 3.3.1-1 Item 2a & 2b)	Each indication is within 2% of the average of all power range channels.		C1P0738		RCK

(4) Digital Rod Position Indication for individual rods may be obtained from the OAC Control Rod Position Information, RODS.

(5) Required every 4 hours when the rod position deviation monitor (OAC Points C1P1551 through C1P1559) is inoperable, as indicated by points C1L4406 or C1L4407 in alarm, the acceptance criteria of Surveillance Item 2A or 2B **NOT** met, or points with NCAL quality code and/or magenta quality color. Record data on PT/1/A/4600/009 (Loss of Operator Aid Computer).

(6) DRPI system accuracy of ± 4 steps is applicable for this surveillance.

#	SURVEILLANCE ITEM (Tech Spec Reference)	ACCEPTANCE CRITERIA	QUALIFYING CONDITIONS	COMPUTER POINT ID	DAY SHIFT INITIALS	NIGHT SHIFT INITIALS
6	Power Range/ Calorimetric Comparison (SR 3.3.1.2, Table 3.3.1-1 Item 2a)	Each Power Range Channel agrees within ± 2% of C1P1385 (Reactor Thermal Power, Best) Calculate below: BETP 99.757 % Channel I 100.646 % Difference -.889 % BETP 99.757 % Channel II 100.164 % Difference -.407 % BETP 99.757 % Channel III 100.831 % Difference -1.074 % BETP 99.757 % Channel IV 100.835 % Difference -1.078 %	(7)(8)(9)	C1P1385		REK

(7) Steady state conditions should be established for 30 minutes prior to performing the surveillance. If the difference exceeds ± 2 %, contact IAE to calibrate NIs and refer to the TS 3.3.1 Bases.

(8) NOT required to be performed until 12 hours after Thermal Power ≥ 15% RTP.

(9) If OAC point C1P1385 is unavailable, contact RXG Duty Engineer to complete PT/0/A/4220/001 (Manual Calculation of Thermal Power and NC Flow) to determine the Best Estimate Thermal Power (BETP) and compare the channels.

#	SURVEILLANCE ITEM (Tech Spec Reference)	ACCEPTANCE CRITERIA	QUALIFYING CONDITIONS	COMPUTER POINT ID	DAY SHIFT INITIALS	NIGHT SHIFT INITIALS
7	Axial Flux Difference (SR 3.2.3.1)	Verify AFD within limits for each OPERABLE excore channel as specified in the COLR. Record actual AFD below. N-41 _____ N-42 _____ N-43 _____ N-44 _____	(10)	C1P1522 C1P1523 C1P1524 C1P1525	(W)	
8	Intermediate Range Monitor Channel Check (SR 3.3.1.1, Table 3.3.1-1 Item 4)	Each indication is within ½ decade of the other channel.	(11)	C1A0766 C1A0767		RCK

(10) In Mode 1 ≥ 50% rated thermal power.

(11) Below P-10 Setpoint.

#	SURVEILLANCE ITEM (Tech Spec Reference)	ACCEPTANCE CRITERIA	QUALIFYING CONDITIONS	COMPUTER POINT ID	DAY SHIFT INITIALS	NIGHT SHIFT INITIALS
9	Control Rod Insertion Limit (SR 3.1.6.2)	All control rods shall be above their insertion limits.	(12)	1AD-2 A/9 Alarm Dark 1AD-2 B/9 Alarm Dark C1L4409 **NOT** in alarm		RSK
10	Control Bank Sequence and Overlap (SR 3.1.6.3)	Sequence and overlap limits specified in the COLR are met for control banks **NOT** fully withdrawn from the core.				RSK
11	Quadrant Power Tilt Ratio (SR 3.2.4.1)	Ratio ≤ 1.02. **IF** OAC is out of service, record QPTR value, obtained from PT/0/A/4600/08B QPTR value _____	(13)	Excore Power Distribution Monitor, AFD	(W)	

(12) Required every 4 hours when rod insertion limit monitor is inoperable. Reference 1AD-2 A/9 or 1AD2 B/9 or C1L4464, C1L4406 or C1L4407, or C1L4409. Record data on PT/1/A/4600/009 (Loss of Operator Aid Computer).

(13) NOT required to be performed until 12 hours after exceeding 50% RTP.

#	SURVEILLANCE ITEM (Tech Spec Reference)	ACCEPTANCE CRITERIA	QUALIFYING CONDITIONS	COMPUTER POINT ID	DAY SHIFT INITIALS	NIGHT SHIFT INITIALS
12	NC System Leakage (Sump Inventory) (TS LCO 3.4.15)	1. C1L4554 in service 2. Quality - GOOD 3. Cont Floor & Equip Sump A and B levels > 4 inches. (A- 1WLP5740, B- 1WLP5750)	(14) (15) (16)	C1L4554		REK
13	Primary Containment Upper Compartment Average Air Temp. (SR 3.6.5.1)	Temp: 75 - 100°F Record temperature: 86 °F	(17)	C1P1500		REK
14	Primary Containment Lower Compartment Average Air Temp. (SR 3.6.5.2)	Temp: 100 - 120°F Record temperature: 103 °F	(17)	C1P1501		REK

(14) Refer to TS 3.4.15, Condition A and perform applicable actions.

(15) If OAC point C1L4554, or its inputs (WLLT6880, WLLT6870) are inoperable, perform the applicable section in PT/1/A/4600/009 (Loss of Operator Aid Computer). (Reg. Guide 1.45)

(16) If Cont Floor & Equip Sump A or B level < 4 ½ inches, then add water to the affected sump to increase sump level to a range of 10 – 14 inches.

(17) If OAC is out of service, notify IAE to perform IP/1/B/3172/006 (Procedure For VV System Temperature Measurements Upon Loss of OAC) to determine computer point readings.

#	SURVEILLANCE ITEM (Tech Spec Reference)	ACCEPTANCE CRITERIA	QUALIFYING CONDITIONS	COMPUTER POINT ID	DAY SHIFT INITIALS	NIGHT SHIFT INITIALS
15	Containment Pressure Monitor Channel Check (SR 3.3.2.1, Table 3.3.2-1 Items 1c, 2c, 3b3, & 4c)	Press. Differential between highest and lowest channels ≤ 0.3 psig. Calculate below: High Channel .2 psig Low Channel .1 psig Differential .1 psig		1NSP5040, 1NSP5050, 1NSP5060, 1NSP5070 (located on 1MC11)		REK
16	CPCS Monitor Channel Check (SR 3.3.2.1, Table 3.3.2-1 Items 9a & 9b)	Pressure differential between highest and lowest Train Related Channels ≤ 0.3 psig. Calculate below: TRAIN A High Channel .22 psig Low Channel .17 psig Differential .05 psig TRAIN B High Channel .23 psig Low Channel .17 psig Differential .06 psig		C1A1492 C1A1498 C1A1504 C1A1510 C1A1516 C1A1522 C1A1528 C1A1534		REK
17	Primary Containment Internal Pressure. (SR 3.6.4.1)	Pressure: -0.1 psig to +0.3 psig		C1A1492 C1A1498 C1A1504 C1A1510 C1A1516 C1A1522 C1A1528 C1A1534 and Control Room Indication (1MC11) 1NSP5040 1NSP5050 1NSP5060 1NSP5070		REK

#	SURVEILLANCE ITEM (Tech Spec Reference)	ACCEPTANCE CRITERIA	QUALIFYING CONDITIONS	COMPUTER POINT ID	DAY SHIFT INITIALS	NIGHT SHIFT INITIALS
18	S/G Water Level Monitor Channel Check (SR 3.3.1.1, Table 3.3.1-1 Item 13) & (SR 3.3.2.1, Table 3.3.2-1 Item 5b & 6b)	Level differential between highest and lowest channels ≤ 4%. Calculate below:				REK
		S/G A				
		High Channel 65.8 %		C1A0731		
		Low Channel 64.4 %		C1A0845		
		Differential 1.4 %		C1A0911		
				C1A0531		
		S/G B				
		High Channel 65.5 %		C1A0626		
		Low Channel 63.2 %		C1A0632		
		Differential 2.3 %		C1A0537		
				C1A0638		
		S/G C				
		High Channel 65.8 %		C1A0644		
		Low Channel 61.7 %		C1A0627		
		Differential 3.1 %		C1A0633		
				C1A0543		
		S/G D				
		High Channel 65.8 %		C1A0639		
		Low Channel 64.0 %		C1A0645		
		Differential 1.8 %		C1A0628		
				C1A0549		

#	SURVEILLANCE ITEM (Tech Spec Reference)	ACCEPTANCE CRITERIA	QUALIFYING CONDITIONS	COMPUTER POINT ID	DAY SHIFT INITIALS	NIGHT SHIFT INITIALS
19	S/G Steam Line Pressure Monitor Channel Check (SR 3.3.2.1, Table 3.3.2-1 Item 4d(1) & 4d(2))	Pressure differential between highest and lowest channels ≤ 52 psig. Calculate below:				REK
		S/G A				
		High Channel 971 psig		C1A0723		
		Low Channel 969 psig		C1A1274		
		Differential 2 psig		C1A1280		
		S/G B				
		High Channel 974 psig		C1A0729		
		Low Channel 965 psig		C1A1286		
		Differential 9 psig		C1A1292		
		S/G C				
		High Channel 977 psig		C1A0735		
		Low Channel 967 psig		C1A1298		
		Differential 10 psig		C1A1304		
		S/G D				
		High Channel 976 psig		C1A0741		
		Low Channel 972 psig		C1A1310		
		Differential 4 psig		C1A1316		

#	SURVEILLANCE ITEM (Tech Spec Reference)	ACCEPTANCE CRITERIA	QUALIFYING CONDITIONS	COMPUTER POINT ID	DAY SHIFT INITIALS	NIGHT SHIFT INITIALS
20	Steam Generator PORV Nitrogen Supply (SR 3.7.4.1 & SLC 16.10-1)	Absence of Alarm 1AD-3 C/1 S/G A PORV N_2 Press **NOT** Lo-C1D3584 or 1MIPG 6630 _____ psig 1MIPG 6631 _____ psig S/G B PORV N_2 Press **NOT** Lo-C1D3585 or 1MIPG 6620 _____ psig 1MIPG 6621 _____ psig S/G C PORV N_2 Press **NOT** Lo-C1D3586 or 1MIPG 6610 _____ psig 1MIPG 6611 _____ psig S/G D PORV N_2 Press **NOT** Lo-C1D3587 or 1MIPG 6600 _____ psig 1MIPG 6601 _____ psig	(18)	C1D3584 C1D3585 C1D3586 C1D3587		RZK

(18) If annunciator is in alarm, verify both of the nitrogen bottles associated with each PORV has a pressure ≥ 2100 psig. If any nitrogen bottle has a pressure < 2100 psig, refer to SLC 16.10-1.

#	SURVEILLANCE ITEM (Tech Spec Reference)	ACCEPTANCE CRITERIA	QUALIFYING CONDITIONS	COMPUTER POINT ID	DAY SHIFT INITIALS	NIGHT SHIFT INITIALS
21	PZR Water Level Monitor Channel Check (SR 3.3.1.1, Table 3.3.1-1 Item 9)	Level differential between highest and lowest channels ≤ 3.5%. Calculate below: High Channel 55.2 % Low Channel 54.2 % Differential 1.0 %		C1A0707 C1A0867 C1A0873		REK
22	PZR Total Water Volume (SR 3.4.9.1)	PZR Level: ≤ 92%		C1A0707 C1A0867 C1A0873		REK
23	PZR Pressure Monitor Channel Check (SR 3.3.1.1, Table 3.3.1-1 Item 8a & 8b) & (SR 3.3.2.1, Table 3.3.2-1 Item 1d))	Press. differential between highest and lowest channels ≤ 28 psig. Calculate below: High Channel 2235 psig Low Channel 2233 psig Differential 2 psig		C1A0713 C1A0868 C1A0874 C1A0880		REK

#	SURVEILLANCE ITEM (Tech Spec Reference)	ACCEPTANCE CRITERIA	QUALIFYING CONDITIONS	COMPUTER POINT ID	DAY SHIFT INITIALS	NIGHT SHIFT INITIALS
24	PZR Pressure (SR 3.4.1.1)	COMPUTER AVERAGE With 4 channels operable ≥ 2215.8 psig With 3 channels operable ≥ 2217.5 psig OR METER AVERAGE With 4 channels operable ≥ 2219.8 psig With 3 channels operable ≥ 2222.1 psig circle one COMPUTER or METER 2231 psig Channel I 2233 psig Channel II 2234 psig Channel III 2228 psig Channel IV (Total Press) 8926 psig (# Oper Channels) ÷ 4 (Average) = 2231.5 psig		C1A0713 C1A0868 C1A0874 C1A0880		RZK

#	SURVEILLANCE ITEM (Tech Spec Reference)	ACCEPTANCE CRITERIA	QUALIFYING CONDITIONS	COMPUTER POINT ID	DAY SHIFT INITIALS	NIGHT SHIFT INITIALS
25	Boron Injection Flow Path (BAT to NCS) (SLC 16.9-8, TR a)	The temperature of the heated portion of the flow path is ≥ 65°F. (Heat trace temperature monitor points 103-106, 108.)	(19)		(W)	

(19) Temperature may be obtained locally by one of the following methods:

Issue Model W/O 98228087 for SPOC to obtain the following temperature points at panel 1SNV (AB-560, KK-56, Rm 300):

SMU Points 103, 104, 105, 106 and 108.

OR

Locally at the Junction Boxes:

SMU Point 103	Junction Box 1(P) NV1-03	(AB-556, HH-JJ, 54, Rm 234)
SMU Point 104	Junction Box 1(P) NV1-04	(AB-550, HH-JJ, 53-54, Rm 234)
SMU Point 105	Junction Box 1(P) NV1-05	(AB-566, LL-MM, 52-53, Rm 315)
SMU Point 106	Junction Box 1(P) NV1-06	(AB-567, MM, 52-53, Rm 310)
SMU Point 108	Junction Box 1(P) NV1-08	(AB-569, NN-58, Rm 300)

Refer to CNM-1354.05-0118 and CNM-1354.05-0119 for point location if required.

#	SURVEILLANCE ITEM (Tech Spec Reference)	ACCEPTANCE CRITERIA	QUALIFYING CONDITIONS	COMPUTER POINT ID	DAY SHIFT INITIALS	NIGHT SHIFT INITIALS
26	NC System Flow Monitor Channel Check (SR 3.3.1.1, Table 3.3.1-1 Item 10a & 10b)	Flow differential between the highest and lowest channels ≤ 5%. Calculate below: Loop A High Channel 104 % Low Channel 103.6 % Differential .4 % Loop B High Channel 105.7 % Low Channel 102.9 % Differential 2.8 % Loop C High Channel 103.8 % Low Channel 101.2 % Differential 2.6 % Loop D High Channel 104.6 % Low Channel 102.9 % Differential 1.7 %		1NCP5000 1NCP5010 1NCP5020 1NCP5030 1NCP5040 1NCP5050 1NCP5060 1NCP5070 1NCP5080 1NCP5090 1NCP5100 1NCP5110		REK
27	NC System Total Flow (SR 3.4.1.3) & (SR 3.4.4.1)	Flow ≥ 100%.	(20)	C1P0859		REK

(20) If OAC point C1P0859 is unavailable, Contact RXG Duty Engineer to complete PT/0/A/4220/001 (Manual Calculation of Thermal Power and NC Flow) to determine NC Flow and compare the channels.

#	SURVEILLANCE ITEM (Tech Spec Reference)	ACCEPTANCE CRITERIA	QUALIFYING CONDITIONS	COMPUTER POINT ID	DAY SHIFT INITIALS	NIGHT SHIFT INITIALS
28	Overtemperature ΔT Setpoint Channel Check (SR 3.3.1.1, Table 3.3.1-1 Item 6)	OAC Points **NOT** in alarm	(21)(22)(23)	C1P0943 C1P0944 C1P0945 C1P0946		RZK
29	Overpower ΔT Setpoint Channel Check (SR 3.3.1.1, Table 3.3.1-1 Item 7)	Difference between the highest and lowest indication ≤ 4%. Calculate below: High Channel 109 % Low Channel 108.5 % Differential .5 %	(24)	C1A0656 C1A0657 C1A0658 C1A0659		RZK

(21) At lower power levels (< ~ 85%), the instrumentation will be overranged (> 150%). If overranged, the value of the OAC points for the indicated vs. calculated difference will display in blue and have a SUS quality code. The calculation's input should be checked for validity (e.g. GOOD quality, no inserted values) using the command SHOW_ININSOPOT.

(22) If OAC Point(s) in alarm, contact the Reactor Group Duty Engineer to evaluate.

(23) If OAC Point(s) fail, refer to PT/1/A/4600/009 (Loss of Operator Aid Computer) to complete this Surveillance.

(24) If difference is greater than allowable, notify Reactor Group Duty Engineer to perform a qualitative assessment of channels to determine operability. {PIP 96-2701}

#	SURVEILLANCE ITEM (Tech Spec Reference)	ACCEPTANCE CRITERIA	QUALIFYING CONDITIONS	COMPUTER POINT ID	DAY SHIFT INITIALS	NIGHT SHIFT INITIALS
30	NC System ΔT Monitor Channel Check (SR 3.3.1.1, Table 3.3.1-1)	Difference between the highest and lowest indication ≤ 4%. Calculate below: High Channel 101.7 % Low Channel 98.5 % Differential 3.2 %	(25)	C1A0675 C1A0681 C1A0687 C1A0693		RSK
31	Boric Acid Storage Tank Solution Temp. (SLC 16.9-12)	Temp: ≥ 65°F (1NVP5720)			(W)	
32	Boric Acid Storage Tank Level (SLC 16.9-12)	Contained volume ≥ minimum value as specified in the COLR		C1A1406	(W)	
33	Cold Leg Accumulators Operable (SR 3.5.1.2) & (SR 3.5.1.3)	Absence of all alarms: 1AD9 D/1-4 1AD9 E/1-4				RSK
34	Cold Leg Recirc FWST To Cont Sump Swap Enable Trn A/B Lamp Test	Each Trns ENABLED light illuminates when depressing LAMP TEST pushbutton.				RSK

(25) If difference is greater than allowable, notify Reactor Group Duty Engineer to perform a qualitative assessment of channels to determine operability. {PIP 96-2701}

#	SURVEILLANCE ITEM (Tech Spec Reference)	ACCEPTANCE CRITERIA	QUALIFYING CONDITIONS	COMPUTER POINT ID	DAY SHIFT INITIALS	NIGHT SHIFT INITIALS
35	NC System Tave (SR 3.4.1.2)	COMPUTER AVERAGE With 4 channels operable ≤ 587.7 °F With 3 channels operable ≤ 587.5 °F OR METER AVERAGE With 4 channels operable ≤ 587.2 °F With 3 channels operable ≤ 586.9 °F circle one COMPUTER OR METER 584.2 °F A Loop 581.8 °F B Loop 584.2 °F C Loop 583.0 °F D Loop (Total Temp) 2333.2 °F # Oper Channels ÷ 4 (Average) = 583.3 °F		C1A0860 C1A0861 C1A0862 C1A0863		RSK

#	SURVEILLANCE ITEM (Tech Spec Reference)	ACCEPTANCE CRITERIA	QUALIFYING CONDITIONS	COMPUTER POINT ID	DAY SHIFT INITIALS	NIGHT SHIFT INITIALS
36	Tave Low (P-4) Interlock Channel Check (SR 3.3.2.1, Table 3.3.2-1 Item 5d)	Channel A shall be within ± 2.5°F of the average of all operable channels. Channel B shall be within ± 3.5°F of the average of all operable channels. Channel C shall be within ± 2.0°F of the average of all operable channels. Channel D shall be within ± 3.0°F of the average of all operable channels.		C1A0860 C1A0861 C1A0862 C1A0863		PEK
37	Cold Leg Accumulator Discharge Isolation Valves (SR 3.5.1.1)	Following valves shall be open as determined by the monitor light **NOT** lit: Valve # 1MD-1 1NI-54A A-10 1NI-65B A-2 1NI-76A B-11 1NI-88B B-3				PEK

#	SURVEILLANCE ITEM (Tech Spec Reference)	ACCEPTANCE CRITERIA	QUALIFYING CONDITIONS	COMPUTER POINT ID	DAY SHIFT INITIALS	NIGHT SHIFT INITIALS
38	ECCS Valve Status (SR 3.5.2.1)	Valve position/power disconnect switch position as indicated below:				
	1FW-27A	Open				REK
	1FW-55B	Open				REK
	1NI-162A	Open / DISCON				REK
	1NI-121A	Closed / DISCON				REK
	1NI-152B	Closed / DISCON				REK
	1NI-173A	Open / DISCON				REK
	1NI-183B	Closed / DISCON				REK
	1NI-178B	Open / DISCON				REK
	1NI-100B	Open / DISCON				REK
	1NI-147B	Open / DISCON				REK
39	Standby Nuclear Service Water Pond Temp. (SR 3.7.9.2)	Temp: ≤ 90.4°F ≤ 90.4°F (0RNP8130)	(26)(27)	C1A1346		
40	Standby Nuclear Service Water Pond Level (SR 3.7.9.1)	Level: ≥ 571.5 ft. ≥ 571.5 ft. (0RNP7350) ≥ 571 ft. (local)		C1A1013		

(26) Only required from 0000 hrs. June 30 to 2400 hrs. September 30, N/A all other times.

(27) If OAC point C1A1346 and Gauge 0RNP8130 are inoperable or OAC point C1A1346 in alarm, the temperature reading may be obtained per PT/0/A/4400/024 (SNSWP Temperature Monitoring).

#	SURVEILLANCE ITEM (Tech Spec Reference)	ACCEPTANCE CRITERIA	QUALIFYING CONDITIONS	COMPUTER POINT ID	DAY SHIFT INITIALS	NIGHT SHIFT INITIALS
41	Lake Wylie Water Temperature (SLC 16.9-14)	Water temperature of Lake Wylie ≤ 92°F when aligned to the Nuclear Service Water System, as measured in the discharge of an operating RN pump Record below and in Control Room Logbook N/A °F	(28)	1(2) RNP 5000 1(2) RNP 5010		N/A REK
42	FWST Level Monitor Channel Check (SR 3.3.2.1, Table 3.3.2-1 Item 7b)	Level differential between highest and lowest channels ≤ 3%. Calculate below: High Channel 97.4 % Low Channel 96.0 % Differential 1.4 %		C1A1262 C1A1268 C1A1250 C1A1256		REK
43	FWST Borated Water Volume (SR 3.5.4.2) & (SLC 16.9-12)	A minimum contained water volume as presented in the COLR or SR 3.5.4.2, whichever is larger.		C1A1262 C1A1268 C1A1250 C1A1256	(W)	

(28) Only required from 0000 hrs. June 30 to 2400 hrs. September 30, when RN suction is aligned to Lake Wylie. N/A all other times.

#	SURVEILLANCE ITEM (Tech Spec Reference)	ACCEPTANCE CRITERIA	QUALIFYING CONDITIONS	COMPUTER POINT ID	DAY SHIFT INITIALS	NIGHT SHIFT INITIALS
44	FWST Solution Temp (SR 3.5.4.1) & (SLC 16.9-12)	Min. 70°F Max. 100°F		C1A1154 C1A1160 C1A0545		RSK
45	Groundwater Level (WZ) (SLC 16.7-8)	Monitor Well Levels ≤ the top of the adjacent floor slab as verified by: 1. Absence of Alarm Annunciator 1AD13 D/1, D/2 and D/3 AND 2. Locally on 0ELMC0001 as follows: Monitor Well #2 Level ≤ 550 ft.-0" Monitor Well #4 Level ≤ 558 ft.-6" Monitor Well #5 Level ≤ 558 ft. 6" Monitor Well #7 Level ≤ 550 ft. 0" Monitor Well #10 Level ≤ 560 ft. 0" Monitor Well #11 Level ≤ 560 ft. 0"	(29)		(W)	
46	Ice Condenser Inlet Door Position Monitoring System (SLC 16.6-3, TR a) (SR 3.6.13.1)	Successful annunciator panel test for annunciator window 1AD13 A/7 Absence of Alarm Annunciator 1AD13 A/7				RSK

(29) Local levels from 0ELMC0001 are obtained by the Aux Bldg Rounds person. Each small division on 0ELMC0001 equals 3 inches.

#	SURVEILLANCE ITEM (Tech Spec Reference)	ACCEPTANCE CRITERIA	QUALIFYING CONDITIONS	COMPUTER POINT ID	DAY SHIFT INITIALS	NIGHT SHIFT INITIALS
47	Ice Bed Temp. Monitor Channel Check (SLC 16.6-2)	At least 2 channels in the ice bed at each of the three basic elevations (< 11', 30'9", and 55' above the floor of the ice condenser) for each one-third of the ice condensers are indicating within 5°F of each other. (1NFCR6510)	(30)			REK
48	Ice Bed Temperature (SR 3.6.12.1)	All operable channel temps. ≤ 27°F (1NFCR6510)				REK
49	Spent Fuel Pool Water Level (SR 3.7.14.1) & (SLC 16.9-21)	Level: ≥ 37.6 ft. (≥ 23 ft. above fuel assemblies) (1KFP5120)			(W)	
50	Control Room Air Temp. (SR 3.7.11.1)	All Thermometers are ≤ 85°F	(31)			REK
51	Chlorine Detector Channel Check (SLC 16.6-4)	Absence of alarm Annunciator 1AD18 B/8 & E/8 (Unit 1 Intake Hi Chlorine) (Unit 2 Intake Hi Chlorine)				REK

(30) If NF Chart Recorder is NOT inking, ensure a priority E work request has been submitted.

(31) Thermometers located on columns CC-55, CC-57 and CC-59.

#	SURVEILLANCE ITEM (Tech Spec Reference)	ACCEPTANCE CRITERIA	QUALIFYING CONDITIONS	COMPUTER POINT ID	DAY SHIFT INITIALS	NIGHT SHIFT INITIALS
52	Wind Speed Monitor Channel Check (SLC 16.7-3)	Lower wind speed has power and is indicating on scale.	(32)(33)			REK
		Upper wind speed has power and is indicating on scale.	(32)(33)			REK
53	Wind Direction Monitor Channel Check (SLC 16.7-3)	Lower wind direction has power and is indicating on scale.	(32)(33)			REK
		Upper wind direction has power and is indicating on scale.	(32)(33)			REK
54	Outside Air Temp ΔT Channel Check (SLC 16.7-3)	Instrument has power and is indicating on scale.	(32)(33)			REK
55	Outside Air Ambient Temp Channel Check (SLC 16.7-3)	Instrument has power and is indicating on scale.	(32)(33)			REK
56	Precipitation Sensor Channel Check (SLC 16.7-3)	Instrument has power and is indicating on scale.	(32)(33)			REK
57	Loose Parts Monitor Channel Check (SLC 16.7-4)	System operable per Enclosure 13.2.				REK

(32) Initiate work request (R005) for IAE to inspect the Meteorological Instrument System for any failures or abnormalities.

(33) Traces should be variable for wind speeds, wind directions, delta temperature and ambient temperature. If any channel is drawing a straight line, it should be evaluated for operability. The precipitation trace will be a straight line unless it is currently raining/snowing.

#	SURVEILLANCE ITEM (Tech Spec Reference)	ACCEPTANCE CRITERIA	QUALIFYING CONDITIONS	COMPUTER POINT ID	DAY SHIFT INITIALS	NIGHT SHIFT INITIALS
58	1EMF15 Channel Check (SLC 16.7-10)	1. Power light on 2. Meter is reading ≥ ½ of background from setpoint logbook	(34)			REK
59	1EMF31 Channel Check (SLC 16.11-2)	1. Power light on 2. No "LOSS OF SAMPLE FLOW" alarm 3. Meter is reading ≥ ½ of background from setpoint logbook	(34)			REK
60	1EMF33 Channel Check (SLC 16.11-7)	1. Power light on 2. No "LOSS OF SAMPLE FLOW" alarm 3. Meter is reading ≥ ½ of background from setpoint logbook	(34)			REK
61	1EMF35 Channel Check (SLC 16.11-7) 351.	1. Power light on 2. No "LOSS OF SAMPLE FLOW" alarm 3. Meter is reading ≥ ½ of background from setpoint logbook	(34)		(W)	

(34) If meter reading is NOT ≥ ½ of background from setpoint logbook, contact Radiation Protection for operability determination.

#	SURVEILLANCE ITEM (Tech Spec Reference)	ACCEPTANCE CRITERIA	QUALIFYING CONDITIONS	COMPUTER POINT ID	DAY SHIFT INITIALS	NIGHT SHIFT INITIALS
62	1EMF36 Channel Check (SLC 16.11-7) 36L	1. Power light on 2. No "LOSS OF SAMPLE FLOW" alarm 3. Meter is reading ≥ ½ of background from setpoint logbook	(35)			REK
63	1EMF37 Channel Check (SLC 16.11-7)	1. Power light on 2. No "LOSS OF SAMPLE FLOW" alarm 3. Meter is reading ≥ ½ of background from setpoint logbook	(35)		(W)	
64	1EMF 38, 39, 40 Cont Isolation Valve Position	1MI-5230 Open				REK
		1MI-5231 Open				REC
		1MI-5232 Open				REK
		1MI-5233 Open				REK
65	1EMF38 Channel Check (SR 3.4.15.1) 38L	1. Power light on 2. No "LOSS OF SAMPLE FLOW" alarm 3. Meter is reading ≥ ½ of background from setpoint logbook	(35)	C1E0147		REK

(35) If meter reading is **NOT** ≥ ½ of background from setpoint logbook, contact Radiation Protection for operability determination.

#	SURVEILLANCE ITEM (Tech Spec Reference)	ACCEPTANCE CRITERIA	QUALIFYING CONDITIONS	COMPUTER POINT ID	DAY SHIFT INITIALS	NIGHT SHIFT INITIALS
69	1EMF42 Channel Check (SLC 16.7-10)	1. Power light on 2. No "LOSS OF SAMPLE FLOW" alarm 3. Meter is reading ≥ ½ of background from setpoint logbook	(39)	C1E0214		REK
70	EMF43 Channel Check (SLC 16.7-10) 43A	1. Power light on 2. No "LOSS OF SAMPLE FLOW" alarm 3. Meter is reading ≥ ½ of background from setpoint logbook	(39)	C1E0218		REK
71	EMF43 Channel Check (SLC 16.7-10) 43B	1. Power light on 2. No "LOSS OF SAMPLE FLOW" alarm 3. Meter is reading ≥ ½ of background from setpoint logbook	(39)	C1E0222		REK

(39) If meter reading is NOT ≥ ½ of background from setpoint logbook, contact Radiation Protection for operability determination.

#	SURVEILLANCE ITEM (Tech Spec Reference)	ACCEPTANCE CRITERIA	QUALIFYING CONDITIONS	COMPUTER POINT ID	DAY SHIFT INITIALS	NIGHT SHIFT INITIALS
72	1EMF46 Channel Check (SLC 16.7-10) 46A	1. Power light on 2. **IF** a train related KC pump is on, verify no "LOSS OF SAMPLE FLOW" alarm 3. Meter is reading ≥ ½ of background from setpoint logbook	(40)			REK
73	1EMF46 Channel Check (SLC 16.7-10) 46B	1. Power light on 2. **IF** a train related KC pump is on, verify no "LOSS OF SAMPLE FLOW" alarm 3. Meter is reading ≥ ½ of background from setpoint logbook	(40)			REK
74	EMF49 Channel Check (SLC 16.11-2) 49L	1. Power light on 2. No "LOSS OF SAMPLE FLOW" alarm 3. Meter is reading ≥ ½ of background from setpoint logbook	(40)	C1E0263		REK

(40) If meter reading is NOT ≥ ½ of background from setpoint logbook, contact Radiation Protection for operability determination.

#	SURVEILLANCE ITEM (Tech Spec Reference)	ACCEPTANCE CRITERIA	QUALIFYING CONDITIONS	COMPUTER POINT ID	DAY SHIFT INITIALS	NIGHT SHIFT INITIALS
75	1EMF71 Channel Check (SLC 16.7-10)	1. Power light on 2. Meter is reading ≥ ½ of background from setpoint logbook	(41)(42)			REK
76	1EMF72 Channel Check (SLC 16.7-10)	1. Power light on 2. Meter is reading ≥ ½ of background from setpoint logbook	(41)(42)			REK
77	1EMF73 Channel Check (SLC 16.7-10)	1. Power light on 2. Meter is reading ≥ ½ of background from setpoint logbook	(41)(42)			REK
78	1EMF74 Channel Check (SLC 16.7-10)	1. Power light on 2. Meter is reading ≥ ½ of background from setpoint logbook	(41)(42)			REK

(41) If meter reading is <u>NOT</u> ≥ ½ of background from setpoint logbook, contact Radiation Protection for operability determination.

(42) Only required between 40%-100% Reactor Power.

#	SURVEILLANCE ITEM (Tech Spec Reference)	ACCEPTANCE CRITERIA	QUALIFYING CONDITIONS	COMPUTER POINT ID	DAY SHIFT INITIALS	NIGHT SHIFT INITIALS
79	Fuel Building Ventilation (SR 3.7.13.1)	VF operable with flow being discharged through HEPA filter 1A1/1A2 or 1B1/1B2 and Charcoal filters. (1A1- 1VFP5040 1A2- 1VFP5050) (1B1- 1VFP5060) 1B2- 1VFP5070)	(43)			N/A REK
80	Doghouse Water Level Channel Check	Verify annunciators operable and no alarms on: 1AD8; D/7, D/8, E/7, E/8				REK
81	RL Minimum Flow Interlock Channel (SLC 16.11-2)	**IF** RL Disch Flow is above the RL Disch Lo Flow setpoint on 0RLP5080, verify (MC9) Annunciator 1AD12 F/3 dark, **OR** **IF** RL Disch Flow is equal to or below the RL Disch Lo Flow setpoint on 0RLP5080, verify (MC9) Annunciator 1AD12 F/3 lit	(44)			REK
82	RL Discharge Flow Channel Check	OAC points C1P0903 **OR** C2P0903 **AND** C1P0904 **OR** C2P0904 are in service **AND** **NOT** overranged.	(44)	C1P0903/C1P0904 Unit 2 C2P0903/C2P0904		REK
83	RL Intake Temp Channel Check	C1P1521 or C2P1521 in service and on scale	(44)	C1P1521 Unit 2 C2P1521		REK
84	RL Discharge Temp Channel Check	C1P1376 or C2P1376 in service and on scale	(44)	C1P1376 Unit 2 C2P1376		REK
		C1P1377 or C2P1377 in service and on scale	(44)	C1P1377 Unit 2 C2P1377		REK

(43) During movement of irradiated fuel assemblies in the fuel building.

(44) If RL instruments inoperable, refer to PT/0/A/4250/011 (RL Temperature and Discharge Flow Determinations).

#	SURVEILLANCE ITEM (Tech Spec Reference)	ACCEPTANCE CRITERIA	QUALIFYING CONDITIONS	COMPUTER POINT ID	DAY SHIFT INITIALS	NIGHT SHIFT INITIALS
85	Unit Vent Stack Flow Rate Meter Channel Check (SLC 16.11-7)	Instrument in service with > 0 SCFM indicated with any systems exhausting to the unit vent. Circle method ~~used~~ to determine flow rate Local/Computer (%) x 195,000 cfm = 122,587 cfm	(45)(46)	C1A1104		RZK

(45) If Unit Vent Flow Monitor is inoperable, refer to PT/1/A/4450/017 (Unit Vent flow Manual Calculation). When flowrates are below 15,000 scfm, the Unit Vent Stack Flow Rate Meter may be inoperable as indicated by a zero or a negative flow indication.

(46) If C1A1104 is NOT in service, determine unit vent flow rate by multiplying 195,000 cfm by reading on local meter 1VAP8300 (AB-594, HH-52) and record in space provided above.

#	SURVEILLANCE ITEM (Tech Spec Reference)	ACCEPTANCE CRITERIA	QUALIFYING CONDITIONS	COMPUTER POINT ID	DAY SHIFT INITIALS	NIGHT SHIFT INITIALS
86	RN Pit Level Channel Check (SR 3.3.2.1, Table 3.3.2-1 Item 10)	Level Differential between the highest and lowest level is ≤ 1.5 ft. Calculate below: RN Pit A 1RNP7400 (1MC9) 574 2RNP7400 (2MC9) 575 OAC point C1A1453 573.9 Difference 1.1 Manual Measurement _____ RN Pit B 1RNP7370 (1MC9) 575 2RNP7370 (2MC9) 574 OAC point C1A1459 573.9 Difference 1.1 Manual Measurement _____	(47)(48)	C1A1453 C1A1459		REK

(47) If the A TRN and/or B TRN RN Pit Level Instrumentation are out by > 1.5 ft., a manual measurement of water level in the pit can be made. Each instrument in the pit shall be within 1.5 ft. of the measured value. The top of the grating on the platform in the pit below the RN pump motor is at 580' - 0".

(48) OAC points C1A1453 (C2A1453) and C1A1459 (C2A1459) may be obtained from the Unit 1 (Unit 2) OAC. If OAC point is unavailable to determine pit level, issue Model Work Orders #94085162 (0RNLT7390, RN Pit A) and #94085173 (0RNLT7360, RN Pit B) as necessary for level determination.

#	SURVEILLANCE ITEM (Tech Spec Reference)	ACCEPTANCE CRITERIA	QUALIFYING CONDITIONS	COMPUTER POINT ID	DAY SHIFT INITIALS	NIGHT SHIFT INITIALS
87	Transfer Canal Weir Gate	Weir Gate Seal Pressure 30 psig ± 5 and no visible leakage past seal.	(49)			REK
88	SSF Stby Makeup Pump Suction Source (SLC 16.7-9)	Spent Fuel Pool Level ≥ 37.6 Feet with weir gate removed. (1KFP5120)			(W)	
89	D/G 1A Prelube Oil Filter ΔP	≤ 20 psid	(50)(51)		(W)	
90	D/G 1B Prelube Oil Filter ΔP	≤ 20 psid	(50)(51)		(W)	
91	1EMF-38 Leakage Detection System (SR 3.4.15.1)	1. C1P0590 in service 2. Quality – GOOD	(52)	C1P0590		REK
92	1EMF-39 Leakage Detection System (SR 3.4.15.1)	1. C1P0591 in service 2. Quality – GOOD	(52)	C1P0591		REK

(49) N/A if weir gate removed.

(50) Obtained by Aux Bldg Rounds person, when engine aligned for Stby Readiness.

(51) If differential pressure > 20 psid, the acceptance criteria is met if a high priority work request is written to investigate the cause of the excessive pressure.

(52) If OAC point is unavailable, perform applicable section of PT/1/A/4600/009 (Loss of Operator Aid Computer). (Reg Guide 1.45)

#	SURVEILLANCE ITEM (Tech Spec Reference)	ACCEPTANCE CRITERIA	QUALIFYING CONDITIONS	COMPUTER POINT ID	DAY SHIFT INITIALS	NIGHT SHIFT INITIALS
93	Condensate Storage System (SR 3.7.6.1)	225,000 gallons contained water volume. Calculate below: CACST • 1CSP5030 100 % • Revised Data Book Figure 1 (Auxiliary Feedwater Condensate Storage Tank Volume vs Level) (N/A if **NOT** used) 44,000 Gals. UST • 1CSCR5840 100 % • Revised Data Book Figure 22 (Upper Surge Tank Volume vs Level) or Locally from 1CSLG5970 85,000 Gals. Hotwell • 1CSCR5840 6 ft. • Revised Data Book Figure 11 (Hotwell Volume vs Level) 170,000 Gals. TOTAL 299,000 Gals	(53)			RSK

(53) If 1CA-6 (CA Pumps Suction From CA CST) is closed, then do **NOT** include the CACST volume in the contained water volume total.

#	SURVEILLANCE ITEM (Tech Spec Reference)	ACCEPTANCE CRITERIA	QUALIFYING CONDITIONS	COMPUTER POINT ID	DAY SHIFT INITIALS	NIGHT SHIFT INITIALS
94	CA Pumps Flow Control Accumulator Tanks Air Pressure	Air pressure in all 8 Accumulator air tanks ≥ 80 psig	(54)(55)		(W)	
95	Alternate Cooling To Charging Pumps (SLC 16.9-24)	YD pressure ≥ 60 psig (0YDPG5270) (0YDPG5250)	(56)(57)		(W)	

(54) If the pressure in any of the Accumulator Air Tanks is less than 80 psig, generate a PIP to have Engineering to re-evaluate the DEI limits. When the PIP is generated, acceptance criteria shall be considered to be satisfied.

(55) Obtained by the Aux Bldg Rounds person.

(56) Pressures are obtained from 0YDPG5270 and 0YDPG5250 located at SB-594, T-16/17.

(57) Obtained by the Service Bldg Rounds person.

NOTE:	If any alarm monitor unit or control unit alarm indication LED fails, the acceptance criteria is met if a work request is written to investigate and repair LED.

1. Procedure

REK 1.1 Perform the following for the Alarm Rack Verifications:

1.1.1 On the "Alarm Monitor Unit", verify the following:

☑ The LEDs numbered 1 through 22 are dark.

☑ The "Select" keyswitch is in the "PRIMARY" position.

☑ The "Primary" LED is illuminated.

1.1.2 On the "Control Unit", verify the following:

☑ The "Outputs" keyswitch is in the "ENABLE" position.

☑ The "Event Alarm" LED is dark.

☑ The "System Failure" LED is dark.

☑ The Normal/Inhibit keyswitch is in the "NORMAL" position.

☑ 1.1.3 Press the "Power" button on the "Tape Recorder Console".

☑ 1.1.4 Verify the "Off" light illuminates on the "Power" button.

NOTE:	When performing the next step, Annunciator 1AD-4, A/8 "LOOSE PARTS PANEL TROUBLE" should alarm.

☑ 1.1.5 Press the Event Alarm "Test" button.

1.1.6 Verify the following:

☑ The "Event Alarm" LED on the "Control Unit" is illuminated.

☑ Annunciator 1AD-4, A/8 "LOOSE PARTS PANEL TROUBLE" is illuminated.

☑ 1.1.7 Press the Event Alarm "Reset" button.

1.1.8 Verify the following:

☑ The "Event Alarm" LED on the "Control Unit" is dark.

☑ Annunciator 1AD-4, A/8 "LOOSE PARTS PANEL TROUBLE" is dark.

NOTE: When performing the next step, Annunciator 1AD-4, A/8 "LOOSE PARTS PANEL TROUBLE" should alarm.

☑ 1.1.9 Press the System Failure "Test" button.

1.1.10 Verify the following:

☑ The "System Failure" LED on the "Control Unit" is illuminated.

☑ Annunciator 1AD-4, A/8 "LOOSE PARTS PANEL TROUBLE" is illuminated.

☑ 1.1.11 Press the System Failure "Reset" button.

1.1.12 Verify the following:

☑ The "System Failure" LED on the "Control Unit" is dark.

☑ Annunciator 1AD-4, A/8 "LOOSE PARTS PANEL TROUBLE" is dark.

☑ 1.1.13 Press the "Power" button on the "Tape Recorder Console".

☑ 1.1.14 Verify the "On" light illuminates on the "Power" button.

TODAY'S DATE

REK 1.2 Perform the following for the Audio Monitor Verifications:

> **NOTE:** 1. The left or right filter may be used to perform the Audio Monitor Verifications.
>
> 2. The cutoff frequencies in the following step may be varied if desired to improve clarity of the sound.

1.2.1 Adjust the cutoff frequencies on the audio monitor as follows:

☑ "Low" cutoff = 01.0 kHz

☑ "High" cutoff = 15.0 kHz

> **NOTE:** In the following step, channels 7, 8, 11, 12, 15, 16, 19 and 20 are not required for Loose Parts System operability.

☑ 1.2.2 Using the "LINE" and "CHANNEL" selector switches, listen to each channel long enough to gain a familiarity with current background noise. {PIP 96-0025}

REK 1	REK 9	REK 17
REK 2	REK 10	REK 18
REK 3	REK 11	REK 19
REK 4	REK 12	REK 20
REK 5	REK 13	REK 21
REK 6	REK 14	REK 22
REK 7	REK 15	
REK 8	REK 16	

REK 1.2.3 **IF** abnormal noise is present (abnormal noises can be knocks, pings, bangs, etc.), record as a discrepancy and notify the Reactor Engineering Duty Engineer. {PIP 96-0025}

REK 1.3 Perform the following for the Analog Tape Recorder Verifications.

☑ 1.3.1 Power "On" LED is illuminated.

☑ 1.3.2 Tape cassette is in place.

☑ 1.3.3 Tape cassette is rewound.

REK 1.4 Verify no voltage alarm LEDs are illuminated on channels 1-22 on the signal modules of the Signal Processor unit. {PIP 96-0025}

TODAY'S DATE

REK 1.5 **IF** Steps 1.1 through 1.4 of this enclosure are signed off as complete, sign off Surveillance Item 57, Loose Parts Monitor System operable, and attach to Enclosure 13.1 (Periodic Surveillance Items Data).

NA REK 1.6 **IF** there are discrepancies associated with the completion of this enclosure **AND** they have **NOT** been previously identified **AND** a work request initiated to correct, then notify the Reactor Engineering Duty Engineer. {PIP 96-0025}

1. Initial Conditions

1.1 Limits and Precautions have been reviewed.

2. Procedure

2.1 IF performing a MANUAL calculation, N/A Step 2.2 (including all substeps).

2.2 Perform the following steps if using the REACT program to complete the calculation:

2.2.1 Access Reactivity Balance Program per Enclosure 4.7.

2.2.2 Select "View" then "Reactivity Balance Calculations" on toolbar.

NOTE: "SDM – Mode 5, 4, or 3" option also applies to Mode 2 with K-eff < 1.0.

2.2.3 Select "SDM – Mode 5, 4, or 3" tab in Reactivity Balance Calculations window.

NOTE:
1. Sign must be provided with Difference from Equilibrium Samarium [i.e., ( ) ___ pcm].
2. IF cycle burnup is < 12 EFPD, 0 pcm should be used for Difference from Equilibrium Samarium.
3. In REACT, "Inoperable RCCAs" refers to untrippable RCCAs.
4. Rod locations are put in REACT in a text only format (e.g. B12 or B-12). REACT uses the maximum stuck rod worth for all known untrippable control rods.

2.2.4 Enter appropriate values as prompted.

2.2.5 Click Calculate, print program results, label appropriately, and attach to this enclosure.

2.2.6 Compare required boron concentration to present boron concentration.

2.2.7 **IF** Xenon Credit was selected **AND** a potential boron deficit is indicated in the calculation results, complete the following steps:

A. Record "Adjusted SDM Deficit" from Reacivity Balance Calculation output:

_____pcm

B. Select "View" then "Xenon/Samarium Calculations" on toolbar.

C. Select "Xenon" for Isotope and "Transient Prediction" for Calculation Type.

D. Enter initial concentrations. These can be obtained from the OAC or Reactor Engineering. The OAC point id's for these concentrations are C1(2)P0125 and C1(2)P0124.

E. Enter appropriate power history.

F. Print program results, label appropriately, and attach to this enclosure.

NOTE:	Adequate SDM exists when Xenon worth from Xenon predict calculation equals or exceeds adjusted SDM deficit recorded in step 2.2.7.A.

2.2.8 Ensure that a separate, independent calculation has been performed per steps 2.2.1 through 2.2.7.

2.2.9 Verify that both attachments to this enclosure yield the same results.

2.2.10 N/A the rest of this enclosure (steps 2.3 through 2.9).

Performed By: _____ Date/Time: _____/_____

Verified By: _____ Date/Time: _____/_____

NOTE: Assume all values are positive unless otherwise indicated by parentheses. **IF** parentheses precede the value [i.e. ( )_____ pcm], record the sign provided with data. The calculations account for these sign conventions.

2.3 Determine the following information:

Step	Description	Reference	Value
2.3.1	Unit	N/A	1
2.3.2	Date/Time	N/A	CURRENT
2.3.3	Present NC System Boron Conc	N/A	1607 ppm
2.3.4	Present NC System T-AVG	N/A	340 °F
2.3.5	Desired NC System T-AVG	N/A	140 °F
2.3.6	Present cycle burnup	P1457 or Reactor Group Duty Engineer	130 EFPD
2.3.7	Present Difference from Equilibrium Samarium Worth (use 0 pcm if burnup is ≤ 12 EFPD)	P1475 or Reactor Group Duty Engineer	( ) 890 pcm
2.3.8	Date and time of latest valid Iodine and Xenon concentrations. N/A if xenon free.	Reactor Group Duty Engineer or current time if using OAC	_____/_____
2.3.9	Iodine concentration at time listed in step 2.3.8; 0 if xenon free.	P0124 or Reactor Group Duty Engineer	4689 atm/cc
2.3.10	Xenon concentration at time listed in step 2.3.8; 0 if xenon free.	P0125 or Reactor Group Duty Engineer	5007 atm/cc

NOTE: Interpolation is not required for step 2.4. Bounding temperatures and burnups may be used to select the highest boron concentration in Section 5.11 of R.O.D manual.

2.4 Select the highest boron concentration for the T-AVG's between the range of Step 2.3.4 and Step 2.3.5 at current cycle burnup (Step 2.3.6) in Section 5.11 of the R.O.D. manual. {PIP 0-C99-0318} 1432 ppm

2.5 Calculate additional boron concentration penalties:

2.5.1 Calculate untrippable RCCA penalty:

Description	Reference	Value
A. Number of Untrippable RCCA(s) not fully inserted	N/A	1
B. Boron Penalty per Untrippable rod	N/A	160 ppm
Untrippable RCCA Penalty	**(A) X (B)**	160 ppm

2.5.2 Enter Zero Power Physics Testing penalty; 100 ppm if physics testing is not complete, otherwise, enter 0 ppm. 0 ppm

2.5.3 Calculate total additional boron concentration penalty:

Description	Reference	Value
A. Untrippable RCCA Penalty	Step 2.5.1	160 ppm
B. Additional Boron Conc Penalty for ZPPT	Step 2.5.2	0 ppm
Total Boron Penalty	**(A) + (B)**	160 ppm

2.6 Calculate total required boron concentration for SDM:

Description	Reference	Value
A. Required SDM Boron	Step 2.4	1432 ppm
B. Total Boron Penalty	Step 2.5.3	160 ppm
Total Required Boron Concentration for SDM (Xenon Free)	**(A) + (B)**	1592 ppm

2.7 Determine the Boron Difference between Required Boron Concentration for SDM and current NC System boron concentration.

Description	Reference	Value
A. Total Required Boron Concentration for SDM	Step 2.6	1592 ppm
B. Present NC System Boron Concentration	Step 2.3.3	1607 ppm
Boron Difference	**(A) - (B)**	-15 **ppm**

NOTE: A negative boron difference in Step 2.7 implies that SDM is maintained for Xenon free conditions. A positive boron difference means that SDM is maintained using a Xenon credit and/or boration. {0-C99-0318}

2.7.1 **IF** Boron Difference (Step 2.7) is negative, N/A Step 2.8.

2.8 Determine the Xenon Credit as follows:

NOTE:	Interpolation is not required for step 2.8.1. Bounding NC System T-AVG and cycle burnup may be used to select the highest Differential Boron Worth from Section 5.3 of R.O.D manual.

N/A

2.8.1 Determine the ARI, Differential Boron Worth at lower T-AVG of Step 2.3.4 or 2.3.5 **AND** cycle burnup of step 2.3.6 from Section 5.3 of the R.O.D. manual. _____ pcm/ppm

2.8.2 Calculate the reactivity worth of the boron difference:

Description	Reference	Value
A. Boron Difference	Step 2.7	ppm
B. ARI Differential Boron Worth	Step 2.8.1	pcm/ppm
Reactivity Worth of Boron Difference	**(A) X (B)**	**pcm**

2.8.3 Calculate the xenon worth that is required to ensure SDM at the present NC System boron.

A. **IF** T-AVG is ≥ 500 ° F, calculate the Xenon Worth as follows:

Description	Reference	Value
A. Reactivity Worth	Step 2.8.2	pcm
B. Difference from Eq Sm Worth	Step 2.3.7	( ) pcm
Xenon Worth	**{(A) - (B)} / 0.85**	**pcm**

B. **IF** T-AVG is < 500 ° F, calculate the Xenon Worth as follows:

Description	Reference	Value
A. Reactivity Worth	Step 2.8.2	pcm
B. Difference from Eq Sm Worth	Step 2.3.7	( ) pcm
Xenon Worth	**{(A) - (B)} X 2**	**pcm**

2.8.4 Predict Xenon for approximately two days into the future using OAC Xenon Predict Program or REACT program (per Enclosure 4.7) and data from 2.3.1 through 2.3.10.

NOTE:	SDM is ensured between the Dates/Times of step 2.8.5 at the present NC System boron or higher. After the Date/Time of xenon decay of step 2.8.5, NC System boration will be required to maintain SDM.

N/A

2.8.5 Interpolate the Dates/Times from the xenon predict of step 2.8.4 that equal the xenon worth of step 2.8.3.

xenon build-in _____/_____

xenon decay _____/_____

NOTE:	Separate, independent calculation must be performed by the verifier.

2.9 Sign the appropriate space below. N/A the unsigned space.

Performed By: _____ Date/Time: _____/_____

Verified By: _____ Date/Time: _____/_____

CATAWBA
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

JPM 3S/ADMIN

Perform a Review of a R&R Procedure

CANDIDATE _____

EXAMINER _____

CATAWBA
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:

Perform a review of a R&R procedure.

Alternate Path:

N/A

Facility JPM #:

N/A)

K/A Rating(s):

GKA 2.2.13 (3.6/3.8)

Task Standard:

The R&R is reviewed for technical correctness. The candidate corrects the sequence.

Preferred Evaluation Location:

Simulator ____ In-Plant __X__

Preferred Evaluation Method:

Perform __X__ Simulate _____

References:

OMP 2-18 (Tagout Removal and Restoration Procedure)
CN-1570-01 (Flow Diagram of the KF System)

Validation Time: 8 min **Time Critical:** No

==========

Candidate: _____ Time Start : _____
NAME Time Finish: _____

Performance Rating: SAT _____ UNSAT _____ Performance Time _____

Examiner: _____ _____/_____
NAME SIGNATURE DATE

==========

COMMENTS

_____

_____

_____

Simulator Setup

N/A.

READ TO OPERATOR

DIRECTION TO TRAINEE:

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

Unit 1 is operating at 100% power
1A KF Pump indicates no flow with the pump running
An NLO has been directed to tag out the pump for maintenance to investigate.

INITIATING CUE:

You are directed to review the R&R that will be used to tag out the "1A" KF pump. The pump has been removed from service and "1B" KF pump has been placed in service.

JPM OVERALL STANDARD:

The R&R is reviewed for technical correctness and placed in the correct sequence.

STEP 1: Verify all required blanks for Removal on page 1 of the R&R are completed. STANDARD: Component tagged, Applicable procedure, Reason for Removal, Supervisor responsible for work, Applicable work orders are entered. COMMENTS:	___SAT ___UNSAT
STEP 2 Verify all required blanks for R&R on additional pages of the R&R are completed. STANDARD: Equip/Nomenclature, Seq #, Removed position, I/V required, SW LBL sections filled in. COMMENTS:	___SAT ___UNSAT
STEP 3: Component verified to be completely isolated and that all components are tagged in the proper position STANDARD: The pump is verified to be completely isolated. The candidate recognizes that the motor breaker for the 2A KF Pump is to be racked out and tagged and corrects R&R to rackout and tag 1A KF Pump motor breaker. **EXAMINER CUE: After the candidate identifies an error on the R&R, instruct him to identify and correct this and any other errors that may be present such that the R&R may be properly issued.** COMMENTS:	**CRITICAL STEP** ___SAT ___UNSAT

STEP 4; Verify proper sequence. STANDARD: Candidate determines that the sequence is incorrect and should be re-ordered as follows • Pump Breaker racked out • Isolation valves closed • Vents and drains opened. COMMENTS:	**CRITICAL STEP** ___SAT ___UNSAT
STEP 5: Sign the "Reviewed By" blank. STANDARD Candidate signs "Reviewed By". COMMENTS: :	___SAT ___UNSAT
STEP 6: Log the R&R in the Unit 1 RO Logbook. STANDARD: Log entry correctly made. **EXAMINER CUE: The R&R has been entered in the Unit 1 RO Logbook.** COMMENTS:	___SAT ___UNSAT

STEP 7: Return the R&R to the NLO for Tech Spec Verification and approval. STANDARD: N/A **EXAMINER CUE: NLO will take the R&R to the Control Room SRO for completion.** COMMENTS:	___SAT ___UNSAT

TIME STOP: _____

CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

Unit 1 is operating at 100% power
1A KF Pump indicates no flow with the pump running
An NLO has been directed to tag out the pump for maintenance to investigate.

INITIATING CUE:

You are directed to review the R&R that will be used to tag out the "1A" KF pump. The pump has been removed from service and "1B" KF pump has been placed in service.

Duke Power Co. Catawba Nuclear Station 01/28/2001

[redacted]

Unit 1

Tagout ID: O-1-1-0243

Removal [redacted]

System Tagged:	Reason for Removal:
KF - SPENT FUEL COOLING SYSTEM	INSPECT PUMP

Applicable Work Orders:

980141758-01

Affected Procedures:

OP/1/A/6200/005 Spent Fuel Cooling System Chg #67

Supervisor Responsible and/or Crew:	Modification:
Maintenance Crew 269	

Prepared By:	Date/Time:	Reviewed By:	Date/Time:	Approved By:	Date/Time
E.L. Seaggs					

Technical Specifications / SLC Unit 1	Unit 2	ORAM/Sentinel Evaluation	Mode Req'd By	Fire Impair	SSF Degrade	Containment Closure:

Pre Job Briefing:	Ctrl Rm SRO Ack	Ctrl Rm Ack Unit 1	Ctrl Rm Ack Unit 2	1.47 Panel Unit 1	1.47 Panel Unit 2	Ctrl Rm Log Unit 1	Ctrl Rm Log Unit 2

Copies Filed By:	R&R Filed By:	Computer Updated By:	OAC Points Removed From Service

Remarks:

[redacted]

Unit 1

Tagout ID: O-1-1-0243

emoval [redacted]

Seq#	Equipment ID	Position	Part Approval:	Date / Time:
1	2ETA 15	Racked Out		
Red Tag ID	Equipment Description		Removed By:	Date / Time:
10561	2A KF Pump Motor			
	Location: Aux 577 ~~469~~ 492 AA49		IV Req'd?: Yes	IV By:
Special Info:			LBL 1	OCG: OPS

Seq#	Equipment ID	Position	Part Approval:	Date / Time:
3	1KF-4	Closed		
Red Tag ID	Equipment Description		Removed By:	Date / Time:
10562	1A KF Pump Disch Isol			
	Location: Aux 588 418 QQ52		IV Req'd?: no	IV By:
Special Info:			LBL 0	OCG: OPS

Seq#	Equipment ID	Position	Part Approval:	Date / Time:
2	1KF-2	Closed		
Red Tag ID	Equipment Description		Removed By:	Date / Time:
10563	1A KF Pump Suction Isol			
	Location: Aux 581 418 QQ52		IV Req'd?: no	IV By:
Special Info:			LBL 0	OCG: OPS

Seq#	Equipment ID	Position	Part Approval:	Date / Time:
~~10564~~ 4	1KF-121	OPEN		
Red Tag ID	Equipment Description		Removed By:	Date / Time:
	1A KF Pump Drain			
	Location: Aux 581 418 QQ51		IV Req'd?: no	IV By:
Special Info:			LBL 0	OCG: OPS

Seq#	Equipment ID	Position	Part Approval:	Date / Time:
4	1KF-9	OPEN		
Red Tag ID	Equipment Description		Removed By:	Date / Time:
10564	1A KF Pump Vent			
	Location: Aux 580 418 QQ52		IV Req'd?: no	IV By:
Special Info:			LBL 0	OCG:

[redacted]

Unit 1 Tagout ID: O-1-1-0243

Removal [redacted]

Seq# 4	Equipment ID 1KF-13	Position OPEN	Part Approval:	Date / Time:
Red Tag ID ~~10565~~	Equipment Description 1A KF Pump Drain to WEFT		Removed By:	Date / Time:
	Location: Aux 578 418 QQ51		IV Req'd?: NO	IV By:
Special Info:			LBL O	OCG: OPS

Seq# 4	Equipment ID 1KF-12	Position OPEN	Part Approval:	Date / Time:
Red Tag ID	Equipment Description 1A KF Pump Drain		Removed By:	Date / Time:
	Location: Aux 578 418 QQ52		IV Req'd?: NO	IV By:
Special Info:			LBL O	OCG: OPS

Seq# 4	Equipment ID 1KF-10	Position OPEN	Part Approval:	Date / Time:
Red Tag ID	Equipment Description 1A KF Pump Vent to WEFT		Removed By:	Date / Time:
	Location: Aux 580 418 QQ52		IV Req'd?: NO	IV By:
Special Info:			LBL O	OCG: OPS

Seq#	Equipment ID	Position	Part Approval:	Date / Time:
Red Tag ID	Equipment Description		Removed By:	Date / Time:
	Location:		IV Req'd?:	IV By:
Special Info:			LBL	OCG:

Seq#	Equipment ID	Position	Part Approval:	Date / Time:
Red Tag ID	Equipment Description		Removed By:	Date / Time:
	Location:		IV Req'd?:	IV By:
Special Info:			LBL	OCG:

Equipment Removed From Service

Reason for Removal:

Equipment Tag	Position	Tag Type	Description

Key

Duke Power Co. Catawba Nuclear Station	01/28/2001	Page 1 of 3
Removal	Unit 1 [redacted]	Tagout ID: O-1-1-0243

System Tagged:	Reason for Removal:
KF - SPENT FUEL COOLING SYSTEM	INSPECT PUMP

Applicable Work Orders:
980141758-01

Affected Procedures:
OP/1/A/6200/005 Spent Fuel Cooling System Chg #67

Supervisor Responsible and/or Crew:	Modification:
Maintenance Crew 269	

Prepared By:	Date/Time:	Reviewed By:	Date/Time:	Approved By:	Date/Time
E L Scruggs	Current	Candidate			

Technical Specifications / SLC Unit 1 / Unit 2	ORAM/Sentinel Evaluation	Mode Req'd By	Fire Impair	SSF Degrade	Containment Closure:

Pre Job Briefing:	Ctrl Rm SRO Ack	Ctrl Rm Ack Unit 1 / Unit 2	1.47 Panel Unit 1 / Unit 2	Ctrl Rm Log Unit 1 / Unit 2

Copies Filed By:	R&R Filed By:	Computer Updated By:	OAC Points Removed From Service

Remarks:

Unit 1 Tagout ID: O-1-1-0243

Removal [redacted]

Seq#	Equipment ID	Position	Part Approval:	Date / Time:
1	2ETA 15	Racked Out		
Red Tag ID	Equipment Description		Removed By:	Date / Time:
10561	~~2A~~ 1A KF Pump Motor			
	Location: Aux 577 ~~418~~ 498 AA49		IV Req'd?: Yes	IV By:
Special Info:			LBL 1	OCG: O/S

Seq#	Equipment ID	Position	Part Approval:	Date / Time:
2	1KF-4	Closed		
Red Tag ID	Equipment Description		Removed By:	Date / Time:
10562	1A KF Pump Disch Isol			
	Location: Aux 588 418 QQ52		IV Req'd?: no	IV By:
Special Info:			LBL C	OCG: O/S

Seq#	Equipment ID	Position	Part Approval:	Date / Time:
3	1KF-2	Closed		
Red Tag ID	Equipment Description		Removed By:	Date / Time:
10563	1A KF Pump Suction Isol			
	Location: Aux 581 418 QQ52		IV Req'd?: no	IV By:
Special Info:			LBL C	OCG: O/S

Seq#	Equipment ID	Position	Part Approval:	Date / Time:
~~4~~	1KF-121	OPEN		
Red Tag ID	Equipment Description		Removed By:	Date / Time:
	1A KF Pump Drain			
	Location: Aux 581 418 QQ51		IV Req'd?: no	IV By:
Special Info:			LBL C	OCG: O/S

Seq#	Equipment ID	Position	Part Approval:	Date / Time:
4	1KF-9	OPEN		
Red Tag ID	Equipment Description		Removed By:	Date / Time:
10564	1A KF Pump Vent			
	Location: Aux 580 418 QQ52		IV Req'd?: no	IV By:
Special Info:			LBL C	OCG:

Unit 1 Tagout ID: O-1-1-0243

Removal

[redacted]

Seq# 4	Equipment ID 1KF-13	Position OPEN	Part Approval:	Date / Time:
Red Tag ID ~~[illegible]~~	Equipment Description 1A KF Pump Drain to WEFT		Removed By:	Date / Time:
	Location: Aux 578 418 QQ51		IV Req'd?: NO	IV By:
Special Info:			LBL C	OCG: OPS

Seq# 4	Equipment ID 1KF-12	Position OPEN	Part Approval:	Date / Time:
Red Tag ID	Equipment Description 1A KF Pump Drain		Removed By:	Date / Time:
	Location: Aux 578 418 QQ52		IV Req'd?: NO	IV By:
Special Info:			LBL C	OCG: OPS

Seq# 4	Equipment ID 1KF-10	Position OPEN	Part Approval:	Date / Time:
Red Tag ID	Equipment Description 1A KF Pump Vent to WEFT		Removed By:	Date / Time:
	Location: Aux 580 418 QQ52		IV Req'd?: NO	IV By:
Special Info:			LBL C	OCG: OPS

Seq#	Equipment ID	Position	Part Approval:	Date / Time:
Red Tag ID	Equipment Description		Removed By:	Date / Time:
	Location:		IV Req'd?:	IV By:
Special Info:			LBL	OCG:

Seq#	Equipment ID	Position	Part Approval:	Date / Time:
Red Tag ID	Equipment Description		Removed By:	Date / Time:
	Location:		IV Req'd?:	IV By:
Special Info:			LBL	OCG:

CATAWBA
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

JPM 4S ADMIN

Review and Authorize a Gaseous Waste Release Document

CANDIDATE _____

EXAMINER _____

CATAWBA
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:

Review and authorize a Gaseous Waste Release document.

Alternate Path:

N/A

Facility JPM #:

NEW

K/A Rating(s):

103 000 G.13

Task Standard:

The GWR is reviewed/authorized with errors identified and corrected.

Preferred Evaluation Location:

Simulator ____ In-Plant __X__

Preferred Evaluation Method:

Perform __X__ Simulate _____

References:

OP/1/A/6450/017 (Containment Air Release and Addition System) Rev.49
HP/0/B/1004/005

Validation Time: N/A Minutes **Time Critical: No**

==========

Candidate: _____ Time Start : _____
NAME Time Finish: _____

Performance Rating: SAT _____ UNSAT _____ Question Grade _____ Performance Time _____

Examiner: _____ _____/_____
NAME SIGNATURE DATE

==========

COMMENTS

_____

_____

_____

Tools/Equipment/Procedures Needed:

Clean copy of OP/1/A/6450/017 Enclosure 4.2 for each candidate.
Copy of HP/0/B/1004/005 Enclosure 5.1 for each candidate.
Copy of Gaseous Waste Release Permit Report for each candidate.

READ TO OPERATOR

DIRECTION TO TRAINEE:

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

A Unit #1 Gaseous Waste Release from (GWR) has been brought to the Control Room for authorization to release.

INITIATING CUES:

You are the Control Room SRO. An onshift RP technician has delivered a GWR package to you for authorization.

START TIME: _____

EXAMINER'S NOTE: Provide the candidate with the GWR paperwork for Unit 2.	
STEP 1: Reviews the GWR for appropriate Unit. STANDARD: Determines GWR paperwork is designated for Unit #2 and should be for Unit #1. *****CUE: If the candidate returns the paperwork without further review, instruct candidate to identify all errors to allow the release to be made.*** COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT
STEP 2: Reviews the Expected range of EMF Trip 1, and Trip 2 setpoints. STANDARD: Determines the setpoint for the Trip 2 setpoint is less than the Trip 1 setpoint. COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT
*****CUE: Once all errors have been identified, retrieve the paperwork. Inform the candidate that all mistakes were corrected and another SRO approved the paperwork. The release has now been accomplished and you are to complete the release form by calculating the volume released from containment using OP/1/A/6450/017 (Containment Air Addition and Release) step 2.18 and terminate the GWR Permit Report per OP/1/A/6450/017 (Containment Air Addition and Release) Enclosure 4.3. The VQ flow integrator is inoperable.***	
STEP 3: Determines from Enclosure 5.1 of HP/0/B/1004/005 that release was in progress for 109 minutes. STANDARD: Correctly determines time of release. Time release terminated: **1038** Time release began: **0849** Duration of release: **109 minutes** COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT

STEP 4: Candidate determines correct volume released using OP/1/A/6450/017 Enclosure 4.2 step 2.18.3 and records value on form. TANDARD: Candidate multiplies 109 minutes by 300 cfm to obtain a total volume released of 32,700 cubic feet and enters this value on form. COMMENTS:	**CRITICAL STEP** _____SAT ____UNSAT
STEP 5: Determine the highest EMF reading during the release STANDARD: Candidate determines from Enclosure 5.1 of HP/0/B/1004/005 that The highest EMF reading during the release was **150 CPM** and enters this value on the form. COMMENTS:	**CRITICAL STEP** _____SAT ____UNSAT
STEP 6: Determine the total VQ volume released. STANDARD: Candidate determines from Enclosure 5.1 of HP/0/B/1004/005 that the total VQ volume released: **27,300 + 28,800 + 32,700 = 88,800** COMMENTS:	**CRITICAL STEP** _____SAT ____UNSAT
STEP 7: Acknowledge completion of release. STANDARD: Candidate acknowledges completion of release by signing the bottom of the Enclosure 5.1. COMMENTS:	_____SAT ____UNSAT
This JPM is complete.	

TIME STOP: _____

CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

A Unit #1 Gaseous Waste Release from (GWR) has been brought to the Control Room for authorization to release.

INITIATING CUES:

You are the Control Room SRO. An onshift RP technician has delivered a GWR package to you for authorization.

GASEOUS WASTE RELEASE PERMIT REPORT

GWR Number: 2001003
Release ID: Unit 2 Cont Air Release & Addition (VQ)
Release Mode: Batch
Permit Status: P – Pre-Release

Comments:

=== RELEASE DATA ==========

EMF39L Monitor In Service ..... YES

=== NUCLIDE DATA – INITIAL SAMPLE ==========

Nuclide	uCi/cc	EC	EC Ratio
AR – 41	1.72E-07	1.00E-08	1.72E+01
XE-133	4.10E-08	5.00E-07	8.02E-02
TOTAL NOBLE GASES	2.12E-07		1.73E+01
H-3	5.12E-07	1.00E-07	5.12E+00
TOTAL H-3	5.12E-07		5.12E+00
TOTAL ACTIVITY	7.24E-07		2.24E+01

GASEOUS WASTE RELEASE PERMIT REPORT

GWR Number: 2001003
Release ID: Unit 2 Cont Air Release & Addition (VQ)

=== ALLOWABLE FLOWRATES (cfm) ===

	1 Unit Releasing 2/2 Station Limit (U=1)	2 Units Releasing 1/2 Station Limit (U=2)
Total body dose release rate (cfm)	2.76E+07	1.38E+07
Skin and Gamma air dose release rate (cfm)	7.89E+07	3..94E+07
Food, Ground, Inhalation dose release rate (cfm)	5.73E+07	2.86E+07

Most restrictive release rate (cfm) ..... 1.38E+07
Recommended release rate (cfm) ..... 3.00E+02

=== MULTIPLE RELEASE CALCULATION ===
Sum of calculated release rate divided by
allowable release rate for all concurrent releases 1.41E-04

=== SETPOINT DATA ===
EMF39L Monitor Operable? ..... Yes
EMF39L Entered Background (cpm) ..... 5.09E+01
EMF39L Expected CPM ..... 7.37E+01

EMF36L Monitor Operable? ..... NA
EMF36L Entered Background (cpm) ..... NA
EMF36L Expected CPM ..... NA
Entered Unit Vent Flowrate (cfm) ..... NA

Xe - 133 Equilivance (uCi/cc) 5.44E-07

Trip 1 Setpoint (cpm) ..... 5.99E+02
Trip 2 Setpoint (cpm) ..... 4.19E+02

Performed by: _____ Date: _____

Verified by: _____ Date: _____

=== SPECIAL INSTRUCTIONS FOR RELEASE ===
GWR INSTRUCTION FOR 24 HOUR PERIODS FOR 2 VQ:
THIS GWR MAY BE USED FOR CONSECUTIVE 24 HOUR PERIODS WITH RP APPROVAL. ALIGN 2EMF38, 39, 40 TO U/C DURING RELEASES AND TO ALL AREAS DURING NON-RELEASE PERIODS. RP MAY REQUEST ALTERNATE EMF ALIGNMENTS. **NOTIFY RP OF ANY HIGH RADIATION ALARMS**

VQ/VP Release Rate Determinatio. rm - Catawba Nuclear Station

Key

Shift Supervisor Authorizing Release or Designee

Signature

Current Date

Date/Time

VQ RELEASE RECORD/MANUAL CALCULATIONS

VQ RELEASE ON GWR# 2001-003

Date/Time Release Initiated (Notify RP)	Initial Integrator Reading	Final Integrator Reading	EMF Operable/ Source Checked * I V for Setpoints	Highest EMF Reading	EMF ** Setpoints Reset	Date/Time Release Terminated (Notify RP)	Volume *** (Final Integrator × 10)	Control Room Operator
Current/0134	N/A	N/A	(I V) Eric Marlow (I V) Gary Rhyne	150	Eric Marlow Gary Rhyne	Current/0305	27,300	E Moolsen
Current/1908	N/A	N/A	(I V) Eric Marlow (I V) Gary Rhyne	135		Current/2044	28,800	G Rhyne
Current/0949	N/A	N/A	(I V) Eric Marlow (I V) Howard Hawkey	140	Howard Hawkey	Current/1038	32,700	Candidate
			(I V) (I V)					
			(I V) (I V)					
			(I V) (I V)					
			(I V) (I V)					

Highest EMF Reading During Release 150

Total VQ Volume Released 88,800

* EMF chart recorder should be stamped at the start of each release and at the completion of each release. Whenever several releases are made on the same GWR, use the VQ Release Record. Determine EMF operability immediately before initiating release

** Reset EMF setpoints to non-release setpoints when VQ System is not in service and enter in EMF Setpoint Logbook.

*** Volume for each release = Final Integrator Reading × 10

Completion of Release Acknowledged by Shift Supervisor or Designee

THIS COPY HAS BEEN COMPARED WITH THE CONTROL COPY AND IS VERIFIED CORRECT.

INITIAL WGD DATE [illegible] TIME 0811

Shift Supervisor Authorizing Release or Designee

Signature

Current Date/Time

Date/Time

VQ RELEASE RECORD/MANUAL CALCULATIONS

VQ RELEASE ON GWR# 2001 - 003

Date/Time Release Initiated (Notify RP)	Initial Integrator Reading	Final Integrator Reading	EMF Operable/ Source Checked * I V for Setpoints	Highest EMF Reading	EMF ** Setpoints Reset	Date/Time Release Terminated (Notify RP)	Volume *** (Final Integrator × 10)	Control Room Operator
Current/0134	N/A	N/A	(I V) Eric Madsen (I V) Gary Rhyne	150	Eric Madsen	Current/0305	27,300	E. Madsen
Current/1908	N/A	N/A	(I V) Eric Madsen (I V) Gary Rhyne	135	Gary Rhyne	Current/2044	28,800	G. Rhyne
Current/0849	N/A	N/A	(I V) P. Manly (I V) Harold Hartley	140	Harold Hartley	Current/1038		
			(I V) (I V)					
			(I V) (I V)					
			(I V) (I V)					
			(I V) (I V)					

Highest EMF Reading During Release: _____

Total VQ Volume Released: _____

* EMF chart recorder should be stamped at the start of each release and at the completion of each release. Whenever several releases are made on the same GWR, use the VQ Release Record. Determine EMF operability immediately before initiating release.

** Reset EMF setpoints to non-release setpoints when VQ System is not in service and enter in EMF Setpoint Logbook.

*** Volume for each release = Final Integrator Reading × 10

Completion of Release Acknowledged by Shift Supervisor or Designee _____

THIS COPY HAS BEEN COMPARED WITH THE CONTROL COPY AND IS VERIFIED CORRECT.

INITIAL [illegible] DATE [illegible] TIME [illegible]

#9 MJ

(R06-97)

Duke Power Company
PROCEDURE PROCESS RECORD

(1)ID No. OP/1/A/6450/017
Revision No. 49

PREPARATION

(2) Station CATAWBA NUCLEAR STATION

(3) Procedure Title CONTAINMENT AIR RELEASE AND ADDITION SYSTEM

(4) Prepared By [signature] Date 9-28-99

(5) Requires 10CFR50.59 evaluation?
- ☒ Yes (New procedure or revision with major changes)
- ☐ No (Revision with minor changes)
- ☐ No (To incorporate previously approved changes)

(6) Reviewed By [signature] (QR) Date 09-29-99

Cross-Disciplinary Review By [signature] (QR) NA [signature] Date 10/13/99

Reactivity Mgmt. Review By [signature] (QR) NA [signature] Date

(7) Additional Reviews

Reviewed By [signature] Date 10/13/99

Reviewed By [signature] Date

(8) Temporary Approval *(if necessary)*

By (SRO/QR) Date

By (QR) Date

(9) Approved By [signature] Date 10/14/99

PERFORMANCE (Compare with control copy every 14 calendar days while work is being performed.)

(10) Compared with Control Copy Date

Compared with Control Copy Date

Compared with Control Copy Date

(11) Date(s) Performed

Work Order Number (WO#)

COMPLETION

(12) Procedure Completion Verification

- ☐ Yes ☐ N/A Check lists and/or blanks properly initialed, signed, dated, or filled in N/A, as appropriate?
- ☐ Yes ☐ N/A Listed enclosures attached?
- ☐ Yes ☐ N/A Data sheets attached, completed, dated, and signed?
- ☐ Yes ☐ N/A Charts, graphs, etc. attached, dated, identified, and marked?
- ☐ Yes ☐ N/A Procedure requirements met?

Verified By Date

(13) Procedure Completion Approved Date

(14) Remarks *(attach additional pages, if necessary)*

INFORMATION ONLY
Multiple Use

Duke Power Company Catawba Nuclear Station **Containment Air Release and Addition System** **Multiple Use**	Procedure No. OP/1/A/6450/017 Revision No. 049 Electronic Reference No. CN005FME

Containment Air Release and Addition System

1. Purpose

To outline the proper operation of the Containment Air Release and Addition System.

2. Limits and Precautions

2.1 Do **NOT** exceed Containment Pressure Limits of -0.08 psig and +0.25 psig. Tech Spec Containment Pressure Limits are -0.1 psig to +0.3 psig.

2.2 When manually operating any motor operated valve, minimize the torque applied to the handwheels.

2.3 After manual operation, maintenance or packing adjustment of any motor operated Safety Related valve, it shall be cycled electrically to ensure reliable automatic operation.

2.4 Pressure switches for valve operation should **NOT** be manually overridden since ice condenser doors are very sensitive to over or under pressure conditions.

2.5 When Containment Air Release Filter unit pre-filter or absolute filter differential pressure reaches 2.5 inches H_2O, the standby fan should be placed in service and action initiated to replace the dirty filter(s).

2.6 A new Gaseous Waste Release (GWR) sample is required if:

- 24 hours has elapsed since the last sample.
- VQ release is automatically terminated due to a valid controlling EMF actuation. If actuation is due to an EMF spike, the release may be re-attempted twice before a new sample is required.

2.7 A VP, VQ or Unit Vent Sample is required if:

- Rx Trip or Startup occurs.
- Rated Thermal Power change of ≥ 15% in one hour occurs followed by a Thermal Power Stabilization (power level constant at desired power level).

2.8 If 1EMF-37 or 1EMF-40 has reached the Trip 1 setpoint, RP should be notified to change the cartridge before a release is attempted.

3. Procedures

Refer to Section 4 (Enclosures).

4. Enclosures

4.1 Air Addition Mode

4.2 Air Release Mode

4.3 Initiation and Termination of a GWR Permit Report

4.4 Auxiliary Building Valve Checklist

4.5 Reactor Building Valve Checklist

4.6 Auxiliary Building Separate Verification Valve Checklist

4.7 Reactor Building Separate Verification Valve Checklist

Enclosure 4.1

Air Addition Mode

1. Initial Conditions

_____ 1.1 Review the Limits and Precautions.

_____ 1.2 Verify containment pressure is decreasing and ≤ -0.03 psig.

2. Procedure

_____ 2.1 Ensure the following enclosures are complete:

- ☐ Enclosure 4.4 (Auxiliary Building Valve Checklist)
- ☐ Enclosure 4.5 (Reactor Building Valve Checklist)
- ☐ Enclosure 4.6 (Auxiliary Building Separate Verification Valve Checklist)
- ☐ Enclosure 4.7 (Reactor Building Separate Verification Valve Checklist)

_____ 2.2 Open the following valves to allow air to be drawn into the containment (rear of 1MC5):

- ☐ 1VQ-15B (Cont Air Add Cont Isol)
- ☐ 1VQ-16A (Cont Air Add Cont Isol)

_____ 2.3 Open 1VQ-13 (Cont Air Add Inlt) by pressing the "AUTO" button (rear of 1MC5).

NOTE: The start date/time for the VQ addition is when the first containment isolation valve (1VQ-15B or 1VQ-16A) is opened.

_____ 2.4 Notify Radiation Protection that VQ addition has been started and give the start time.
Person notified _____

_____ 2.5 **WHEN** containment pressure increases to approximately 0.0 psig, verify that 1VQ-13 (Cont Air Add Inlt) closes.

_____ 2.6 Press the "CLOSE" button for 1VQ-13 (Cont Air Add Inlt).

_____ 2.7 Close the following valves:

- ☐ 1VQ-15B (Cont Air Add Cont Isol)
- ☐ 1VQ-16A (Cont Air Add Cont Isol)

NOTE: The termination date/time for the VQ addition is when both containment isolation valves (1VQ-15B and 1VQ-16A) are closed.

_____ 2.8 Notify Radiation Protection that VQ addition has been terminated and give termination time.
Person notified _____

2.9 Do **NOT** file this enclosure in the Control Copy folder of this procedure.

1. Initial Conditions

_____ 1.1 Review the Limits and Precautions.

_____ 1.2 Verify Containment Pressure > 0.09 psig.

_____ 1.3 Verify CR SRO has signed and dated the VQ RELEASE RECORD authorizing releases.

_____ 1.4 Verify Containment pressure increase is **NOT** due to a LOCA or steam line break.

_____ 1.5 Review the "SPECIAL INSTRUCTIONS FOR RELEASE" section on the GWR Permit Report.

2. Procedure

_____ 2.1 Ensure the following enclosures are complete:

- ☐ Enclosure 4.4 (Auxiliary Building Valve Checklist)
- ☐ Enclosure 4.5 (Reactor Building Valve Checklist)
- ☐ Enclosure 4.6 (Auxiliary Building Separate Verification Valve Checklist)
- ☐ Enclosure 4.7 (Reactor Building Separate Verification Valve Checklist)

2.2 Perform the following to sign off the "EMF Operable/Source Checked I.V. for Setpoints" blank on the VQ RELEASE RECORD:

2.2.1 **IF** 1EMF-39 (low range) is operable, perform the following:

_____ 2.2.1.1 Verify 1EMF-39 is specified for use on the GWR Permit Report.

_____ 2.2.1.2 Verify 1EMF-39 is operable per SLC 16.11-7 using OP/0/A/6500/080 (EMF RP86A Output Modules).

_____ 2.2.1.3 Set 1EMF-39 (low range) setpoints to the value specified on the GWR Permit Report using OP/0/A/6500/080 (EMF RP86A Output Modules).

NOTE: The person performing the following step shall **NOT** be the same as in Step 2.2.1.3.

_____ 2.2.1.4 Verify trip setpoints are set to the values as specified on the GWR Permit Report using OP/0/A/6500/080 (EMF RP86A Output Modules).

_____ 2.2.2 **IF** 1EMF-39 (low range) is inoperable **AND** 1EMF-36 (low range) is to be used to monitor this release, perform the following:

☐ 2.2.2.1 Verify 1EMF-36 is specified for use on the GWR Permit Report.

☐ 2.2.2.2 Verify 1EMF-36 is operable using OP/0/A/6500/080 (EMF RP86A Output Modules).

NOTE: 1EMF-36 (low range) trip setpoints are pre-established for offsite dose.

☐ 2.2.2.3 Verify trip setpoints are set to the values as specified on the GWR Permit Report using OP/0/A/6500/080 (EMF RP86A Output Modules).

☐ 2.2.2.4 N/A the "IV" blank on the VQ RELEASE RECORD.

_____ 2.2.3 **IF** 1EMF-39 **AND** 1EMF-36 are both inoperable, perform the following:

☐ 2.2.3.1 Verify EMF-39 and EMF-36 are both N/Aed on the GWR Permit Report.

☐ 2.2.3.2 Notify RP to take grab samples per HP/0/B/1004/005 (Containment Air Release And Addition (VQ) And Containment Purge Ventilation (VP) System Release).
Person notified _____

☐ 2.2.3.3 N/A the "EMF Operable/Source Checked IV for Setpoints" blanks on the VQ RELEASE RECORD.

☐ 2.2.3.4 N/A Step 2.3.

_____ 2.3 Set up EMF Chart recorder as follows:

2.3.1 Ensure the paper drive is on for the applicable EMF chart recorder:

- 1MICR6640 if 1EMF-39 (L) is used
- 1MICR6650 if 1EMF-36 (L) is used

2.3.2 Stamp and record the following on the chart paper:

- Date
- Time
- GWR #
- Initials

SV _____ 2.4 Adjust "1VQ-10 VQ Fans Disch To Unit Vent" manual loader (1MC5) to ≤ the "Recommended Release Rate (cfm)" on the GWR Permit Report.

2.5 Record the following on the VQ RELEASE RECORD.

2.5.1 **IF** the totalizer is operable, reset it and enter "0" in the "Initial Integrator Reading" blank

2.5.2 **IF** the totalizer is inoperable, N/A the "Initial Integrator Reading" blank.

_____ 2.6 Open the following valves (1MC5):

☐ 1VQ-2A (VQ Fan Suct From Cont Isol)
☐ 1VQ-3B (VQ Fan Suct From Cont Isol)

2.7 Place one VQ train in service as follows (1MC5):

_____ 2.7.1 To place A train in service, perform the following:

☐ 2.7.1.1 Place "VQ Filt Htr A" in the "AUTO" position.

☐ 2.7.1.2 Start "Cont Air Rel Fan 1A".

_____ 2.7.2 To place B train in service, perform the following:

☐ 2.7.2.1 Place "VQ Filt Htr B" in the "AUTO" position.

☐ 2.7.2.2 Start "Cont Air Rel Fan 1B".

NOTE: The start date/time for the VQ release is when the first containment isolation valve (1VQ-2A or 1VQ-3B) was opened.

_____ 2.8 Notify RP that the VQ release has been started and give start time.
Person notified _____

_____ 2.9 Record the VQ start date/time on VQ RELEASE RECORD.

NOTE:	Containment pressure shall be monitored to ensure 1VQ-10 (VQ Fans Disch To Unit Vent) closes at 0 psig to prevent a negative pressure inside containment.

_____ 2.10 **IF** the OAC **OR** Computer Point C1P1112 (Average Containment Pressure, best) is out of service, record containment pressure as read on 1VQP5040 (Containment Pressure) on 1MC5 every 30 minutes in the Control Room Log for the duration of the VQ Release. {PIP 93-0074}

_____ 2.11 **IF** the VQ fan does **NOT** automatically shutdown at approximately 0 psig, perform the following:

- N/A Step 2.12.
- Perform Step 2.13.

_____ 2.12 **WHEN** Containment pressure decreases to approximately 0 psig, verify that "1VQ-10 VQ Fans Disch To Unit Vent" closes, by no flow indicated on the manual loader (black needle).

SV _____ 2.13 Reset "1VQ-10 VQ Fans Disch To Unit Vent" by adjusting the manual loader demand position (red needle) to zero cfm.

2.14 Secure the VQ train placed in service in Step 2.7 as follows:

_____ 2.14.1 To secure A train, perform the following:

☐ 2.14.1.1 Ensure "Cont Air Rel Fan 1A" has stopped.

☐ 2.14.1.2 Place "VQ Filt Htr A" in the "OFF" position.

_____ 2.14.2 To secure B train, perform the following:

☐ 2.14.2.1 Ensure "Cont Air Rel Fan 1B" has stopped.

☐ 2.14.2.2 Place "VQ Filt Htr B" in the ""OFF" position.

_____ 2.15 Close the following valves:

☐ 1VQ-2A (VQ Fan Suct From Cont Isol)
☐ 1VQ-3B (VQ Fan Suct From Cont Isol)

_____ 2.16 Stamp and record the following on the chart paper:

- Date
- Time
- GWR #
- Initials

NOTE: The terminated time for the VQ release is when both containment isolation valves (1VQ-2A and 1VQ-3B) are closed.

_____ 2.17 Notify RP that the VQ release has been terminated and give termination time.
Person notified _____

2.18 Record the following on the VQ RELEASE RECORD:

2.18.1 Enter the "Date/Time Release Terminated".

2.18.2 **IF** the totalizer is operable, perform the following:

2.18.2.1 Record totalizer value in "Final Integrator Reading" blank.

2.18.2.2 Enter the volume released in the "Volume" blank.
* Volume = final integrator reading X 10.

2.18.3 **IF** the totalizer is inoperable, perform the following:

2.18.3.1 N/A the "Final Integrator Reading" blank.

2.18.3.2 Enter the volume released in the "Volume" blank.

- Volume = 300 CFM X Release Time (in minutes).
- Release Time = Date/Time initiated - Date/Time terminated.

2.18.4 Enter the "Highest EMF Reading" during the release as read on the chart recorder.

2.18.5 Initial the "Control Room Operator" blank.

NOTE: If any trip setpoint is greater than 1000 cpm, round down to the nearest 100 prior to entering to ensure the entered setpoint remains conservative.

2.19 **IF** 1EMF-39 was used for this release, reset 1EMF-39 (low range) trip setpoints using OP/0/A/6500/080 (EMF RP86A Output Modules):

_____ 2.19.1 **IF** in Mode 5 or 6, the trip setpoints shall be as follows:

- Trip 2 = 17,400 cpm + Existing reading, Rounded down to the nearest 100 cpm
- Trip 1 = Trip 2 X .70

_____ 2.19.2 **IF** in Mode 1, 2, 3 or 4, the trip setpoints shall be set as follows:

- Trip 2 = 3 X Containment Atmosphere Activity (sampled at all three locations) as indicated by EMF allowing about 15 minutes for indication to stabilize.
- Trip 1 = Trip 2 X .70.

2.19.3 Signoff "EMF Setpoints Reset" blank on the VQ RELEASE RECORD.

NOTE: The person performing the following step shall **NOT** be the same as in Step 2.19.3.

_____ 2.19.4 Verify trip setpoints are reset as described in Step 2.19.1 or 2.19.2 using OP/0/A/6500/080 (EMF RP86A Output Modules).

2.20 **IF** 1EMF-36 was used for this release, N/A the "EMF Setpoints Reset" blank on the VQ RELEASE RECORD.

2.21 Do **NOT** file this enclosure in the Control Copy folder of this procedure.

Information Use

1. Initial Conditions

1.1 Review the Limits and Precautions.

1.2 Verify Radiation Protection has taken a sample and has issued a new GWR Permit Report.

2. Procedure

2.1 Request the CR SRO sign and date the VQ RELEASE RECORD authorizing releases.

NOTE: At this point, the GWR Permit Report for the VQ System is valid. The VQ System can be started and stopped as often as desired as long as the GWR Permit Report remains valid. Subsequent steps in this section will terminate the GWR Permit Report when Radiation Protection declares the GWR Permit Report invalid.

2.2 The following steps are to aid the operator in terminating the GWR Permit Report:

2.2.1 Add all values in the "Volume" column. Record total in "Total VQ Volume Released" blank.

2.2.2 Enter the highest value from "Highest EMF Reading" column in "Highest EMF Reading During Release" blank.

2.2.3 Ensure the CR SRO performs the following:

2.2.3.1 Sign the "Completion of Release Acknowledged by CR SRO" blank.

2.2.3.2 Place the completed VQ GWR Permit Report in the completed release box.

Enclosure 4.4

Auxiliary Building Valve Checklist

VALVE NO.	VALVE	LOCATION	POSITION	DATE INITIAL
	CONTROL ROOM (1MC5)			
	NOTE: Valve position should be determined by use of Control Room indicating lights.			
1VQ-3B	VQ Fan Suct From Cont Isol	572/318A HH-JJ,51-52	Closed	
1VQ-10	VQ Fans Disch To Unit Vent	551/217 JJ-52	Closed	
1VQ-13	Cont Air Add Inlt	550/217 EE-52	Closed	
1VQ-15B	Cont Air Add Cont Isol	553/217 EE-52	Closed	
	AUX BLDG			
1VQ-5	VQ Intake Test Vent	572/318 HH-52	Closed	
1VQ-14	Cont Air Addition Test Vent	557/217 EE-52	Closed	
1VQ-21	Cont Air Addition Vent	547/217 EE-52	Closed	
1VQ-22	Cont Air Addition Vent	548/217 EE-52	Closed	
1VQ-6	1A VQ Fan Suct	549/200 GG-57	Open	
1VQ-7	1A VQ Fan Disch	549/200 GG-57	Open	
1VQ-8	1B VQ Fan Suct	549/200 FF-57	Open	
1VQ-9	1B VQ Fan Disch	549/200 FF-57	Open	

Enclosure 4.5

Reactor Building Valve Checklist

VALVE NO.	VALVE	LOCATION	POSITION	DATE INITIAL
	CONTROL ROOM (1MC5)			
	NOTE: Valve position should be determined by use of Control Room indicating lights.			
1VQ-2A	VQ Fan Suct From Cont Isol	636 53' 268°	Closed	
1VQ-16A	Cont Air Add Cont Isol	559 50' 165°	Closed	
	REACTOR BLDG			
1VQ-1	VQ Intake Test Vent	637 45' 268°	Closed	
1VQ-4	VQ Intake From Cont	636 46' 268°	Open	
1VQ-17	Cont Air Addition Test Vent	558 48' 167°	Closed	
1VQ-18	Cont Air Addition Outlet	558 48' 167°	Open	

Enclosure 4.6

Auxiliary Building Separate Verification
Valve Checklist

VALVE NO.	VALVE	LOCATION	POSITION	DATE INITIAL
	CONTROL ROOM (1M5)			
	NOTE: Valve position should be determined by use of Control Room indicating lights.			
1VQ-10	VQ Fans Disch To Unit Vent	551/217 JJ-52	Closed	
1VQ-3B	VQ Fan Suct From Cont Isol	572/318A HH-JJ,51-52	Closed	
1VQ-15B	Cont Air Add Cont Isol	555/217 EE-52	Closed	

Reactor Building Separate Verification Valve Checklist

VALVE NO.	VALVE	LOCATION	POSITION	DATE INITIAL
	CONTROL ROOM (1MC5)			
	NOTE: Valve position should be determined by use of Control Room indicating lights.			
1VQ-2A	VQ Fan Suct From Cont Isol	636 53' 268°	Closed	
1VQ-16A	Cont Air Add Cont Isol	559 50' 165°	Closed	

CATAWBA
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

JPM5S/ADMIN

Classify an Event and Complete the Emergency Notification Form

CANDIDATE _____

EXAMINER _____

CATAWBA
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:

Classify an Event and Complete the Emergency Notification Form per RP/0/A/5000/001 (Classification of Emergency) and RP/0/A/5000/006A) (Notification of the States and Counties From the Control Room)

Alternate Path:

N/A

Facility JPM #:

NEW

K/A Rating(s):

GKA 2.4.41 (2.3/4.1)

Task Standard:

The operator accurately classifies the event and completes the initial Emergency Notification Form within 15 minutes of event declaration.

Preferred Evaluation Location:

Simulator _____ In-Plant __X___

Preferred Evaluation Method:

Perform __X___ Simulate _____

References:

RP/0/A/5000/001 (Classification of Emergency) Rev. 13
RP/0/A/5000/006A (Notification of the States and Counties From the Control Room) Rev. 13

Validation Time: 10 min. **Time Critical:** Yes

==========

Candidate: _____ Time Start : _____
NAME Time Finish: _____

Performance Rating: SAT _____ UNSAT _____ Question Grade _____ Performance Time _____

Examiner: _____ _____/_____
NAME SIGNATURE DATE

==========

COMMENTS

_____

_____

_____

Tools/Equipment/Procedures Needed:

Enough copies of RP/0/A/5000/001 and RP/0/A/5000/006A,and the Emergency Notification Form for each SRO candidate.

READ TO OPERATOR

DIRECTIONS TO TRAINEE:

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

You are the OSM and the Emergency Coordinator.

Unit 2 was operating at 100% power.

2 EMF-33 and the steam line radiation monitor for 2A steam generator have exceeded their Trip 2 setpoints.

Both NV pumps are in service and letdown has been isolated.

FWST level is 93%.

The reactor was manually tripped and safety injection was manually initiated.

Primary system leakage was estimated to be 190 gpm prior to the trip and safety injection.

INITIATING CUE:

Classify the event and complete the initial Emergency Notification Form. This JPM is time critical once the event is declared.

START TIME: _____

STEP 1: Obtain a copy of the appropriate procedure. STANDARD: Operator obtains a copy of RP/0/A/5000/001. **EXAMINER'S CUE: When the candidate locates the appropriate procedures, give him/her copies and tell him/her that they are current and complete.** COMMENTS:	___ SAT ___ UNSAT
STEP 2: Determine operating mode that existed at the time the event occurred prior to any protection system or operator action initiated in response of the event. STANDARD: Candidate evaluates this step and based on the initial conditions, Unit 2 was previously in Mode 1 at 100% power. COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT
STEP 3: If the plant was in Mode 1-4 and a valid condition affects fission product barriers, proceed to Enclosure 4.1. STANDARD: Candidate evaluates this step and determines from initial conditions that this step applies and goes to Enclosure 4.1. COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT

EXAMINER's NOTE: The Fission Product Barriers may be evaluated in any order.	
STEP 4: Evaluate the "Containment Barrier" column (4.1.C) of Enclosure 4.1 for any Potential Loss or Loss of that barrier. STANDARD: Candidate refers to Encl. 4.1 of RP/001 and determines based on EMF-33 and primary to secondary leak rate that there is a **LOSS** of the Containment Barrier due to item 4 (page 4 of 6). Candidate records 3 points on the worksheet (page 2 of 6) in Enclosure 4.1 for loss of the Containment Barrier. COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT
STEP 5: Evaluate the "NCS Barrier" column (4.1.N) of Enclosure 4.1 for any Potential Loss or Loss of that barrier. STANDARD: Candidate refers to Encl. 4.1 of RP/001 and determines based on leak rate that there is a **POTENTIAL LOSS** of the NCS Barrier due to item 3 (page 4 of 6). Candidate records 4 points on the worksheet (Page 3 of 6) in Enclosure 4.1 for loss of the NCS Barrier. COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT

STEP 6: Evaluate the "Fuel Clad Barrier" column (4.1.c) of Enclosure 4.1 for any Potential Loss or Loss of that barrier. STANDARD: Candidate refers to Encl. 4.1 of RP/001 and determines that **no LOSS or POTENTIAL LOSS** exists for the Fuel Clad barrier. COMMENTS:	___ SAT ___ UNSAT
STEP 7: Classify the event. STANDARD: Operator calculates a total of 7 points on the work sheet (page 2 of 6) in RP/001, Enclosure 4.1 and declares a Site Area Emergency. **EXAMINER'S NOTE: The 15 minutes for completing the initial notification form begins once the emergency classification is determined.** **Time of Classification:_____** COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT
STEP 8: Select the Event Number that best fits the loss of barrier descriptions and select the appropriate preprinted Notification Form. STANDARD: Candidate determines from RP/001 Enclosure 4.1 (page 1 of 6) that preprinted Notification Form 4.1.S.3 applies. COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT

TEP 9: Complete Emergency Notification Form for event 4.1.S.3 (RP/006A, Step 2.1) STANDARD: Candidate gets a copy of the form and fills out lines 1, 2, 6, 8, 9, 10 and 16. **The following items are CRITICAL:** • **Line 1: INITIAL** • **Line 2: UNIT** • **Line 6: TIME/DATE** • **Line 9: SHUTDOWN** • **Line 10: IS OCCURING** • **Line 16: SIGNATURE** **EXAMINER'S CUE: When candidate locates the proper form, give them a blank copy of the Emergency Notification Form 4.1.S.3.** ***CUE: If asked about Lines 11 through 14 on Notification Form, inform the candidate that the information is not available.*** **EXAMINER'S NOTE: The Notification Form must be completed within 15 minutes of the time of the event declaration.** **Time form completed:_____** COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT
This JPM is complete.	

STOP TIME: _____

CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

You are the OSM and the Emergency Coordinator.

Unit 2 was operating at 100% power.

2 EMF-33 and the steam line radiation monitor for 2A steam generator have exceeded their Trip 2 setpoints.

Both NV pumps are in service and letdown has been isolated.

FWST level is 93%.

The reactor was manually tripped and safety injection was manually initiated.

Primary system leakage was estimated to be 190 gpm prior to the trip and safety injection.

INITIATING CUES:

Classify the event and complete the initial Emergency Notification Form. This JPM is time critical once the event is declared.

Key

EMERGENCY NOTIFICATION FORM

1. [A] THIS IS A DRILL [X] ACTUAL EMERGENCY [X] INITIAL [ ] FOLLOW-UP MESSAGE NUMBER 1

2 SITE: Catawba Nuclear Site UNIT: 2 REPORTED BY: _____

TRANSMITTAL TIME/DATE: _____ (Eastern) ____ / ____ / ____ (mm dd yy) CONFIRMATION PHONE NUMBER: (803) 831-3807 (Simulator)

4. AUTHENTICATION (If Required): _____ (Number) _____ (Codeword)

5. EMERGENCY CLASSIFICATION:

[A] NOTIFICATION OF UNUSUAL EVENT [B] ALERT [■] SITE AREA EMERGENCY [D] GENERAL EMERGENCY

6. [■] Emergency Declaration At: [B] Termination At: TIME/DATE: Current (Eastern) ____ / ____ / ____ (mm dd yy) (If B, go to item 16.)

7. **EMERGENCY DESCRIPTION/REMARKS:** **EAL # 4.1.S.3 - Potential Loss of Either Nuclear Coolant System or Fuel Clad and Loss of Any Other Barrier. This EAL poses no threat to the safety of plant personnel or the general public.**

8. PLANT CONDITION: [A] IMPROVING [X] STABLE [C] DEGRADING

9. REACTOR STATUS: [X] SHUTDOWN TIME/DATE: Current (Eastern) ____ / ____ / ____ (mm dd yy) [B] _____ % POWER

10. EMERGENCY RELEASE(S):

[A] NONE (Go to item 14.) [B] POTENTIAL (Go to item 14.) [X] IS OCCURRING [D] HAS OCCURRED

**11. TYPE OF RELEASE: [ ] ELEVATED [ ] GROUND LEVEL

[A] AIRBORNE: Started: _____ (Time(Eastern)) ____ / ____ / ____ (Date) Stopped: _____ (Time(Eastern)) ____ / ____ / ____ (Date)

[B] LIQUID: Started: _____ (Time(Eastern)) ____ / ____ / ____ (Date) Stopped: _____ (Time(Eastern)) ____ / ____ / ____ (Date)

**12. RELEASE MAGNITUDE: [ ] CURIES PER SEC. [ ] CURIES NORMAL OPERATING LIMITS: [ ] BELOW [ ] ABOVE

[A] NOBLE GASES _____ [B] IODINES _____

[C] PARTICULATES _____ [D] OTHER _____

**13. ESTIMATE OF PROJECTED OFFSITE DOSE: [ ] NEW [ ] UNCHANGED PROJECTION TIME: _____ (Eastern)

	TEDE mrem	Thyroid CDE mrem
SITE BOUNDARY		
2 MILES		
5 MILES		
10 MILES		

ESTIMATED DURATION: _____ HRS.

**14. METEOROLOGICAL DATA: [A] WIND DIRECTION (from) _____ ° [B] SPEED (mph) _____

[C] STABILITY CLASS _____ [D] PRECIPITATION (type) _____

15. RECOMMENDED PROTECTIVE ACTIONS:

[■] NO RECOMMENDED PROTECTIVE ACTIONS

[B] EVACUATE _____

[C] SHELTER IN-PLACE _____

[D] OTHER _____

16. APPROVED BY: Signature (Name) Emergency Coordinator (Title) TIME/DATE: Current (Eastern) ____ / ____ / ____ (mm dd yy)

* If items 8-14 have not changed, only items 1-7 and 15-16 are required to be completed.

** Information may not be available on initial notifications.

EMERGENCY NOTIFICATION FORM

1. [A] THIS IS A DRILL [B] ACTUAL EMERGENCY [ ] INITIAL [ ] FOLLOW-UP MESSAGE NUMBER _____

2. SITE: Catawba Nuclear Site UNIT: _____ REPORTED BY: _____

TRANSMITTAL TIME/DATE: _____ (Eastern) ____/____/____ (mm dd yy) CONFIRMATION PHONE NUMBER: (803) 831-3807 (Simulator)

4. AUTHENTICATION (If Required): _____ (Number) _____ (Codeword)

5. EMERGENCY CLASSIFICATION:

[A] NOTIFICATION OF UNUSUAL EVENT [B] ALERT [■] SITE AREA EMERGENCY [D] GENERAL EMERGENCY

6. [■] Emergency Declaration At: [B] Termination At: TIME/DATE: _____ (Eastern) ____/____/____ (mm dd yy) (If B, go to item 16.)

7. **EMERGENCY DESCRIPTION/REMARKS:** **EAL # 4.1.S.3 - Potential Loss of Either Nuclear Coolant System or Fuel Clad and Loss of Any Other Barrier. This EAL poses no threat to the safety of plant personnel or the general public.**

8. PLANT CONDITION: [A] IMPROVING [B] STABLE [C] DEGRADING

9. REACTOR STATUS: [A] SHUTDOWN TIME/DATE: _____ (Eastern) ____/____/____ (mm dd yy) [B] _____ % POWER

10. EMERGENCY RELEASE(S):

[A] NONE (Go to item 14.) [B] POTENTIAL (Go to item 14.) [C] IS OCCURRING [D] HAS OCCURRED

**11. TYPE OF RELEASE: [ ] ELEVATED [ ] GROUND LEVEL

[A] AIRBORNE: Started: _____ (Time(Eastern)) ____/____/____ (Date) Stopped: _____ (Time(Eastern)) ____/____/____ (Date)

[B] LIQUID: Started: _____ (Time(Eastern)) ____/____/____ (Date) Stopped: _____ (Time(Eastern)) ____/____/____ (Date)

**12. RELEASE MAGNITUDE: [ ] CURIES PER SEC. [ ] CURIES NORMAL OPERATING LIMITS: [ ] BELOW [ ] ABOVE

[A] NOBLE GASES _____ [B] IODINES _____

[C] PARTICULATES _____ [D] OTHER _____

**13. ESTIMATE OF PROJECTED OFFSITE DOSE: [ ] NEW [ ] UNCHANGED PROJECTION TIME: _____ (Eastern)

ESTIMATED DURATION: _____ HRS.

	TEDE mrem	Thyroid CDE mrem
SITE BOUNDARY		
2 MILES		
5 MILES		
10 MILES		

**14. METEOROLOGICAL DATA: [A] WIND DIRECTION (from) _____ ° [B] SPEED (mph) _____

[C] STABILITY CLASS _____ [D] PRECIPITATION (type) _____

15. RECOMMENDED PROTECTIVE ACTIONS:

[■] NO RECOMMENDED PROTECTIVE ACTIONS

[B] EVACUATE _____

[C] SHELTER IN-PLACE _____

[D] OTHER _____

16. APPROVED BY: _____ (Name) Emergency Coordinator (Title) TIME/DATE: _____ (Eastern) ____/____/____ (mm dd yy)

* If items 8-14 have not changed, only items 1-7 and 15-16 are required to be completed.

** Information may not be available on initial notifications.