Facility: Catawba	Week of Examination: April, 2001	
Examination Level: RO		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
	2.1.25 2.8/3.1	Perform a Manual Shutdown Margin Calculation
A.2	2.2.13 3.6/3.8	Develop an R&R to Isolate 1A KF Pump for Maintenance.
A.3	2.3.4 2.5/3.1	Calculate the Maximum Permissible Stay Time Within Duke Power Administrative Limits
A.4	2.4.27 3.0/3.5	Activate the Oil Spill Response Team

2001 NRC EXAM RO ADMIN JPM SET	
JPM #	Title
R-1/ADMIN	Perform the Required Actions for a Procedure Discrepancy
R-2/ADMIN	Perform a Manual Shutdown Margin Calculation (Unit at Power)
R-3/ADMIN	Develop an R&R to Isolate 1A KF Pump for Maintenance
R-4/ADMIN	Calculate the Maximum Permissible Stay Time Within Duke Power Basic Administrative Limits
R-5/ADMIN	Activate the Oil Spill Response Team

CATAWBA
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

JPM 1R/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 Power Range Channel III (N-43) is inoperable, completes a Procedure Discrepancy Process Form, and completes remaining steps 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)
NSD 704 (Technical Procedure Use and Adherence)

Validation Time: ___ 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 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

A license candidate on OJT has just completed PT/1/A/4600/002A (Mode 1 Periodic Surveillance Items) for the semi daily surveillance on night shift.

N-43 is inoperable and complying with T.S. 3.3.1.

INITIATING CUE:

You are the OATC on Unit 1. Review the copy of PT/1/A/4600/002A (Mode 1 Periodic Surveillance Items) just performed and complete the remaining steps of PT/1/A/4600/002A (Mode 1 Periodic Surveillance Items).

JPM OVERALL STANDARD:

The candidate reviews PT/1/A/4600/002A (Mode 1 Periodic Surveillance Items) and determines that Power Range Channel N-43 is inoperable. The candidate will then complete a Procedure Discrepancy Process Form and remaining steps 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) and a copy of the Action TSAIL Items.	
STEP 1: Candidate reviews procedure and recognizes Surveillance item #6 for Channel III (N-43) power range detector is inoperable. STANDARD: Candidate recognizes that Channel III (N-43) power range detector has been removed from service and is inoperable. 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 met and proceeds to step 12.3. **EXAMINER NOTE: If Candidate determines that the acceptance criteria is <u>NOT</u> met in step 12.2, then step 12.2.2 may be performed. Refer to JPM step 3. Otherwise, proceed to JPM step 4.** COMMENTS:	___SAT ___UNSAT
STEP 3: Notify the Unit 1or 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. ***EXAMINER'S CUE: This is Bill Everett. I understand that power range Channel III (N-43) is inoperable. We are currently complying with the appropriate actions of Tech. Spec 3.3.1. A PIP was previously initiated.*** COMMENTS:	___SAT ___UNSAT

STEP 4: 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 (Step 12.3) STANDARD: Candidate locates a procedure discrepancy sheet. ***EXAMINER CUE: Once located, give the candidate a copy of the Procedure Discrepancy Process Form and a copy of the "Active TSAIL Items".***	___SAT ___UNSAT
STEP 5: Candidate enters ID No. in Section (1) of the Procedure Discrepancies Process Record. STANDARD: Candidate enters "PT/1/A/4600/002A" in Section 1 COMMENTS:	**CRITICAL STEP** ___SAT ___UNSAT
STEP 6: Candidate enters Procedure Title in Section (3). STANDARD: Candidate enters "Mode 1 Periodic Surveillance Items". COMMENTS:	**CRITICAL STEP** ___SAT ___UNSAT
STEP 7: Candidate enters Date(s) Performed in Section (4). STANDARD: Candidate enters present date. COMMENTS:	**CRITICAL STEP** ___SAT ___UNSAT

STEP 8. Candidate completes Section (5). STANDARD: Candidate enters the following information in Section (5) of the Procedure Discrepancies Process Form: • No: Item #1 • Procedure Section: Enclosure 13.1 • Description of Discrepancy: N-43 or power range Channel III inoperable* • Corrective Action: TSAIL #C1-00-01354 • Deficiency: NO* • Signature: Obtain from SRO • Completion Date: Present date (Optional) **EXAMINER NOTE: Items denoted by an asterisk are critical.** COMMENTS:	**CRITICAL STEP** ___SAT ___UNSAT
STEP 9: Test was completed to satisfy the following requirement(s): STANDARD: Candidate checks the semi-daily block based on the initial cue. COMMENTS:	___SAT ___UNSAT
STEP 10: Submit PT/1/A/4600/002A (Mode 1 Periodic Surveillance Items) to the Unit/WCC SRO. STANDARD: Candidate submits completed periodic test to the Unit/WCC SRO. EXAMINER CUE: The Unit SRO has taken control of the periodic test procedure. COMMENTS:	___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

A license candidate on OJT has just completed PT/1/A/4600/002A (Mode 1 Periodic Surveillance Items) for the semi daily surveillance on night shift.

N-43 is inoperable and complying with T.S. 3.3.1.

INITIATING CUE:

You are the OATC on Unit 1. Review the copy of PT/1/A/4600/002A (Mode 1 Periodic Surveillance Items) just performed and complete step 12.2 of PT/1/A/4600/002A (Mode 1 Periodic Surveillance Items).

#11 M?

IB86-97

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?
[x] 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 10-18-200

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

(10) Compared with Control Copy Robbie Kimbrey Date 4-5-01

Compared with Control Copy _____ Date _____

Compared with Control Copy _____ Date _____

(11) Date(s) Performed 4-5-01

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)*

Chg 173A - 1-18-01 - replace pg 35 Encl 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

____ 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).

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
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		REK
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)			REK
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		Item #1

(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 _____% Difference _____% BETP 99.757 % Channel IV 100.835 % Difference -1.078 %	(7)(8)(9)	C1P1385		Item #1

(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 .24 psig Low Channel .17 psig Differential .07 psig		1NSP5040, 1NSP5050, 1NSP5060, 1NSP5070 (located on 1MC11)		RCK
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 .24 psig Low Channel .17 psig Differential .07 psig TRAIN B High Channel .27 psig Low Channel .17 psig Differential .1 psig		C1A1492 C1A1498 C1A1504 C1A1510 C1A1516 C1A1522 C1A1528 C1A1534		RCK
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		RCK

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
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 % Low Channel 64.4 % Differential 1.4 %		C1A0731 C1A0845 C1A0911 C1A0531		
		S/G B High Channel 65.5 % Low Channel 63.2 % Differential 2.3 %		C1A0626 C1A0632 C1A0537 C1A0638		
		S/G C High Channel 65.5 % Low Channel 63.8 % Differential 1.7 %		C1A0644 C1A0627 C1A0633 C1A0543		
		S/G D High Channel 65.8 % Low Channel 64.0 % Differential 1.8 %		C1A0639 C1A0645 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:				RSK
		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 3.7.4.11 & 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.

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
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

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
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		PZK

#	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}

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
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		REK

#	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		REK
37	Cold Leg Accumulator Discharge Isolation Valves (SR 3.5.1.11	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				REK

#	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:				REK
	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		RZK
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				RZK

(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) 35[1]	1. Power light on 2. No "LOSS OF SAMPLE FLOW" alarm 3. Meter is reading ≥ ½ of background from setpoint logbook	(34)		(W)	

[1] 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				REK
		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
66	1EMF39 Channel Check (SR 3.4.15.1) & (SLCs 16.7-10, 16.11-7) 39L	1. Power light on 2. No "LOSS OF SAMPLE FLOW" alarm 3. Meter is reading ≥ ½ of background from setpoint logbook	(36)	C1E0155		REK
67	1EMF39 Channel Check (SLC 16.11-7) 39L	Verify EMF39 Trip 2 setpoint is set at ≤ 3 times containment activity.	(37)(38)			REK
68	EMF41 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 4. The scanner scan/stop switch positioned to "SCAN".	(36)			REK

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

(37) N/A if VQ release in progress.

(38) EMF Setpoint Log should be used to determine current Trip 2 setpoint value as necessary.

#	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
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, 111E-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)

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Periodic Surveillance Items Data

#	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)			

(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.

TODAY'S DATE

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.

Todays 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).

MA 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}

Form 35285 (03-88)

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		

Active TSAIL Items

Unit 0

TSAIL	Train	System	Component Description	InOp D/T Req'd Op D/T	Track Only
C0-00-01541	N	EUC	EUC – CATHODIC PROTECTION Rectifiers #3, 7 and 10	05/31/2000 00:47	
C0-00-01888	N	N/A	N/A – Not Applicable to Any System Surface Water sample at riverpoint	07/10/2000 16:23	
C0-98-01117	N	N/A	Fire Barrier Penetrations	05/07/1998 10:34	
C0-98-02507	N	WZ	Groundwater Level C1 WZ Pump	10/01/1998 16:58	

Unit 1

TSAIL	Train	System	Component Description	InOp D/T Req'd Op D/T	Track Only
C1-00-01354	N	ENB	N43 Power Range Channel 3	05/12/2000 08:51	X
C1-00-01376	B	EMF	EMF-53B Cont. Area High Range Radiation Monitor	05/13/2000 01:45	X
C1-99-00004	A	ENA	CORE EXIT THERMOCOUPLE-QUAD 1 B-3	12/25/1992 15:00	X
C1-99-01244	A	ENA	CORE EXIT THERMOCOUPLE-QUAD 4 Post Accident Monitoring	05/19/1999 10:48	X
C1-99-02637	B	ENA	CORE EXIT THERMOCUPLE-QUAD 3 Post Accident Monitoring J-8	10/09/1999 12:20	X

Unit 2

TSAIL	Train	System	Component Description	InOp D/T Req'd Op D/T	Track Only
C2-00-00950	AB	VP	VP HEATERS	03/16/2000 19:46	
C2-00-1905	N	CA	AUXILIARY FEEDWATER FLOW-LOOP A Post Accident Monitoring/Remote Shutdown	07/12/2000 08:08 08/11/2000 08:08	
C2-00-01906	N	CA	AUXILIARY FEEDWATER FLOW-LOOP C Post Accident Monitoring/Remote Shutdown	07/12/2000 08:11 08/11/2000 08:11	
C2-00-01907	N	CA	AUXILIARY FEEDWATER FLOW-LOOP B Post Accident Monitoring	07/12/2000 08:12 08/11/2000 08:12	
C2-00-01908	N	CA	AUXILIARY FEEDWATER FLOW-LOOP D Post Accident Monitoring	07/12/2000 08:16 08/11/2000 08:16	
C2-00-01909	N	FW	FWST LEVEL-CH 3 Containment Recirc Swapover –FLWT5120	07/12/2000 08:15 08/11/2000 08:15	
C2-00-00802	N	ENA	Movable Incore Detectors	03/14/2000 01:26	X
C2-00-00822	A	VP	VP TRAIN 2A	03/15/2000 16:26	X

Unit 2 (Continued)

C2-00-01208	A	EMH	Hydrogen Ignitors Train A	04/29/2000 06:00	X
C2-00-01209	B	EHM	Hydrogen Ignitors Train B	04/29/2000 06:00	X
C2-00-01667	A	VP	VP TRAIN 2A	06/13/2000 21:35	X
C2-00-01668	B	VP	VP TRAIN 2B	06/13/2000 21:43	X
C2-00-0176[illegible]	B	VA	ASPSU 2B Aux Shutdown Panel Supply Unit	06/22/2000 23:26	X
C2-98-02633	B	ENA	CORE EXIT THERMOCOUPLE-QUAD 1 F-5	10/15/1998 16:55	X
C2-99-01588	N	N/A	N/A – Not Applicable to Any System VP incore filter unit	06/21/1999 1339	X

Form 3528 (88)

Duke Power 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: Present

(5) Discrepancy Processing:

No.	Procedure Section	Description Of Discrepancy	Corrective Action	Deficiency Yes	Deficiency No	Signature	Completion Date
1	13.1 #5, #6	Power Range Channel N-43 Inoperable	Complying with Tech Spec #3.3.1 TSAIL # C1-00-1354		✓		

Form 3528(-88)

Duke P 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		

CATAWBA
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

JPM 2R/ADMIN

Perform a Manual Shutdown Margin Calculation
(Unit at Power)

CANDIDATE _____

EXAMINER _____

CATAWBA
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:

Perform a manual shutdown margin calculation (Unit at Power) per OP/0/A/6100/006 (Reactivity Balance Calculation)

Alternate Path:

N/A

Facility JPM #:

OP-CN-RT-RB-121 (Modified)

K/A Rating(s):

GKA 2.1.25 (2.8/3.1)

Task Standard:

Determine that required shutdown margin does not exist per the Unit 1 Core Operating Limits Report.

Preferred Evaluation Location:

Simulator ___ In-Plant __X__

Preferred Evaluation Method:

Perform __X__ Simulate _____

References:

OP/0/A/6100/006 (Reactivity Balance Calculation), Rev. 62
Unit 1 Reactor Operating Data Book (R.O.D.)
Core Operating Limits Report (COLR) Revision 18

Validation Time: 15 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:

You are the Unit 1 OATC. The Reactivity Computer (REACT) is out of-service.

Current plant conditions are as follows:
- Power level = 99%
- Boron Concentration: 959 ppm
- Core burnup: 150 EFPD
- Control rod bank A: 226 steps
- Control rod bank B: 226 steps
- Control rod bank C: 226 steps
- Control rod bank D: 198 steps

INITIATING CUE:

You have just been informed by the Control Room SRO that the following rods are untrippable:
- F-10
- B-12

Perform a Shutdown Margin Calculation per OP/0/A/6100/006 (Reactivity Balance Calculation) and determine if Core Operating Limits Report requirement for shutdown margin is satisfied. Calculation verification is waived.

JPM OVERALL STANDARD:

Candidate determines that required shutdown margin is 1300 pcm and current shutdown margin is 912 pcm, therefore, adequate shutdown margin does not exist.

STEP 1: Candidate obtains a copy of OP/0/A/6100/006 (Reactivity Balance Calculation) and from initiating cue and determines that Enclosure 4.3 is applicable. STANDARD: Candidate obtains a copy of OP/0/A/6100/006 (Reactivity Balance Calculation) **EXAMINER'S CUE: When the candidate locates the appropriate procedure, give him/her a copy of OP/0/A/6100/006.** COMMENTS:	___SAT ___UNSAT
STEP 2: Limits and Precautions have been reviewed. STANDARD: Examinee reviews Limits and Precautions. **EXAMINER'S CUE: If asked by candidate, inform them that T-AVG is being maintained within ± 1 ° F of T-REF.** COMMENTS:	___SAT ___UNSAT
STEP 3: Record data required in step 2.1. STANDARD: Operator determines the following using the initial conditions. Unit: 1 Date/Time: Present Date/Time Present Thermal Power, Best Estimate: 99% Present Cycle Burnup: 150 EFPD Present Control Bank Position: 198 SWD, Control Bank D Number of untrippable RCCA(s): 2 Untrippable RCCA(s) core location(s): F-10, B-12 COMMENTS:	___SAT ___UNSAT

STEP 4: Determine total available rod worth. (Step 2.2) STANDARD: Determine total available rod worth to be **4856 pcm** per section 5.7 of Reactor Operating Data (R.O.D.) Manual. **EXAMINER NOTE: The 4856 pcm is an exact value.** COMMENTS:	**CRITICAL STEP** ___SAT ___UNSAT
STEP 5. If there are multiple untrippable RCCA's, N/A steps 2.2.3 and 2.2.4. (Step 2.2.2) STANDARD: Determines there are multiple untrippable RCCA's and does not perform steps 2.2.3 and 2.2.4. COMMENTS:	**CRITICAL STEP** ___SAT ___UNSAT
STEP 6: Determine untrippable RCCA of step 2.1.7 with the highest reactivity worth penalty. (Section 5.8 of R.O.D. Manual) (Step 2.2.6) STANDARD: Refers to section 5.8 of the R.O.D. Manual. Determines RCCA F-10 rod worth is **738 pcm** and RCCA B-12 Rod worth is **40 pcm**. Enters core location F-10 in step 2.2.5 and enters **738 pcm** in step 2.2.6. COMMENTS:	**CRITICAL STEP** ___SAT ___UNSAT

STEP 7: Determine maximum stuck rod worth during cycle. (Section 5.8 of the R.O.D. Manual) (Step 2.2.7) STANDARD: Determines maximum stuck rod worth during cycle is **1106 pcm** per section 5.7 of the R.O.D. Manual. **EXAMINER NOTE: The 1106 pcm is an exact value.** COMMENTS:	**CRITICAL STEP** ___SAT ___UNSAT
STEP 8: Calculate total untrippable RCCA reactivity worth penalty. for multiple untrippable RCCA's (Step 2.2.8 step 2.2.9) STANDARD: Calculates a penalty at **1844 pcm** and records it in step 2.2.9. **EXAMINER NOTE: (1106) + (738) = 1844 pcm** COMMENTS:	**CRITICAL STEP** ___SAT ___UNSAT
EXAMINER NOTE: The candidate should read the note prior to step 2.2.10 and choose the conservative (highest reactivity worth) value.	
STEP 9: Use present control bank position of step 2.1.5 to look up specified data from Section 5.6 of the R.O.D. Manual and calculate inserted reactivity worth of rods. (Step 2.2.10) STANDARD: Determines from Section 5.6 of the R.O.D. Manual: Reactivity worth of HZP, No Xenon to be **59 pcm.** Reactivity worth at HZP Peak Xenon to be **115 pcm.** Calculates inserted reactivity worth of **87 pcm.** **EXAMINER NOTE: (59 pcm + 115 pcm) x .5 = 87 pcm.** COMMENTS:	**CRITICAL STEP** ___SAT ___UNSAT

STEP 10: Calculate available reactivity worth of trippable rods. STANDARD: Determines: Total available rod worth **4856 pcm** (Step 2.2.1) Untrippable RCCA penalty **1844 pcm** (Step 2.2.9) Inserted Rod Worth **87 pcm** (Step 2.2.10) Calculates available worth of trippable RCCA's is **2925 pcm** **EXAMINER NOTE: (4856 pcm) – (1844 pcm) – (87 pcm) = 2925 pcm** COMMENTS:	**CRITICAL STEP** ___SAT ___UNSAT
EXAMINER NOTE: The candidate should read the note prior to step 2.3 and choose the conservative (highest reactivity worth) value.	
STEP 11: Determine worst case power defect for present conditions. (Step 2.3) STANDARD: Determine in step 2.3: Power defect of **1742 pcm** per section 5.9 of R.O.D. Manual Transient Flux Redistribution Allowance of **271 pcm** per Section 5.7 of the R.O.D. Manual. Calculates worst case power defect of **2013 pcm.** **EXAMINER NOTE: (1742 pcm) + (271 pcm) = 2013 pcm** COMMENTS:	**CRITICAL STEP** ___SAT ___UNSAT

STEP 12: Calculate SDM for present conditions. (Step 2.4) TANDARD: Determines in step 2.4 available worth of trippable RCA's **2925 pcm** Worst Case Power Defect **2013 pcm** Calculates present SDM of **912 pcm** **EXAMINER NOTE: (2925 pcm) - (2013 pcm) = 912 pcm** COMMENTS:	**CRITICAL STEP** ___SAT ___UNSAT
STEP 13: Determine the required shutdown margin STANDARD: Candidate determines from page 6 of 26 of the Core Operating Limits Report or from memory that the required shutdown margin is 1300 pcm. COMMENTS:	___SAT ___UNSAT
STEP 14: Determines that current shutdown margin is not adequate. STANDARD Candidates compares the current shutdown margin of 912 pcm to the COLR requirement of 1300 pcm and determines that adequate shutdown margin does not exist.	**CRITICAL STEP** ___SAT ___UNSAT

TIME STOP: _____

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

INITIAL CONDITIONS:

You are the Unit 1 OATC. The Reactivity Computer (REACT) is out of-service.

Current plant conditions are as follows:
- Power level = 99%
- Boron Concentration: 959 ppm
- Core burnup: 150 EFPD
- Control rod bank A: 226 steps
- Control rod bank B: 226 steps
- Control rod bank C: 226 steps
- Control rod bank D: 198 steps

INITIATING CUE:

You have just been informed by the Control Room SRO that the following rods are untrippable:
- F-10
- B-12

Perform a Shutdown Margin Calculation per OP/0/A/6100/006 (Reactivity Balance Calculation) and determine if Core Operating Limits Report requirement for shutdown margin is satisfied. Calculation verification is waived.

1. Initial Conditions

1.1 Limits and Precautions have been reviewed.

2. Procedure

NOTE:
1. In Modes 1 or 2 with all RCCA's trippable, shutdown margin is satisfied provided control banks are positioned above the Control Rod Insertion limits in Section 2.2 of the R.O.D. manual (and if Unit shutdown occurs, T-COLD remains above the Allowable Moderator Temperature limit of Section 2.6 of the R.O.D. manual.)
2. 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.

2.1 Determine the following information:

Step	Description	Reference	Value
2.1.1	Unit	N/A	1
2.1.2	Date/Time	N/A	Current
2.1.3	Present Thermal Power, Best Estimate	P1385	99 %
2.1.4	Present cycle burnup	P1457 or Reactor Group Duty Engineer	150 EFPD
2.1.5	Present control bank position	N/A	198 SWD on Control Bank D
2.1.6	Number of untrippable RCCA(s)	N/A	2
2.1.7	Untrippable RCCA(s) core locations(s).	N/A	F-10, B-12

2.2 Determine available reactivity worth of trippable RCCA's for present conditions:

2.2.1 Determine Total Available Rod Worth (Section 5.7 of R.O.D. manual) 4856 pcm

2.2.2 **IF** there are multiple untrippable RCCA's, N/A steps 2.2.3 and 2.2.4

2.2.3 Determine reactivity worth penalty for untrippable RCCA core location of Step 2.1.7 (Section 5.8 of R.O.D. manual). N/A pcm

2.2.4 N/A steps 2.2.5 through 2.2.8.

2.2.5 Determine untrippable RCCA of Step 2.1.7 with the highest reactivity worth penalty(Section 5.8 of ROD Manual). Core Location F-10

2.2.6 Record reactivity worth of the untrippable RCCA of Step 2.2.5 (Section 5.8 of ROD Manual). 738 pcm

2.2.7 Determine maximum stuck rod worth during cycle (Section 5.7 of the R.O.D. manual). 1106 pcm

2.2.8 Calculate total untrippable RCCA reactivity worth penalty for multiple untrippable RCCA's per the table below.

Description	Reference	Value
A.Number of Untrippable RCCA's	Step 2.1.6	2
B.Additional Penalty (Max Stuck Rod)	Step 2.2.7	1106 pcm
C. Highest Penalty	Step 2.2.6	738 pcm
Total untrippable RCCA Worth Penalty for Multiple RCCA's	**{ [(A) - 1] X (B) } + (C)**	1844 **pcm**

2.2.9 Record Total Untrippable RCCA Penalty from Step 2.2.3 or Step 2.2.8, whichever is applicable. 1844 pcm

NOTE: Interpolation is not required in step 2.2.10. Reactivity worth may be determined by choosing the highest reactivity worth from Section 5.6 of the R.O.D Manual associated with rod positions that bound the present rod position.

2.2.10 Use present control bank position of Step 2.1.5 to look up specified data from Section 5.6 of ROD Manual and calculate inserted reactivity worth as follows:

(59 pcm + 115 pcm) x 0.5 = 87 pcm
(HZP, No Xenon) (HZP, Peak Xenon)

2.2.11 Calculate available reactivity worth of trippable RCCA's:

Description	Reference	Value
A. Total Available Rod Worth	Step 2.2.1	4856 pcm
B. Untrippable RCCA's Penalty	Step 2.2.9	1844 pcm
C. Inserted Worth of Present Position	Step 2.2.10	87 pcm
Available Worth of Trippable RCCA's	**(A) - (B) - (C)**	2925 **pcm**

NOTE: Interpolation of Power Defect is not required for step 2.3. Bounding burnups and power levels may be used to select the highest Power Defect from section 5.9 of the R.O.D. manual.

2.3 Determine worst case power defect for present conditions:

Description	Reference	Value
A. Total Power Defect at present thermal power (Step 2.1.3) and cycle burnup (Step 2.1.4)	Section 5.9 of R.O.D. manual	1742 Pcm
B. Transient Flux Redistribution Allowance	Section 5.7 of R.O.D. manual	271 Pcm
Worst case power defect for present conditions:	**(A) + (B)**	2013 **Pcm**

CAUTION: SDM shall be within the limits specified by the COLR per Tech Spec 3.1.1.

2.4 Calculate SDM for present conditions:

Description	Reference	Value
A. Available worth of Trippable RCCA's	Step 2.2.11	2925 pcm
B. Worst Case Power Defect	Step 2.3	2013 pcm
Present SDM	**(A) - (B)**	(+) 912 **pcm**

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

2.5 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 3R/ADMIN

Develop an R&R to Isolate 1A KF Pump for Maintenance

CANDIDATE _____

EXAMINER _____

CATAWBA
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:

Develop an R&R to isolate 1A KF Pump for maintenance.

Alternate Path:

N/A

Facility JPM #:

New

K/A Rating(s):

GKA 2.2.13 (3.6/3.8)

Task Standard:

The 1A KF pump is correctly isolated for maintenance and the R&R is correctly developed, including the removal 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: ___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 when running
1B KF pump has been placed in service per OP/1/A/6200/005
The pump is to be red tagged to Maintenance Crew 269 for inspection.
The work Order number is 98014758-01
The Safety Tag computer program is out of service.
Affected procedures: OP/1/A/6200/005 (Spent Fuel Cooling System)

INITIATING CUE:

You are directed to develop the R&R that will be used to tag out the "1A" KF pump. The pump has been removed from service per OP/1/A/6200/005.

JPM OVERALL STANDARD:

The 1A KF Pump is correctly isolated for maintenance and the R&R is correctly developed, including the removal sequence.

STEP 1: Obtain a copy of the appropriate piping diagrams and appropriate electrical load list. STANDARD: Candidate obtains a copy of CN-1570-1.0 (KF System flow diagram) and 1 ETA electrical load list. **EXAMINER CUE: When candidate determines correct piping diagram and electrical load list, hand candidate copy of diagram CN-1570-1.0 and the electrical load list for 1ETA.** **EXAMINER NOTE: Candidate may request drawing CN-1565-2.3 (WL System flow diagram). It is not required to perform the tagout.** COMMENTS:	___SAT ___UNSAT
STEP 2 Determine equipment that must be operated to isolate 1A KF pump. STANDARD: Candidate determines the following: 1 ETA-15 (1A KF pump motor) must be racked out and red tagged. 1KF-4 and 1KF-2 must be closed and red tagged. 1KF-9 must be open and red tagged. 1KF-121, 1KF-13, 1KF-10 and 1KF-12 must be open. COMMENTS:	**CRITICAL STEP** ___SAT ___UNSAT

STEP 3: Complete page 1 of Removal form. **EXAMINER CUE: When candidate determines correct form, hand candidate a copy of page 1 of the removal form.** STANDARD: Candidate completes the following: **System Tagged:** KF-Spent fuel cooling system **Reason for Removal:** Inspect 1A KF pump. **Applicable Work Order:** 98014758-01 **Affected Procedures:** OP/1/A/6200/005 (Spent Fuel Cooling) System **Supervisor responsible and/or Crew**: Maintenance Supervisor And/or Crew 269 **Prepared by**: Candidates Name **Date/Time:** Present date and time COMMENTS:	___SAT ___UNSAT
STEP 4: Determine sequence number, position and Red tag ID for 1 ETA-15 STANDARD: Candidate determines sequence number should be 1, position should be racked out and a red tag should be placed. **EXAMINER CUE: Red tag number for 1 ETA-15 is 10561** COMMENTS:	**CRITICAL STEP** ___SAT ___UNSAT

STEP 5: Determine sequence number, position and red Tag ID for 1KF-4. STANDARD Candidate determines the sequence number should be 2, position should be closed and a red tag should be placed. **EXAMINER CUE: Red tag number for 1KF-4 is 10562** COMMENTS:	**CRITICAL STEP** ___SAT ___UNSAT
STEP 6: Determine the sequence number, position and Red tag ID for 1KF-2 STANDARD: Candidate determines sequence number should be 3, position should be closed and a red tag should be placed. **EXAMINER CUE: Red tag number for 1KF-2 is 10563.** COMMENTS:	**CRITICAL STEP** ___SAT ___UNSAT
STEP 7: Determine sequence number and position for vents and drains. STANDARD: Candidate determines that the following valves must be open. 1KF-121, 1KF-9, 1KF-13, 1KF-12 and 1KF-10. **EXAMINER NOTE: The vents and drains may be opened in any sequence after 1ETA-15 is racked out and 1KF-4 and 1KF-2 are closed.** COMMENTS:	**CRITICAL STEP** ___SAT ___UNSAT

STEP 8 Determine that one vent or drain must be red tagged open to prevent inadvertent pressurization of the pump. STANDARD: Candidate determines that 1KF-9 must be red tagged open. **EXAMINER CUE: Red tag number for 1KF-9 is 10564.** **EXAMINER NOTE: This may also be accomplished by tagging open either 1KF-121, 1KF-10, or 1KF-12 in conjunction with 1KF-13. In this event, the red tag numbers will be 10564 and 10565.** COMMENTS:	**CRITICAL STEP** ___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 when running
1B KF pump has been placed in service per OP/1/A/6200/005
The pump is to be red tagged to Maintenance Crew 269 for inspection.
The work Order number is 98014758-01
The Safety Tag computer program is out of service.
Affected procedures: OP/1/A/6200/005 (Spent Fuel Cooling System)

INITIATING CUE:

You are directed to develop the R&R that will be used to tag out the "1A" KF pump. The pump has been removed from service per OP/1/A/6200/005.

Duke Power Co. Catawba Nuclear Station	01/26/2001	Page 1 of 2
	Unit 1	Tagout ID: O-1-1-0243
Removal	[redacted]	

Item Tagged:	Reason for Removal:
KF-Spent Fuel Cooling System	Inspect pump

Applicable Work Orders:
98014758-01

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
Candidate	Current				

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	1ETA 15	Racked Out		
Red Tag ID	Equipment Description: 1A KF Pump Motor		Removed By:	Date / Time:
	Location:		IV Req'd?:	IV By:
Special Info:			LBL	OCG:

Seq#	Equipment ID	Position	Part Approval:	Date / Time:
2	1KF-4	Closed		
Red Tag ID	Equipment Description: 1A KF Pump Disch Isol		Removed By:	Date / Time:
	Location:		IV Req'd?:	IV By:
Special Info:			LBL	OCG:

Seq#	Equipment ID	Position	Part Approval:	Date / Time:
3	KF-2	Closed		
Red Tag ID	Equipment Description: 1A KF Pump Suction Isol		Removed By:	Date / Time:
	Location:		IV Req'd?:	IV By:
Special Info:			LBL	OCG:

Seq#	Equipment ID	Position	Part Approval:	Date / Time:
4	1KF-121	Open		
Red Tag ID	Equipment Description: 1A KF Pump Drain		Removed By:	Date / Time:
	Location:		IV Req'd?:	IV By:
Special Info:			LBL	OCG:

Seq#	Equipment ID	Position	Part Approval:	Date / Time:
4	1KF-9	Open		
Red Tag ID	Equipment Description: 1A KF Pump Vent		Removed By:	Date / Time:
	Location:		IV Req'd?:	IV By:
Special Info:			LBL	OCG:

Seq#	Equipment ID	Position	Part Approval:	Date / Time:
4	1KF-13	Open		
Red Tag ID	Equipment Description: 1A KF Pump Drain to WEFT		Removed By:	Date / Time:
	Location:		IV Req'd?:	IV By:
Special Info:			LBL	OCG:

Duke Power Co. Catawba Nuclear Station 01/26/2001

Unit 1

Tagout ID: O-1-1-0243

Removal [redacted]

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:		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:		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:

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:

Duke Power Co. Catawba Nuclear Station 01/26/2001

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

Removal

Equipment Removed From Service

Reason for Removal:

Tag ID	Equipment Tag	Position	Tag Type	Description

Duke Power Co. Catawba Nuclear Station 01/26/2001

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

Removal

[redacted]

System Tagged:	Reason for Removal:

Applicable Work Orders:

Affected Procedures:

Supervisor Responsible and/or Crew:	Modification:

Prepared By:	Date/Time:	Reviewed By:	Date/Time:	Approved By:	Date/Time

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:
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

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

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

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

Removal [redacted]

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

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

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

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

Removal [redacted]

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

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

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

Duke Power Co. Catawba Nuclear Station 01/26/2001

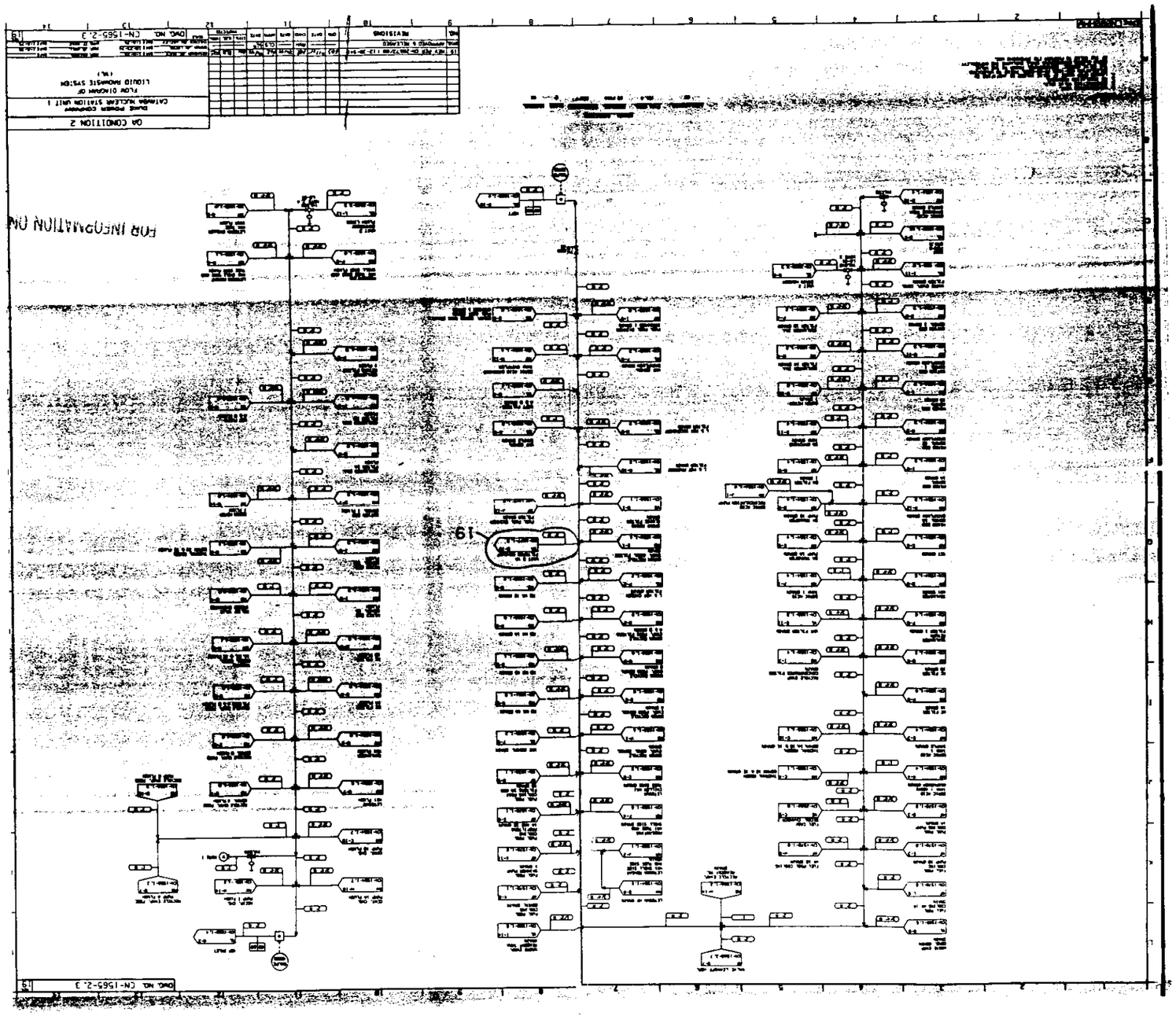
Unit 1 Tagout ID: O-1-1-0243

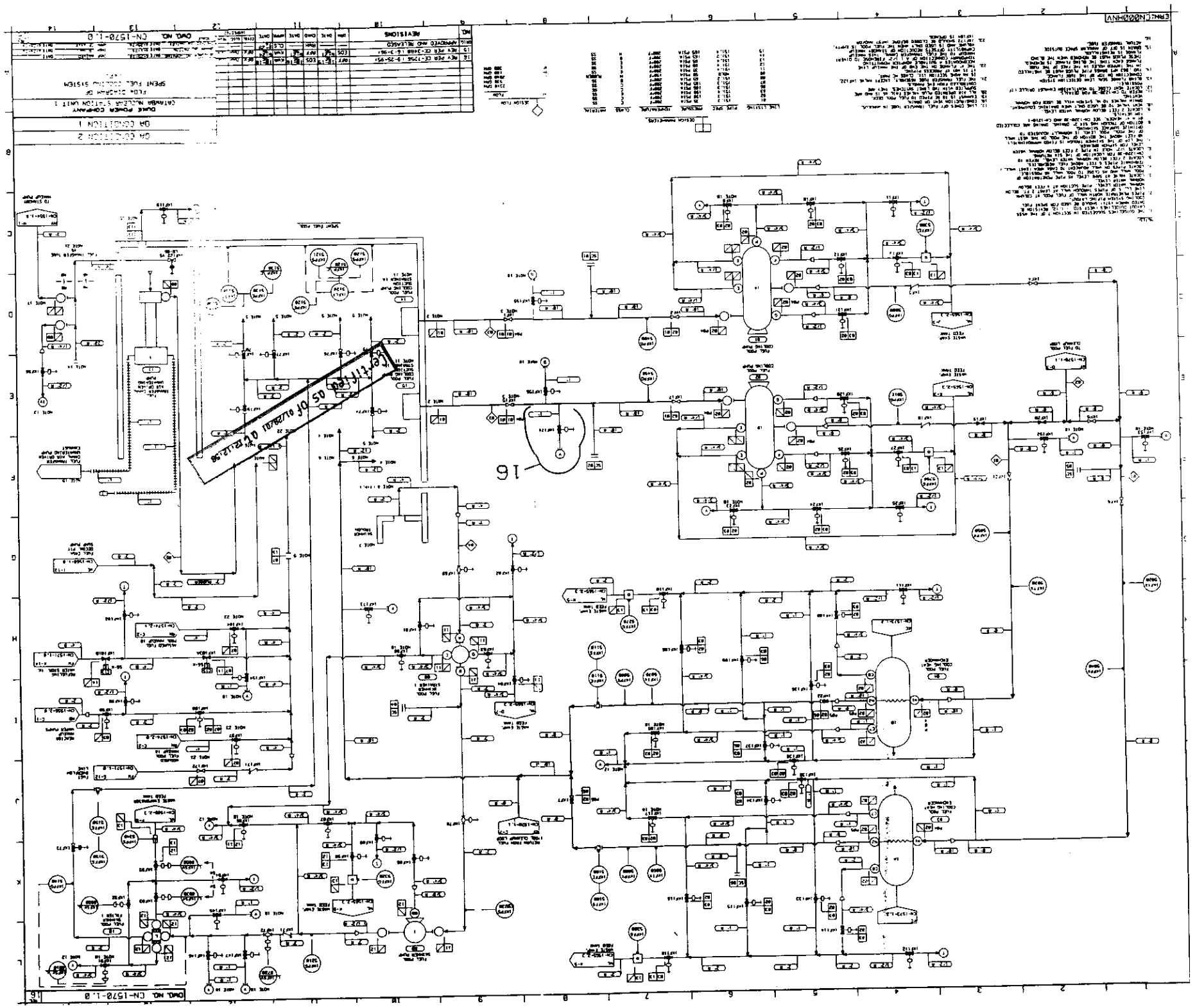
Removal [redacted]

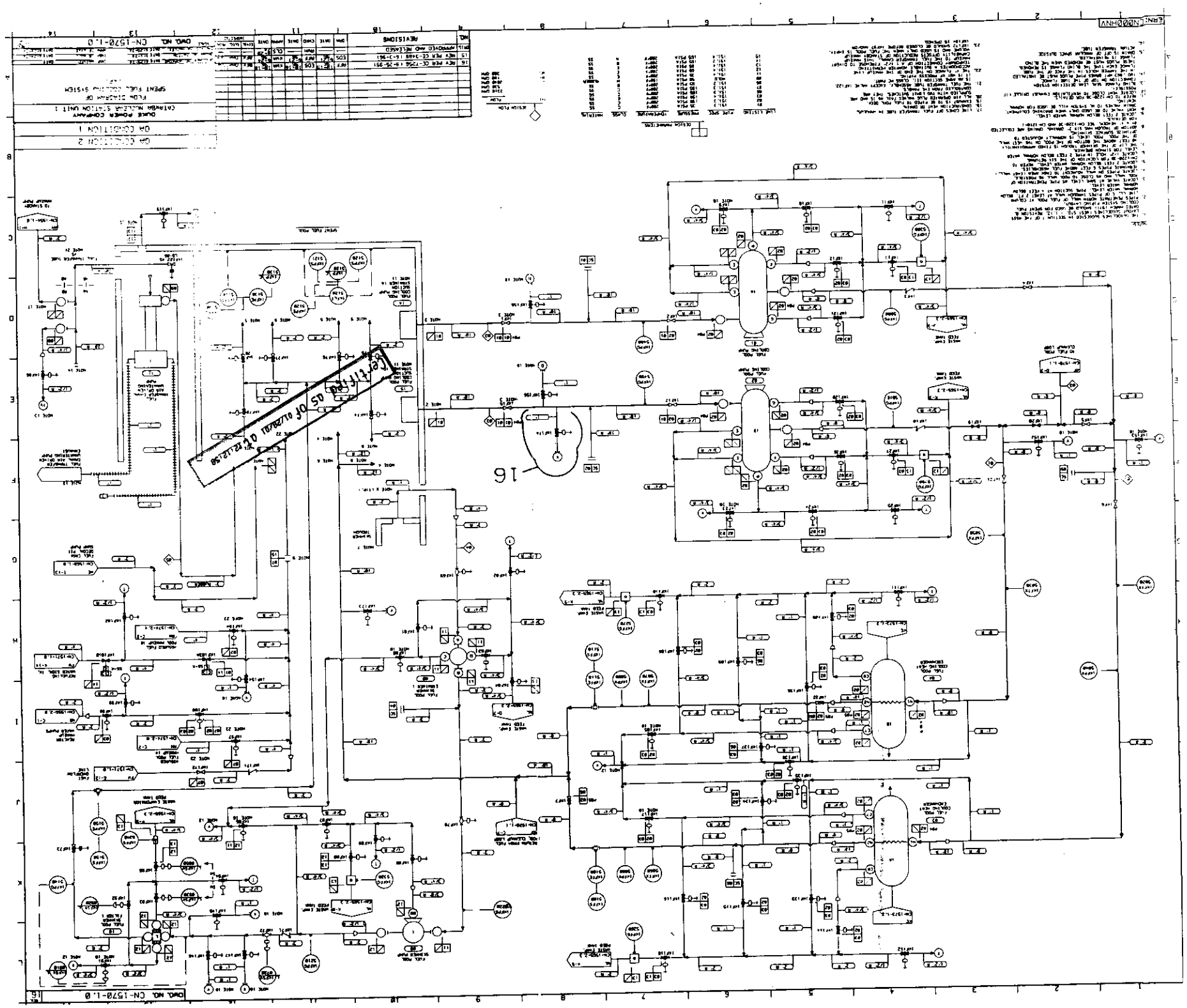
Equipment Removed From Service

Reason for Removal:

Tag ID	Equipment Tag	Position	Tag Type	Description


FOR INFORMATION ONLY
DA CONDITION 2
DUKE POWER COMPANY
CATAWBA NUCLEAR STATION UNIT 1
FLOW DIAGRAM OF
LIQUID MONITORING SYSTEM
(NL)
REVISIONS
DWG. NO. CN-1565-2.3
19


DUKE POWER COMPANY
CATAWBA NUCLEAR STATION UNIT 1
FLOW DIAGRAM OF
SPENT FUEL COOLING SYSTEM
(U1)
REVISIONS
DWG. NO. CN-1570-1.0
Certified as of 01/20/01 Drawings


DUKE POWER COMPANY
CATAWBA NUCLEAR STATION UNIT 1
FLOW DIAGRAM OF
SPENT FUEL COOLING SYSTEM
REVISIONS
DWG. NO. CN-1570-1.0
16
Certified as of August 07, 2018

LIST NUMBER 1B
PLANT CODE = CAT
FILE ID = A6
KEY - 002(05) - 003(05)

DUKE POWER COMPANY
DESIGN ENGINEERING DATA BASE SYSTEM
CATAWBA NUCLEAR STATION
ELECTRICAL LOAD LIST

LOAD TITLE 004 005 006	SYS UNIT 007 008	BHP KW 009 010	HP/KVA EQ TYPE 011/012 083	VOLTS PHASE 013 014	FLA LRA 015 016	SF. RPM 017 018	PF EFF LRPF 019 020 111	LF OPER 021 022	BLDG/ELV COOR LOC 023/024 025	S CL/TRN SEQ # 026/027 095	SPECIAL COMMENTS AND REQUIREMENTS 028/029/030	BUS 002	COMPT 003	CABLE SIZE CABLE CLASS VALVE NO. 031/072/089	REFERENCE DRAWING NUMBER 032/033/034
	EPC	0.00	0.00	4160	0.00	0.00	.	.		1E		1ETA	02	1-3/C-500MCM	CN-1702-02.01
	1	0.00	0.00	3	0.00	0000	.			A				P	
ALTERNATE FEEDER TO 4160V BLACKOUT SWITCHGEAR 1FTA			SWGR				.								
	EPC	0.00	0.00	4160	0.00	0.00	.	.		1E		1ETA	03	3-3/C-500MCM	CN-1702-02.01
	1	0.00	0.00	3	0.00	0000	.			A				P	
NORMAL INCOMING FEEDER FROM TRANSFORMER 1ATC							.								
	EPC	0.00	0.00	4160	0.00	0.00	.	.		1E		1ETA	04	3-3/C-500MCM	CN-1702-02.01
	1	0.00	0.00	3	0.00	0000	.			A				P	
ALTERNATE INCOMING FEEDER FROM TRANSFORMER SATA							.								
	EPE	0.00	0.00	4160	0.00	0.00	.	.		1E		1ETA	05	1-3/C #4/0	CN-1702-02.01
	1	0.00	1500.00	3	0.00	0000	.			A				P	
4160/600V TRANSFORMER 1ETXA			XFMR				.								
	KC	229.00	250.00	4000	31.00	1.25	0.93	1.00	AB	1E		1ETA	06	1-3/C#2	CN-1702-02.01
	1	0.00	0.00	3	203.00	1800	0.94	CONT	560+00	A				P	CNM-1318.22-1
COMPONENT COOLING WATER PUMP MOTOR 1A1			PMTR				.		GG-58	06					CNS-1318.22-1
	KC	229.00	250.00	4000	31.00	1.25	0.93	1.00	AB	1E		1ETA	07	1-3/C#2	CN-1702-02.01
	1	0.00	0.00	3	203.00	1800	0.94	CONT	560+00	A				P	CNM-1318.22-1
COMPONENT COOLING WATER PUMP MOTOR 1A2			PMTR				.		GG-57	06					CNS-1318.22-1
	NS	426.00	500.00	4000	63.60	1.25	0.89	0.50	AB	1E		1ETA	08	1-3/C #2	CN-1702-02.01
	1	0.00	0.00	3	370.00	1800	0.94	BKUP	522+00	A				P	CNM-1318.25-1
CONTAINMENT SPRAY PUMP MOTOR 1A			PMTR				.		GG-55	05					CNS-1318.25-1
	ND	0.00	400.00	4000	50.00	1.25	.	.	AB	1E	WEST LETTER CAT-2024	1ETA	09	1-3/C #2	CN-1702-02.01
	1	0.00	0.00	3	309.00	1800	.		522+00	A	7/16/79			P	
RESIDUAL HEAT REMOVAL PUMP MOTOR 1A			PMTR				.		FF-54	04					

LOAD TITLE 004 / 005 / 006	SYS UNIT 007 / 008 / 010	BHP KW 009	HP/KVA EQ TYPE 011/012	VOLTS PHASE 013	FLA LRA 015 / 016	SF. RPM 017 / 018	PF EFF LRPF 019 / 020 / 111	LF OPER 021 / 022	BLDG/ELV COOR LOC 023/024 / 025	S CL/TRN SEQ # 026/027 / 095	SPECIAL COMMENTS AND REQUIREMENTS 028/029/030	BUS 002 / 1ETA	COMPT 003 / 10	CABLE SIZE CABLE CLASS VALVE NO. 031/072/089	REFERENCE DRAWING NUMBER 032/033/034
	EPE	0.00	0.00	4160	0.00	0.00	.	.		1E				1-3/C #4/0	CN-1702-02.01
	1	0.00	1500.00	3	0.00	0000	.			A				P	
4160/600V TRANSFORMER 1ETXE			XFMR				.								
	NI	0.00	400.00	4000	49.40	1.25	0.93	0.50	AB	1E		1ETA	11	1-3/C#2	CN-1702-02.01
	1	0.00	0.00	3	341.00	3600	0.94	BKUP	543+00	A				P	CNM-1201.05-145
SAFETY INJECTION PUMP MOTOR 1A			PMTR				.		GG-54	03					
	NV	0.00	600.00	4000	76.00	1.25	0.91	0.50	AB	1E		1ETA	12	1-3/C #2	CN-1702-02.01
	1	0.00	0.00	3	431.00	1800	0.93	LINT	543+00	A				P	CNM-1201.05-144
CVCS CENTRIFUGAL CHARGING PUMP MOTOR 1A			PMTR				.		HH-55	02					CNM-1201.05-203
	CA	558.00	600.00	4000	75.00	1.25	0.92	0.00	AB	1E		1ETA	13	1-3/C #2	CN-1702-02.01
	1	0.00	0.00	3	455.00	3600	0.95	SHDN	543+00	A				P	CNM-1318.16-20
AUXILIARY FEEDWATER PUMP MOTOR 1A			PMTR				.		AA-50	08					CNS-1318.16-1
	RN	1050.00	1000.00	4000	139.60	1.25	0.81	1.00	PH	1E		1ETA	14	3-1/C-350MCM	CN-1702-02
	1	0.00	0.00	3	789.00	0720	0.95	CONT	600+00	A				P	CNM-1318.20-1
NUCLEAR SERVICE WATER PUMP MOTOR 1A			PMTR				.			07					CNS-1318.20-1
	KF	234.50	300.00	4000	39.00	1.25	0.88	1.00	AB	1E		1ETA	15	1-3/C#2	CN-1702-02.01
	1	0.00	0.00	3	240.00	1800	0.93	CONT	577+00	A				P	CNS-1318.23-1
FUEL POOL COOLING PUMP MOTOR 1A			PMTR				.		QQ-51	13					CNM-1318.23-10
	EPE	0.00	0.00	4160	0.00	0.00	.	.		1E		1ETA	16	1-3/C #4/0	CN-1702-02.01
	1	0.00	1500.00	3	0.00	0000	.			A				P	
4160/600V TRANSFORMER 1ETXC			XFMR				.								
	YC	0.00	663.00	4000	78.20	1.11	0.88	1.00	AB	1E		1ETA	17	1-3/C#2	CN-1702-02.01
	STA	0.00	0.00	3	399.00	3600	0.94	CONT	594+00	A				P	CNM-1211.00-93
CONTROL ROOM AREA CHILLER COMP A NORMAL SUPPLY			CMTR				.		FF-55	12					

LOAD TITLE 004 / 005 / 006	SYS UNIT 007 / 008	BHP KW 009 / 010	HP/KVA EQ TYPE 011/012 / 083	VOLTS PHASE 013 / 014	FLA LRA 015 / 016	SF. RPM 017 / 018	PF EFF LRPF 019 / 020 / 111	LF OPER 021 / 022	BLDG/ELV COOR LOC 023/024 / 025	S CL/TRN SEQ # 026/027 / 095	SPECIAL COMMENTS AND REQUIREMENTS 028/029/030	BUS 002	COMPT 003	CABLE SIZE / CABLE CLASS / VALVE NO. 031/072/089	REFERENCE DRAWING NUMBER 032/033/034
	EPC	0.00	0.00	4160	0.00	0.00	.	.		1E		1ETA	18	3-3/C-500MCM	CN-1702-02.01
	1	0.00	0.00	3	0.00	0000	.			A				P	
DIESEL GENERATOR 1A							.								
	ERN	0.00	0.00	0	0.00	0.00	.	.		1E		1ETA	19		CN-1702-02.01
	1	0.00	0.00		0.00	0000	.			A					
DIESEL GEN 1A PROTECTIVE RELAYS AND METERING							.								

JPM 4R/ADMIN

507.6 EXPOSURE LIMITS

507.6.1 OCCUPATIONAL MAXIMUM ALLOWABLE EXPOSURE (MAE) LIMITS

Table 507-1. Occupational Maximum Allowable Exposure (MAE) Limits

Body Location	NRC MAE Limit	DPC MAE Limit
Total Effective Dose Equivalent (TEDE) to the whole body	5.0 rem/year	2.0 rem/year up to 5.0 rem/year with extension
Shallow Dose Equivalent to Skin and Extremities	50.0 rem/year	50.0 rem/year
Committed Dose Equivalent (CDE) to any tissue or organ except lens of eye	50.0 rem/year	50.0 rem/year
Committed Dose Equivalent to lens of eye	15.0 rem/year	15.0 rem/year
Embryo/fetus (declared pregnant female)	0.5 rem/pregnancy duration, controlled uniformly at .05 rem/month	0.5 rem/pregnancy duration, controlled uniformly at .05 rem/month
Planned Special Exposure (PSE)	Up to 5 times annual limits in a lifetime. Requires Site VP approval	Up to 5 times annual limits in a lifetime. Requires Site VP approval.
Emergency Exposure		See Site Emergency Plan
Minors (< 18 years of age)	10% of adult limit and may not enter a High Radiation Area	10% of adult limit and may not enter a High Radiation Area

507.6.2 DECLARATION OF PREGNANCY

A worker may declare pregnancy at any time during pregnancy in order to minimize exposure of the fetus to radiation. Upon declaration of pregnancy, the worker's dose limit is reduced to the limits described in 507.6.1 and a BBA is performed. In addition, declared pregnant workers should avoid entries into Airborne Radioactivity Areas, High Radiation Areas, Extra High Radiation Areas and Very High Radiation Areas.

A declared pregnant worker may undeclare a pregnancy at any time. At the time a pregnancy is undeclared, the worker's MAE limit is returned to the non-declared worker limit. Contact RP to declare or undeclare a pregnancy and at the conclusion of pregnancy.

CATAWBA
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

JPM 5R/ADMIN

Activate the Oil Spill Response Team

CANDIDATE _____

EXAMINER _____

CATAWBA
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:

Activate the Oil Spill Response Team.

Alternate Path:

N/A

Facility JPM #:

New

K/A Rating(s):

GKA 2.4.27 (3.0/3.5)

Task Standard:

Perform the immediate actions of RP/0/B/5000/008 (Spill Response) Enclosure 4.3 and activate the Oil Spill Response Team per RP/O/B/5000/008 (Spill Response) Enclosure 4.5.

Preferred Evaluation Location:

Simulator ___ In-Plant __X__

Preferred Evaluation Method:

Perform __X__ Simulate _____

References:

RP/0/B/5000/008 (Spill Response)

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

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

Performance Rating: SAT _____ UNSAT _____ Performance Time _____

Examiner: _____ _____/_____
NAME SIGNATURE DATE

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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 simulated 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 BOP on Unit 1. The Control Room SRO has just received a 4911 call stating there is an oil spill on the Standby Nuclear Service Water Pond. The Control Room SRO is performing the immediate actions of RP/0/B/5000/008 (Spill Response).

INITIATING CUE:

The Control Room SRO directs you to perform all the immediate actions of Enclosure 4.3 of RP/0/B/5000/008 (Spill Response). This is not a drill.

JPM OVERALL STANDARD:

Candidate performs the immediate actions of Enclosure 4.3 of RP/0/B/5000/008 (Spill Response) and activates the Oil Spill Response Team using Step 1 of Enclosure 4.5 of RP/0/B/5000/008 (Spill Response).

STEP 1: Obtain a copy of RP/0/B/5000/08 (Spill Response). TANDARD: Candidate obtains a copy of RP/0/B/5000/08 (Spill Response). **EXAMINER'S CUE: Provide a copy of RP/0/B/5000/008 (Spill Response) once the candidate locates the procedure.** COMMENTS:	___SAT ___UNSAT
STEP 2: Upon receiving notification of a spill of oil to Lake Wylie or the Standby Nuclear Service Water Pond which requires cleanup, request the caller's name and phone number. STANDARD: Candidate records the caller's name and phone number in the blanks in the first immediate action of Enclosure 4.3 **EXAMINER'S CUE: The caller's name is Jim Barnes and the caller's phone number is 3038. The oil spill requires cleanup.** COMMENTS:	___SAT ___UNSAT
STEP 3: If necessary to confirm the spill, then dispatch an operator. STANDARD: Candidate simulates calling an operator at extension 5562. **CUE: An operator has been dispatched and the spill has been confirmed.** **Examiner Note: Confirmation of the oil spill is not required. Therefore, the candidate may elect not to perform the step.** COMMENTS:	___SAT ___UNSAT

STEP 4: Contact the Lower Catawba Hydro Oil Spill Response Team as listed on Enclosure 4.5 to initiate a response. TANDARD: Candidate refers to Enclosure 4.5 to notify the Lower Catawba Hydro Oil Spill Response Team. COMMENTS:	___SAT ___UNSAT
STEP 5: Determines from the Initial Conditions that this is not a drill an actual spill has occurred. Step 1.1 is N/A. STANDARD: Step 1.1 is not performed. Candidate goes to step 1.2. COMMENTS:	___SAT ___UNSAT
STEP 6: At the Quiktel Key Pad located in the Control Room type in "Oil Spill" and press "ENTER" STANDARD: Candidate locates the Quiktel Key Pad and simulates typing "Oil Spill" and pressing "ENTER" COMMENTS:	**CRITICAL STEP** ___SAT ___UNSAT
STEP 7: Press "M" and type the following message: "Oil Spill to water at CNS. All team members respond. Team Leader call 803-831-5164 for safety information." Press "ENTER" to send. STANDARD: Candidate simulates typing and transmitting message. COMMENTS:	**CRITICAL STEP** ___SAT ___UNSAT

STEP 8: Monitor the confirmation pager located at the Quiktel Key Pad to verify proper pager actuation. TANDARD: Examinee monitors the confirmation pagers located at the Quiktel Key Pad to verify proper pager actuation. **EXAMINER'S CUE: Message has been sent.** COMMENTS:	___SAT ___UNSAT
This JPM is complete	

TIME STOP: _____

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

INITIAL CONDITIONS:

You are the BOP on Unit 1. The Control Room SRO has just received a 4911 call stating there is an oil spill on the Standby Nuclear Service Water Pond. The Control Room SRO is performing the immediate actions of RP/0/B/5000/008 (Spill Response).

INITIATING CUE:

The Control Room SRO directs you to perform all the immediate actions of Enclosure 4.3 of RP/0/B/5000/008 (Spill Response). This is not a drill.