A.1.a Conduct of operations ADMIN RO

TITLE: **Evaluate Inoperable Plant Computer Based Alarm Functions**
EVALUATION LOCATION: __X__ CLASS ROOM
PROJECTED TIME: __25 MIN__ SIMULATOR IC NUMBER: __N/A__
ALTERNATE PATH ____ TIME CRITICAL ____ PRA_____

JPM DIRECTIONS:

1. Initiation of task may be in group setting, evaluation performed individually upon completion.
2. Provide student with HANDOUT pages and sign off applicable steps already completed. Procedures provided will be:
   - STP-37.0 version 25.1
   - COLR Figure 3 for FNP UNIT 1 CYCLE 25
   - Picture of DRPI and group rod indication
   - Picture of Yokagawa delta flux recorder.
3. Allow student time to review data.
4. Student will have access to the computer for material purposes. Access will be limited to the exam log in and **NO** internet access or lesson plan material can be accessed.
5. Requiring the examinee to acquire the required materials may or may not be included as part of the JPM.

TASK STANDARD: Upon successful completion of this JPM, the examinee will:

- Correctly assess and determine if STP-37.0 Acceptance Criteria is met.

Examinee:	
Overall JPM Performance:	**Satisfactory** ☐ **Unsatisfactory** ☐
Evaluator Comments (attach additional sheets if necessary)	

EXAMINER: _____

Developer	Aaron Forsha	Date: 2/13/2013
NRC Approval	SEE NUREG 1021 FORM ES-301-3	

CONDITIONS

When I tell you to begin, you are to complete the **Evaluate Inoperable Plant Computer Based Alarm Functions**. The conditions under which this task is to be performed are:

a. Unit 1 is Mode 1 and stable at 80% power.
b. The Plant Computer became Inoperable twenty (20) minutes ago and is not expected to return for five (5) more hours.
c. Another operator will record data for Appendix 3 of STP-37.0.
d. Target Flux for 80% power is -2.00%

Your task is to complete the steps listed below of STP-37.0, POWER DISTRIBUTION SURVEILLANCE (PLANT COMPUTER INOPERABLE), using the data provided.

1. Step 5.1, to include step 5.1.2 and 5.1.3
2. Step 5.2 to include 5.2.1, 5.2.3 and 5.2.4.
3. Fill out the Acceptance Criteria table.

INITIATING **CUE**: "You may begin."

EVALUATION CHECKLIST

	ELEMENTS:	**STANDARDS:**	**RESULTS: (CIRCLE)**
	____ START TIME		
1.	(step 5.1.2) Record Initial Rod Data	Records Initial Data on Appendix 1	S / U
*2.	(step 5.1.3) Determine if rod data meets acceptance criteria.	Evaluates rod data and determines that Acceptance Criteria is met.	S / U
3.	(step 5.2.1) Record Initial AFD Data	Records Initial Data on Appendix 2	S / U
4.	(step 5.2.3) Determine acceptance criteria of AFD from COLR.	Using Figure 3 of the COLR determines AFD limits. **Tolerance allowed: -18 to -19.8**	S / U
*5.	(step 5.2.3) **Check** Acceptance Criteria satisfied and initial Appendix 2	Determines channels 1, 2 and 3 are in the unacceptable region. Channel 4 is in the acceptable range. Critical task is to determine that **Acceptance criteria is NOT met**	S / U

EVALUATION CHECKLIST

ELEMENTS:	STANDARDS:	RESULTS: (CIRCLE)
6. (step 5.2.4) Report **Acceptance criteria is NOT met** to SS.	Reports to Shift Supervisor STP results. (Cue Shift Supervisor acknowledges)	S / U

_____ STOP TIME

Terminate when Tech Spec requirements are provided.

CRITICAL ELEMENTS: Critical Elements are denoted with an asterisk (∗) before the element number.

GENERAL REFERENCES:

1. FNP-1-STP-37.0 Ver 25.1
2. COLR Unit 1 – Cycle 25
3. K/A: G2.1.37 RO 4.3 SRO 4.6

GENERAL TOOLS AND EQUIPMENT:

COLR, STP-37.0

Critical ELEMENT justification:

Part 1 KEY

	ACCEPTANCE CRITERIA	
Step 5.1.3 (Rods)	**MET**	**NOT MET**
Step 5.2.3 (Flux)	**MET**	**NOT MET**

STEP **Evaluation**

1. **Not critical:** This information is given in conditions.
2. **Critical:** This is the assigned task, results must be accurate.
3. **Not critical:** This information is given in conditions.
4. **Critical:** Accurately evaluating COLR is required to establish correct Acceptance Criteria.
5. **Critical:** This is the assigned task, results must be accurate.

6. **Not critical:** Notification step only.

COMMENTS:

1.0 Purpose

To provide a means of determining and logging axial flux difference and rod position indication operability.

2.0 Acceptance Criteria

2.1 The indicated Axial Flux Difference (AFD) shall be maintained within the limits of the COLR.

2.2 All shutdown and control rod position indicator channels and the demand position indication system shall be operable and capable of determining the control rod positions within ± 12 steps.

3.0 Initial Conditions

3.1 The version of this procedure has been verified to be the current version. (OR 1-98-498) PK

3.2 This procedure has been verified to be the correct unit for the task. (OR 1-98-498. PK

3.3 The plant is in Mode 1 or 2 PK

3.4 One of the following conditions requires performance of this test: PK

- The plant computer is inoperable, and the inoperability is approaching 1 hour.
- Main Control Board Annunciator FF5 is inoperable, or in an alarm condition, and the inoperability is approaching 1 hour.
- Main Control Board Annunciator FC4 is inoperable, or in an alarm condition, and the inoperability is approaching 1 hour.

3.5 Record date/time condition entered requiring performance of this test.

Date today Time 20 min ago

4.0 Precautions and Limitations

4.1 IF the plant computer goes out of service, THEN annunciators FF5 and FC4 are considered to have been inoperable. This procedure must be performed to completion.

5.0 Instructions

NOTES

If the plant computer and annunciator FF5 is returned to service within one hour step 5.1 is N/A. ☑

FSAR Section 15.2.3.1 states "If the rod deviation alarm is not operable, the operator is required to log the RCCA positions in a prescribed time sequence to confirm alignment." Within one hour was picked as a conservative and realistic time frame to take this action. ☑

If necessary, additional copies of Appendix 1, 2 or 3 may be attached, as required, until the computer is declared operable. ☑

5.1 IF annunciator FF5, COMP ALARM ROD SEQ/DEV OR PR FLUX TILT, is inoperable either due to the computer being inoperable or due to some other cause, THEN **perform** the following:

5.1.1 Closely monitor individual rod position during control rod movement to ensure correct rod control system and control rod position indicator response. (NSAL-93-007) BK

5.1.2 Within one hour record current power level, bank demand position, and individual rod position, and every four (4) hours there after until the computer and the alarm are declared operable. (Appendix 1) BK

5.1.3 Check that Acceptance Criteria is met and initial Appendix 1 in the space provided. Inform Shift Supervisor of any readings not meeting Acceptance Criteria. BK

NOTES

If the plant computer and annunciator FC4 is returned to service within one hour step 5.2 is N/A. ☐

The ITS AFD surveillance frequency of seven days is considered adequate based on AFD being monitored by the computer and any deviation from requirements is alarmed. Within one hour to take initial compensatory actions is considered conservative and realistic. The old requirement to log AFD once per hour when the alarm is inoperable has been deleted. ☐

5.2 IF annunciator FC4, DIFF FLUX DEV ALERT, is inoperable due to the computer being inoperable or to some other cause, AND power is greater than 50%, THEN record axial flux difference for each operable excore channel as follows, and inform Shift Supervisor of any readings not meeting Acceptance Criteria.

5.2.1 **Record** INITIAL DATA within one hour of the computer or the alarm being declared inoperable. (Appendix 2) BK

Student may N/A or leave blank 5.2.2 since its not directed to be completed

5.2.2 Every four hours **record** current target value and axial flux difference until the computer and annunciator FC4 are declared operable. (Appendix 2) BK

5.2.3 **Check** Acceptance Criteria satisfied and initial Appendix 2 in space provided. BK

5.2.4 **Inform** Shift Supervisor of any readings not meeting Acceptance Criteria. BK

5.2.5 WHEN the computer and the alarm are declared operable, THEN **record** one set of OPERABLE DATA readings of target value and axial flux difference to channel check Delta I channels. (Appendix 2) ____

NOTE

If the plant computer is returned to service within one hour step 5.3 is N/A. ☐

5.3 IF the plant computer is inoperable, THEN **record** power level once per hour per Appendix 3. ____

Appendix 1

CAUTION

While annunciator FF5 is inoperable, closely monitor individual rod position during control rod movement to ensure correct rod control system and control rod position indicator response. (NSAL-93-007) ☐

Time	Time					
Rx Power	80%					
Rod No.	222 228 230 Other	222 228 230 Other	222 228 230 Other	222 228 230 Other	222 228 230 Other	222 228 230 Other
CB A Demand	[ ] [ ] [/]	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]
CB B Demand	[ ] [ ] [/]	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]
CB C Demand	[ ] [ ] [/]	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]
CB D Demand	[ ] [ ] [ ] 147	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]
S/D A Demand	[ ] [ ] [/]	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]
S/D B Demand	[ ] [ ] [/]	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]
CB A F2	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB A B10	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB A K14	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB A P6	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB A K2	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB A B6	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB A F14	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB A P10	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB B F4	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB B D10	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB B K12	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB B M6	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB B K4	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB B D6	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB B F12	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB B M10	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB C D4	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB C D12	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB C M12	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB C M4	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB C H6	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB C F8	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB C H10	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB C K8	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]

Appendix 1, continued

Rod No.	222 228 230 Other	222 228 230 Other	222 228 230 Other	222 228 230 Other	222 228 230 Other	222 228 230 Other
CB D H2	[ ] [ ] [ ] 150	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB D B8	[ ] [ ] 150	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB D H14	[ ] [ ] 150	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB D P8	[ ] [ ] 150	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB D F6	[ ] [ ] 150	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB D F10	[ ] [ ] 150	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB D K10	[ ] [ ] 150	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB D K6	[ ] [ ] 150	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
S/D A G3	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
S/D A C9	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
S/D A J13	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
S/D A N7	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
S/D A J3	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
S/D A C7	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
S/D A G13	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
S/D A N9	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
S/D B E5	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
S/D B E11	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
S/D B L11	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
S/D B L5	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
S/D B G7	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
S/D B G9	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
S/D B J9	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
S/D B J7	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]

ACCEPTANCE CRITERIA

All Shutdown and Control Rod position indicator channels and the demand position indication system are operable and capable of determining control rod positions within ± 12 steps.

Acceptance Criteria met: (initials)	BA					

Record data every four hours, per step 5.1.2

KEY

Appendix 2
Computer Inoperable
Axial Flux Difference (%)

ACCEPTANCE CRITERIA

Indicated AFD is within the limits specified in the COLR.

Date: today

	Time	Target	N-41	N-42	N-43	N-44	Acceptance Criteria met: (initials)
INITIAL DATA	time	-2.00%	-20.20%	-21.03%	-23.00%	-16.48%	
**							
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**							
**							
**							
**							
**							
OPERABLE DATA							

** Record data every four hours, per step 5.2.2

KEY

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HANDOUT

CONDITIONS

When I tell you to begin, you are to complete the **Evaluate Inoperable Plant Computer Based Alarm Functions**. The conditions under which this task is to be performed are:

a. Unit 1 is Mode 1 and stable at 80% power.
b. The Plant Computer became Inoperable twenty (20) minutes ago and is not expected to return for five (5) more hours.
c. Another operator will record data for Appendix 3 of STP-37.0.
d. Target Flux for 80% power is -2.00%

Your task is to complete the steps listed below of STP-37.0, POWER DISTRIBUTION SURVEILLANCE (PLANT COMPUTER INOPERABLE), using the data provided.

1. Step 5.1, to include step 5.1.2 and 5.1.3
2. Step 5.2 to include 5.2.1, 5.2.3 and 5.2.4.
3. Fill out the Acceptance Criteria table.

Circle your answer below

	ACCEPTANCE CRITERIA	
Step 5.1.3 (Rods)	**MET**	**NOT MET**
Step 5.2.3 (Flux)	**MET**	**NOT MET**

SAFETY RELATED

POWER DISTRIBUTION SURVEILLANCE (PLANT COMPUTER INOPERABLE)

PROCEDURE LEVEL OF USE CLASSIFICATION PER NMP-AP-003	
CATEGORY	**SECTIONS**
Continuous:	**ALL**
Reference:	**NONE**
Information:	**NONE**

Approved By: David L Reed (for)
Operations Manager

Effective Date: April 8, 2012

SURVEILLANCE TEST REVIEW SHEET

SURVEILLANCE TEST NO.	TECHNICAL SPECIFICATION REFERENCE
FNP-1-STP-37.0	SR 3.2.3.1 Bases, FSAR 15.2.3
TITLE POWER DISTRIBUTION SURVEILLANCE (PLANT COMPUTER INOPERABLE)	MODE(S) REQUIRING TEST: 1, 2

TEST RESULTS (TO BE COMPLETED BY TEST PERFORMER)

PERFORMED BY _____ / _____ DATE/TIME _____
(PRINT) (SIGNATURE)

COMPONENT OR TRAIN TESTED (if applicable) _____

[ ] ENTIRE STP PERFORMED [ ] FOR SURVEILLANCE CREDIT

[ ] PARTIAL STP PERFORMED [ ] NOT FOR SURVEILLANCE CREDIT

REASON FOR PARTIAL: _____

TEST COMPLETED: [ ] Satisfactory [ ] Unsatisfactory

[ ] The following deficiencies occurred:

_____

_____

[ ] Corrective action taken or initiated:

_____

_____

_____

SHIFT SUPERVISOR/ SHIFT SUPPORT SUPERVISOR REVIEW

[ ] Procedure properly completed and satisfactory per step 9.1 of FNP-0-AP-5.0.
[ ] Comments: _____

_____

REVIEWED BY _____ / _____ DATE _____
(PRINT) (SIGNATURE)

ENGINEERING SUPPORT GROUP SCREENING (IF APPLICABLE) SCREENED BY _____ DATE _____

[ ] Comments: _____

_____

Procedure Version Description

Version Number	Version Description
25.0	Updated procedure to requirements of NMP-AP-002, SNC FLEET PROCEDURES WRITERS GUIDE.
25.1	Updated ARO Rod Height from 227 to 230 for Fuel Cycle 25.

Table of Contents

Page

1.0 Purpose

To provide a means of determining and logging axial flux difference and rod position indication operability.

2.0 Acceptance Criteria

2.1 The indicated Axial Flux Difference (AFD) shall be maintained within the limits of the COLR.

2.2 All shutdown and control rod position indicator channels and the demand position indication system shall be operable and capable of determining the control rod positions within ± 12 steps.

3.0 Initial Conditions

3.1 The version of this procedure has been verified to be the current version. (OR 1-98-498) PK

3.2 This procedure has been verified to be the correct unit for the task. (OR 1-98-498. PK

3.3 The plant is in Mode 1 or 2 PK

3.4 One of the following conditions requires performance of this test: PK

- The plant computer is inoperable, and the inoperability is approaching 1 hour.
- Main Control Board Annunciator FF5 is inoperable, or in an alarm condition, and the inoperability is approaching 1 hour.
- Main Control Board Annunciator FC4 is inoperable, or in an alarm condition, and the inoperability is approaching 1 hour.

3.5 Record date/time condition entered requiring performance of this test.

Date today Time 20 min ago

4.0 Precautions and Limitations

4.1 IF the plant computer goes out of service, THEN annunciators FF5 and FC4 are considered to have been inoperable. This procedure must be performed to completion.

5.0 Instructions

NOTES

If the plant computer and annunciator FF5 is returned to service within one hour step 5.1 is N/A.

FSAR Section 15.2.3.1 states "If the rod deviation alarm is not operable, the operator is required to log the RCCA positions in a prescribed time sequence to confirm alignment." Within one hour was picked as a conservative and realistic time frame to take this action.

If necessary, additional copies of Appendix 1, 2 or 3 may be attached, as required, until the computer is declared operable.

5.1 IF annunciator FF5, COMP ALARM ROD SEQ/DEV OR PR FLUX TILT, is inoperable either due to the computer being inoperable or due to some other cause, THEN **perform** the following:

5.1.1 Closely monitor individual rod position during control rod movement to ensure correct rod control system and control rod position indicator response. (NSAL-93-007) BK

5.1.2 Within one hour record current power level, bank demand position, and individual rod position, and every four (4) hours there after until the computer and the alarm are declared operable. (Appendix 1) _____

5.1.3 Check that Acceptance Criteria is met and initial Appendix 1 in the space provided. Inform Shift Supervisor of any readings not meeting Acceptance Criteria. _____

NOTES

If the plant computer and annunciator FC4 is returned to service within one hour step 5.2 is N/A. ☐

The ITS AFD surveillance frequency of seven days is considered adequate based on AFD being monitored by the computer and any deviation from requirements is alarmed. Within one hour to take initial compensatory actions is considered conservative and realistic. The old requirement to log AFD once per hour when the alarm is inoperable has been deleted. ☐

5.2 IF annunciator FC4, DIFF FLUX DEV ALERT, is inoperable due to the computer being inoperable or to some other cause, AND power is greater than 50%, THEN record axial flux difference for each operable excore channel as follows, and inform Shift Supervisor of any readings not meeting Acceptance Criteria.

5.2.1 **Record** INITIAL DATA within one hour of the computer or the alarm being declared inoperable. (Appendix 2) _____

5.2.2 Every four hours **record** current target value and axial flux difference until the computer and annunciator FC4 are declared operable. (Appendix 2) _____

5.2.3 **Check** Acceptance Criteria satisfied and initial Appendix 2 in space provided. _____

5.2.4 **Inform** Shift Supervisor of any readings not meeting Acceptance Criteria. _____

5.2.5 WHEN the computer and the alarm are declared operable, THEN **record** one set of OPERABLE DATA readings of target value and axial flux difference to channel check Delta I channels. (Appendix 2) _____

NOTE

If the plant computer is returned to service within one hour step 5.3 is N/A. ☐

5.3 IF the plant computer is inoperable, THEN **record** power level once per hour per Appendix 3. _____

Appendix 1

CAUTION

While annunciator FF5 is inoperable, closely monitor individual rod position during control rod movement to ensure correct rod control system and control rod position indicator response. (NSAL-93-007) ☐

Time	_____	_____	_____	_____	_____	_____
Rx Power	_____	_____	_____	_____	_____	_____
Rod No.	222 228 230 Other	222 228 230 Other	222 228 230 Other	222 228 230 Other	222 228 230 Other	222 228 230 Other
CB A Demand	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]
CB B Demand	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]
CB C Demand	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]
CB D Demand	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]
S/D A Demand	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]
S/D B Demand	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]
CB A F2	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB A B10	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB A K14	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB A P6	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB A K2	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB A B6	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB A F14	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB A P10	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB B F4	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB B D10	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB B K12	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB B M6	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB B K4	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB B D6	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB B F12	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB B M10	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB C D4	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB C D12	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB C M12	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB C M4	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB C H6	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB C F8	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB C H10	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB C K8	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]

Appendix 1, continued

Rod No.	222 228 230 Other	222 228 230 Other	222 228 230 Other	222 228 230 Other	222 228 230 Other	222 228 230 Other
CB D H2	[ ] [ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB D B8	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB D H14	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB D P8	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB D F6	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB D F10	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB D K10	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB D K6	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
S/D A G3	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
S/D A C9	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
S/D A J13	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
S/D A N7	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
S/D A J3	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
S/D A C7	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
S/D A G13	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
S/D A N9	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
S/D B E5	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
S/D B E11	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
S/D B L11	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
S/D B L5	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
S/D B G7	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
S/D B G9	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
S/D B J9	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
S/D B J7	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]

ACCEPTANCE CRITERIA

All Shutdown and Control Rod position indicator channels and the demand position indication system are operable and capable of determining control rod positions within ± 12 steps.

Acceptance Criteria met: (initials)	_____	_____	_____	_____	_____	_____

Record data every four hours, per step 5.1.2

Appendix 2
Computer Inoperable
Axial Flux Difference (%)

ACCEPTANCE CRITERIA

Indicated AFD is within the limits specified in the COLR.

Date:______________

	Time	Target	N-41	N-42	N-43	N-44	Acceptance Criteria met: (initials)
INITIAL DATA							
**							
**							
**							
**							
**							
**							
**							
**							
**							
**							
**							
**							
**							
**							
**							
**							
**							
**							
**							
**							
**							
**							
**							
**							
OPERABLE DATA							

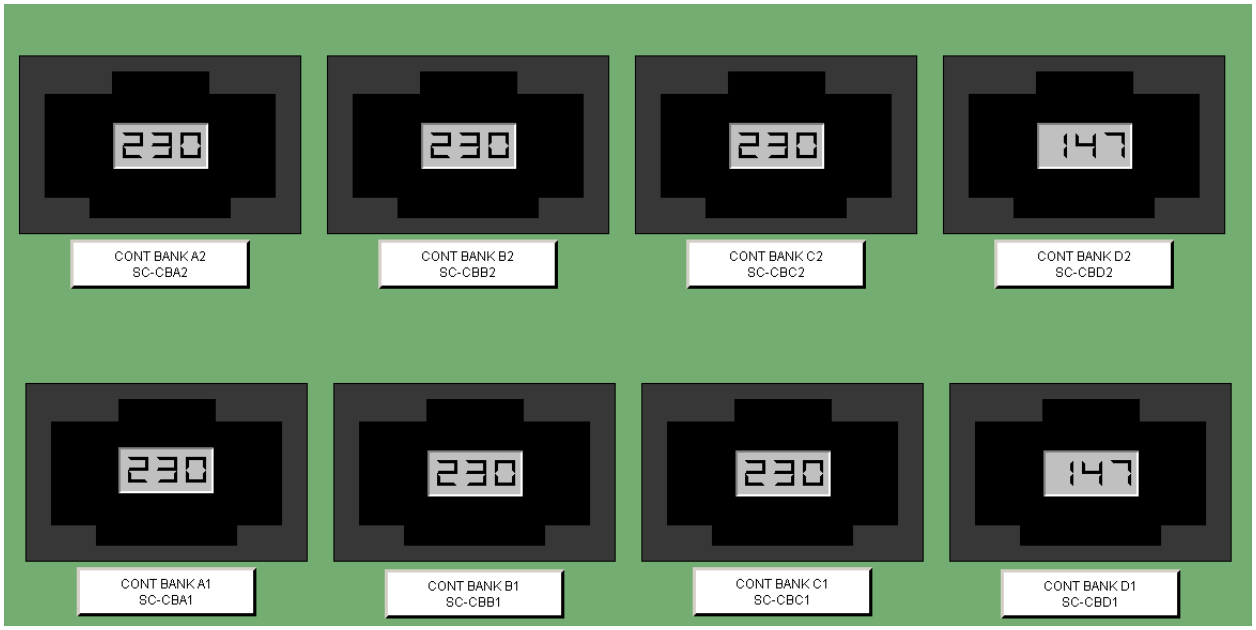
** Record data every four hours, per step 5.2.2

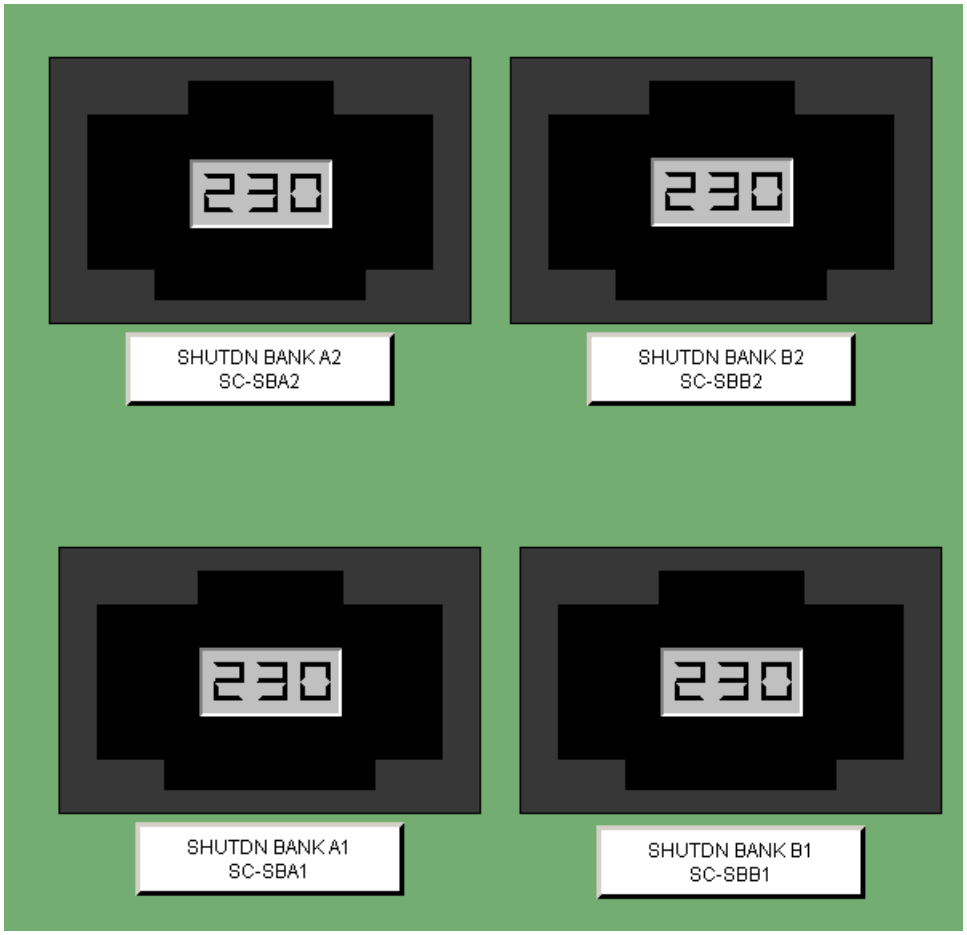
Appendix 3
Computer Inoperable
Reactor Power (%)

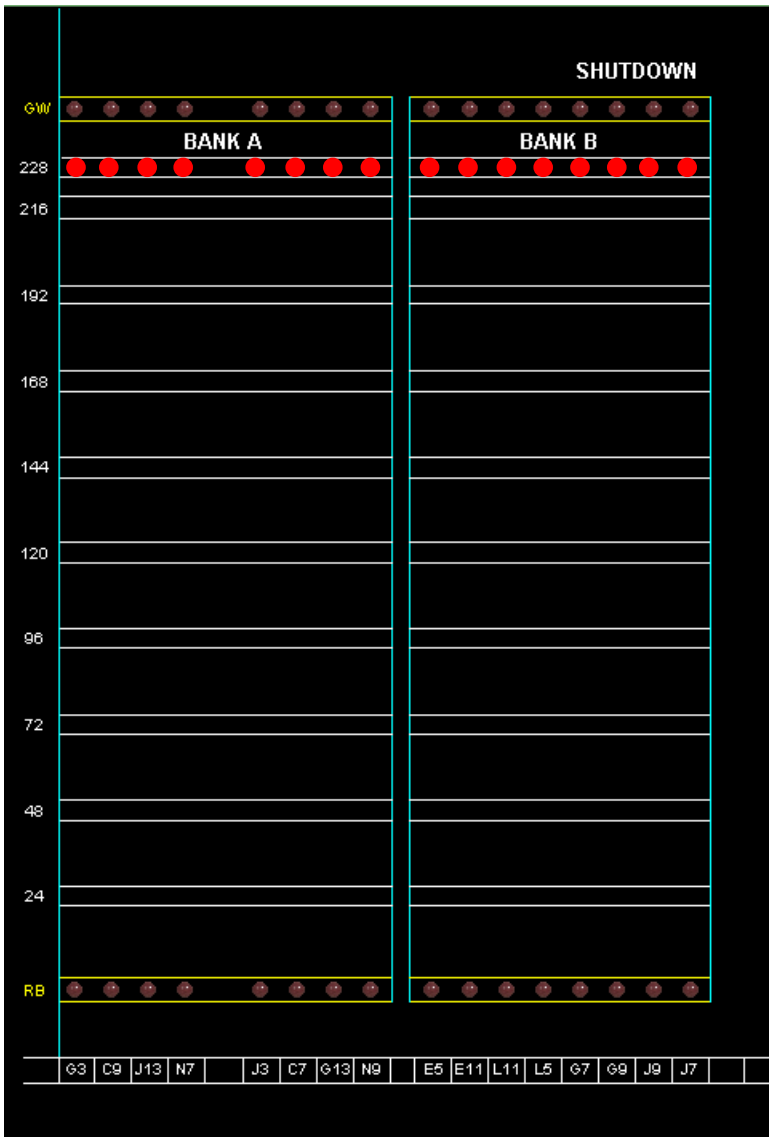
Date:______________

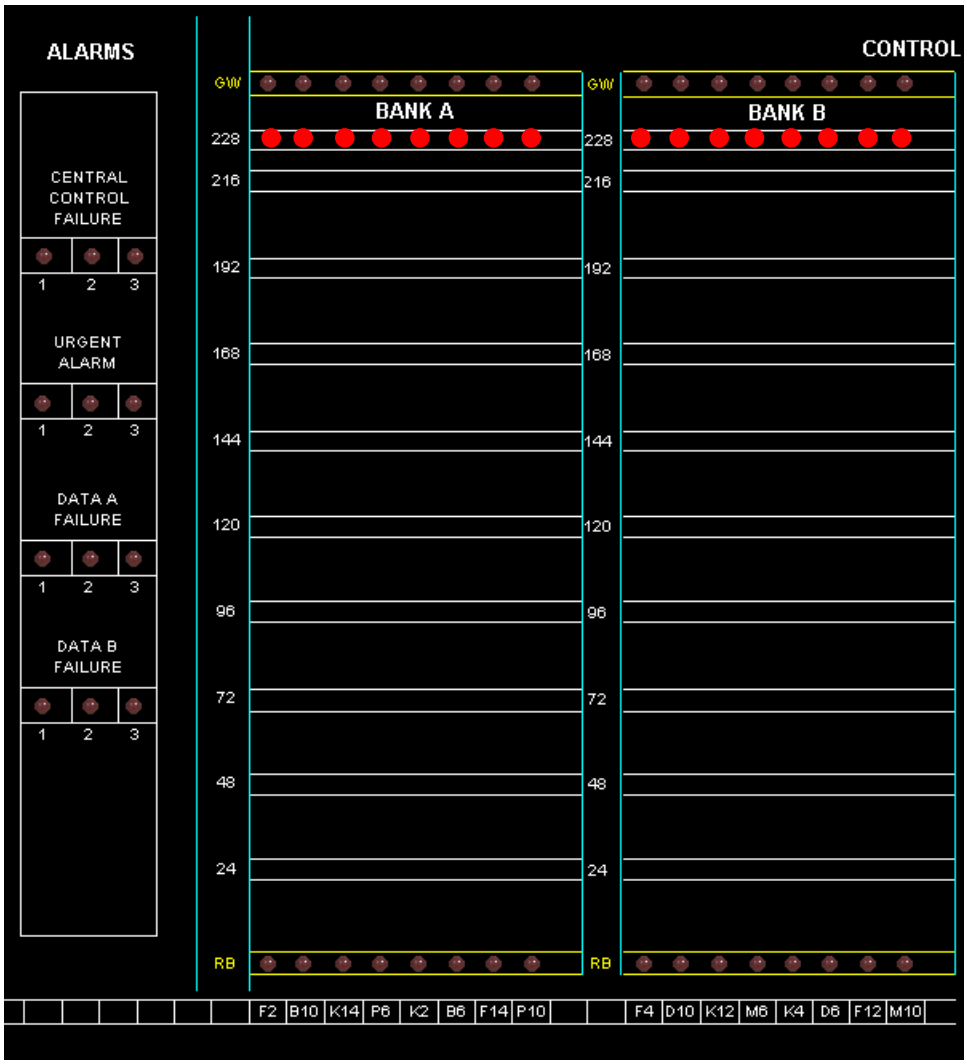
Time	Reactor Power (%)

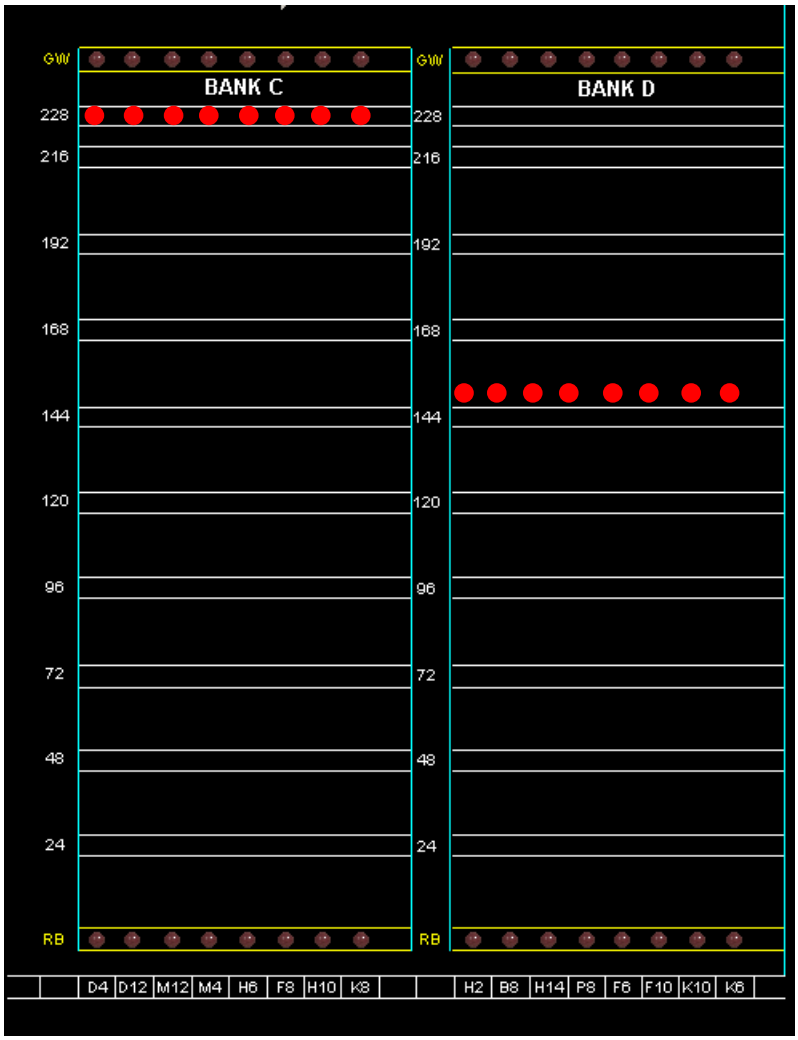
Record reactor power level hourly, per step 5.3


230
230
230
147
CONT BANK A2
SC-CBA2
CONT BANK B2
SC-CBB2
CONT BANK C2
SC-CBC2
CONT BANK D2
SC-CBD2
230
230
230
147
CONT BANK A1
SC-CBA1
CONT BANK B1
SC-CBB1
CONT BANK C1
SC-CBC1
CONT BANK D1
SC-CBD1


230
230
SHUTDN BANK A2
SC-SBA2
SHUTDN BANK B2
SC-SBB2
230
230
SHUTDN BANK A1
SC-SBA1
SHUTDN BANK B1
SC-SBB1


SHUTDOWN
GW
BANK A
BANK B
228
216
192
168
144
120
96
72
48
24
RB
G3
C9
J13
N7
J3
C7
G13
N9
E5
E11
L11
L5
G7
G9
J9
J7


ALARMS
CONTROL
CENTRAL CONTROL FAILURE
1 2 3
URGENT ALARM
1 2 3
DATA A FAILURE
1 2 3
DATA B FAILURE
1 2 3
GW
BANK A
228
216
192
168
144
120
96
72
48
24
RB
GW
BANK B
228
216
192
168
144
120
96
72
48
24
RB
F2 B10 K14 P6 K2 B6 F14 P10
F4 D10 K12 M6 K4 D6 F12 M10


GW
BANK C
228
216
192
168
144
120
96
72
48
24
RB
GW
BANK D
228
216
192
168
144
120
96
72
48
24
RB
D4 D12 M12 M4 H6 F8 H10 K8
H2 B8 H14 P8 F6 F10 K10 K6

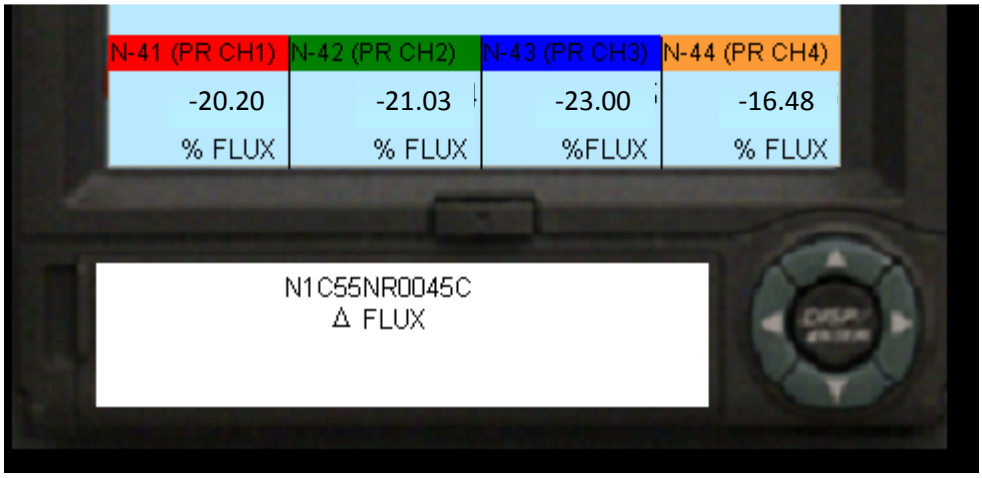
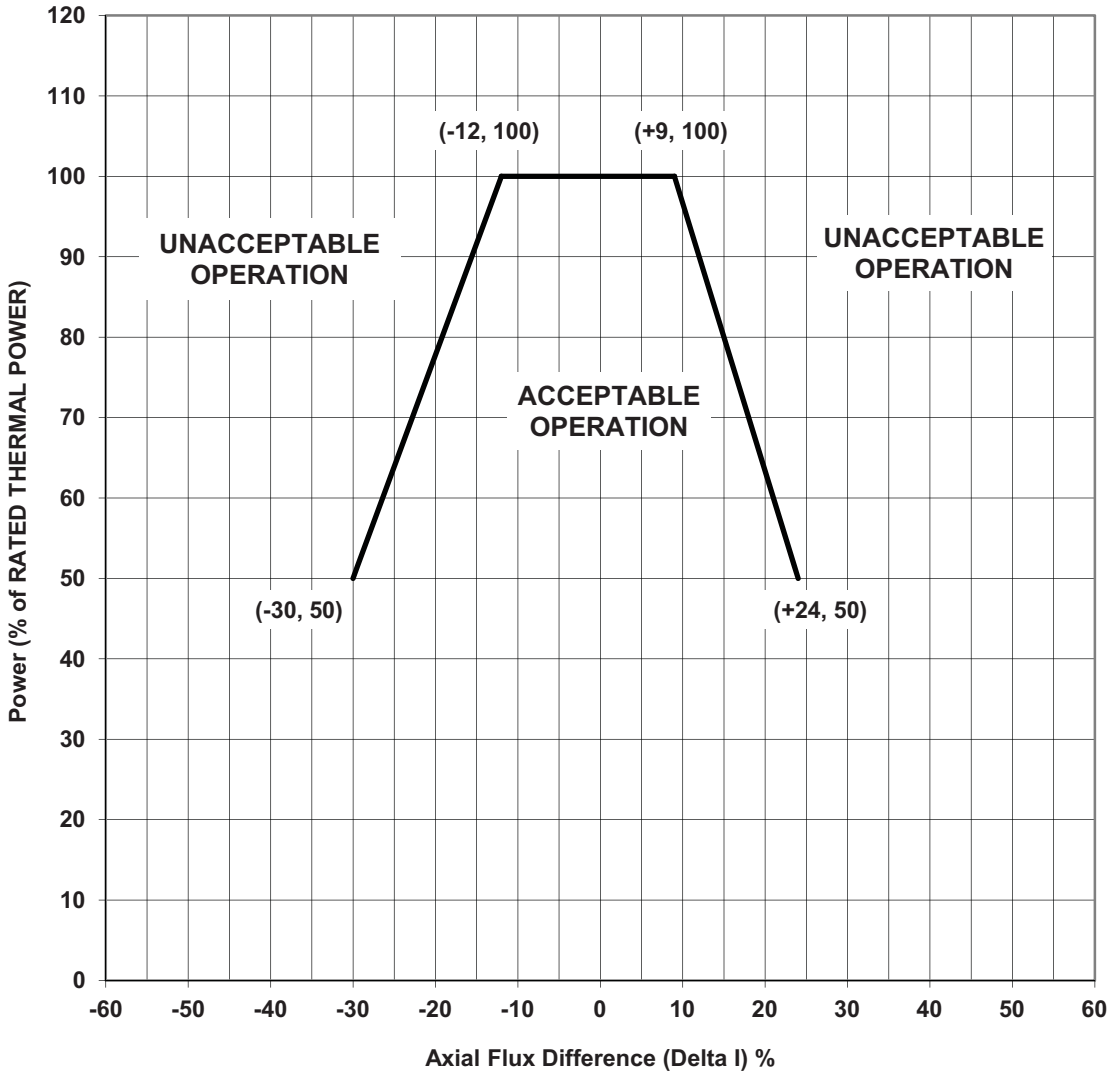

N-41 (PR CH1)
N-42 (PR CH2)
N-43 (PR CH3)
N-44 (PR CH4)
-20.20
% FLUX
-21.03
% FLUX
-23.00
%FLUX
-16.48
% FLUX
N1C55NR0045C
Δ FLUX

Figure 3
Axial Flux Difference Limits as a Function of
Rated Thermal Power for RAOC



A.1.a Conduct of operations ADMIN SRO

TITLE: **Evaluate Inoperable Plant Computer Based Alarm Functions**
EVALUATION LOCATION: __X__ CLASS ROOM
PROJECTED TIME: __25 MIN__ SIMULATOR IC NUMBER: __N/A__
ALTERNATE PATH ___ TIME CRITICAL ___ PRA_____

JPM DIRECTIONS:

1. Initiation of task may be in group setting, evaluation performed individually upon completion.
2. Provide student with HANDOUT pages and sign off applicable steps already completed. Procedures provided will be:
   - STP-37.0 version 25.1
   - COLR Figure 3 for FNP UNIT 1 CYCLE 25
   - Picture of DRPI and group rod indication
   - Picture of Yokagawa delta flux recorder.
3. Allow student time to review data.
4. Student will have access to the computer for material purposes. Access will be limited to the exam log in and **NO** internet access or lesson plan material can be accessed.
5. Requiring the examinee to acquire the required materials may or may not be included as part of the JPM.

TASK STANDARD: Upon successful completion of this JPM, the examinee will:

- Correctly assess and determine if STP-37.0 Acceptance Criteria is met.
- Correctly assess Tech Spec requirements.

Examinee:	
Overall JPM Performance:	**Satisfactory** ☐ **Unsatisfactory** ☐
Evaluator Comments (attach additional sheets if necessary)	

EXAMINER: _____

Developer	Aaron Forsha	Date: 2/13/2013
NRC Approval	SEE NUREG 1021 FORM ES-301-3	

CONDITIONS

When I tell you to begin, you are to **Evaluate Inoperable Plant Computer Based Alarm Functions**. The conditions under which this task is to be performed are:

a. Unit 1 is Mode 1 and stable at 80% power.
b. The Plant Computer became Inoperable twenty (20) minutes ago and is not expected to return for five (5) more hours.
c. N-44 has been declared INOPERABLE.
d. Another operator will record data for Appendix 3 of STP-37.0.
e. Target Flux for 80% power is -2.00%

Your task is to complete the steps listed below of STP-37.0, POWER DISTRIBUTION SURVEILLANCE (PLANT COMPUTER INOPERABLE), using the data provided.

1. Step 5.1, to include step 5.1.2 and 5.1.3
2. Step 5.2 to include 5.2.1, 5.2.3 and 5.2.4.
3. Fill out the Acceptance Criteria table.

INITIATING **CUE**: "You may begin."

Part 2 – administer this portion of the JPM after completion of the above task.

JPM DIRECTIONS:

1. Provide student with **Part 2 HANDOUT** and Tech Spec 3.2.3.

CONDITIONS

Based on your previously provided conditions, evaluate Tech Spec Implications (if any).

EVALUATION CHECKLIST

	ELEMENTS:	**STANDARDS:**	**RESULTS: (CIRCLE)**
	____ START TIME		
1.	(step 5.1.2) Record Initial Rod Data	Records Initial Data on Appendix 1	S / U
*2.	(step 5.1.3) Determine if rod data meets acceptance criteria.	Evaluates rod data and determines that **Acceptance Criteria is met.**	S / U
3.	(step 5.2.1) Record Initial AFD Data	Records Initial Data on Appendix 2	S / U

EVALUATION CHECKLIST

ELEMENTS:		STANDARDS:	RESULTS: (CIRCLE)
4.	(step 5.2.3) Determine acceptance criteria of AFD from COLR.	Using Figure 3 of the COLR determines AFD limits. **Tolerance allowed: -18 to -19.8**	S / U
*5.	(step 5.2.3) **Check** Acceptance Criteria satisfied and initial Appendix 2	Determines channels 3 and 4 are in the unacceptable region. **Acceptance criteria is NOT met**	S / U
6.	(step 5.2.4) Report **Acceptance criteria is NOT met** to SS.	Reports to Shift Supervisor STP results.	S / U

Part 2 – administer this portion of the JPM after completion of the above task.

*7.	Determine Tech Spec entry requirements	Evaluates Tech Specs and determine Entry into T.S. 3.2.3 AXIAL FLUX DIFFERENCE **Condition A is NOT required.**	S / U

The reason the LCO is NOT required to be entered is due to N-44 is INOPERABLE and N-43 is outside the flux region, however N-41 & 42 are within the flux limits and per the **NOTE** The AFD shall be considered outside limits when **two or more OPERABLE** excore channels indicate AFD to be outside limits.

_____ STOP TIME

Terminate when Tech Spec requirements are provided.

CRITICAL ELEMENTS: Critical Elements are denoted with an asterisk (*) before the element number.

Part 1 KEY

	ACCEPTANCE CRITERIA	
Step 5.1.3 (Rods)	**MET**	**NOT MET**
Step 5.2.3 (Flux)	**MET**	**NOT MET**

Part 2 KEY

Tech Spec Evaluation	
YES **Condition A is required**	**NO** **Condition A is not required**

GENERAL REFERENCES:

1. FNP-1-STP-37.0 Ver 25.1
2. COLR Unit 1 – Cycle 25
3. K/A: G2.1.37 RO 4.3 SRO 4.6

GENERAL TOOLS AND EQUIPMENT:

Tech Specs, COLR, STP-37.0

Critical ELEMENT justification:

STEP	Evaluation
1.	**Not critical:** This information is given in conditions.
2.	**Critical:** This is the assigned task, results must be accurate.
3.	**Not critical:** This information is given in conditions.
4.	**Critical:** Accurately evaluating COLR is required to establish correct Acceptance Criteria.
5.	**Critical:** This is the assigned task, results must be accurate.
6.	**Not critical:** Notification step only.
7.	**Critical:** This is the assigned task, results must be accurate. This is required since if t LCO was entered an unnecessary ramp to less than 50% power would be initiated.

COMMENTS:

Part 2

HANDOUT

CONDITIONS

Based on your previously provided conditions, evaluate Tech Spec Implications (if any).

Circle your answer below.

Tech Spec Evaluation	
YES **Condition A is required**	**NO** **Condition A is not required**

3.2 POWER DISTRIBUTION LIMITS

3.2.3 AXIAL FLUX DIFFERENCE (AFD)

LCO 3.2.3 The AFD in % flux difference units shall be maintained within the limits specified in the COLR.

----------NOTE----------
The AFD shall be considered outside limits when two or more OPERABLE excore channels indicate AFD to be outside limits.

APPLICABILITY: MODE 1 with THERMAL POWER ≥ 50% RTP.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. AFD not within limits.	A.1 Reduce THERMAL POWER to < 50% RTP.	30 minutes

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.2.3.1	Verify AFD within limits for each OPERABLE excore channel.	In accordance with the Surveillance Frequency Control Program

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1.0 Purpose

To provide a means of determining and logging axial flux difference and rod position indication operability.

2.0 Acceptance Criteria

2.1 The indicated Axial Flux Difference (AFD) shall be maintained within the limits of the COLR.

2.2 All shutdown and control rod position indicator channels and the demand position indication system shall be operable and capable of determining the control rod positions within ± 12 steps.

3.0 Initial Conditions

3.1 The version of this procedure has been verified to be the current version. (OR 1-98-498) PK

3.2 This procedure has been verified to be the correct unit for the task. (OR 1-98-498. PK

3.3 The plant is in Mode 1 or 2 PK

3.4 One of the following conditions requires performance of this test: PK

- The plant computer is inoperable, and the inoperability is approaching 1 hour.
- Main Control Board Annunciator FF5 is inoperable, or in an alarm condition, and the inoperability is approaching 1 hour.
- Main Control Board Annunciator FC4 is inoperable, or in an alarm condition, and the inoperability is approaching 1 hour.

3.5 Record date/time condition entered requiring performance of this test.

Date today Time 20 min ago

4.0 Precautions and Limitations

4.1 IF the plant computer goes out of service, THEN annunciators FF5 and FC4 are considered to have been inoperable. This procedure must be performed to completion.

5.0 Instructions

NOTES

If the plant computer and annunciator FF5 is returned to service within one hour step 5.1 is N/A. ☑

FSAR Section 15.2.3.1 states "If the rod deviation alarm is not operable, the operator is required to log the RCCA positions in a prescribed time sequence to confirm alignment." Within one hour was picked as a conservative and realistic time frame to take this action. ☑

If necessary, additional copies of Appendix 1, 2 or 3 may be attached, as required, until the computer is declared operable. ☑

5.1 IF annunciator FF5, COMP ALARM ROD SEQ/DEV OR PR FLUX TILT, is inoperable either due to the computer being inoperable or due to some other cause, THEN **perform** the following:

5.1.1 Closely monitor individual rod position during control rod movement to ensure correct rod control system and control rod position indicator response. (NSAL-93-007) BK

5.1.2 Within one hour record current power level, bank demand position, and individual rod position, and every four (4) hours there after until the computer and the alarm are declared operable. (Appendix 1) BK

5.1.3 Check that Acceptance Criteria is met and initial Appendix 1 in the space provided. Inform Shift Supervisor of any readings not meeting Acceptance Criteria. BK

NOTES

If the plant computer and annunciator FC4 is returned to service within one hour step 5.2 is N/A. ☐

The ITS AFD surveillance frequency of seven days is considered adequate based on AFD being monitored by the computer and any deviation from requirements is alarmed. Within one hour to take initial compensatory actions is considered conservative and realistic. The old requirement to log AFD once per hour when the alarm is inoperable has been deleted. ☐

5.2 IF annunciator FC4, DIFF FLUX DEV ALERT, is inoperable due to the computer being inoperable or to some other cause, AND power is greater than 50%, THEN record axial flux difference for each operable excore channel as follows, and inform Shift Supervisor of any readings not meeting Acceptance Criteria.

Student may N/A or leave blank 5.2.2 since its not directed to be completed

5.2.1 **Record** INITIAL DATA within one hour of the computer or the alarm being declared inoperable. (Appendix 2) BK

5.2.2 Every four hours **record** current target value and axial flux difference until the computer and annunciator FC4 are declared operable. (Appendix 2) BK

5.2.3 **Check** Acceptance Criteria satisfied and initial Appendix 2 in space provided. BK

5.2.4 **Inform** Shift Supervisor of any readings not meeting Acceptance Criteria. BK

5.2.5 WHEN the computer and the alarm are declared operable, THEN **record** one set of OPERABLE DATA readings of target value and axial flux difference to channel check Delta I channels. (Appendix 2) ____

NOTE

If the plant computer is returned to service within one hour step 5.3 is N/A. ☐

5.3 IF the plant computer is inoperable, THEN **record** power level once per hour per Appendix 3. ____

Appendix 1

CAUTION

While annunciator FF5 is inoperable, closely monitor individual rod position during control rod movement to ensure correct rod control system and control rod position indicator response. (NSAL-93-007) ☐

Time	Time					
Rx Power	80%					
Rod No.	222 228 230 Other	222 228 230 Other	222 228 230 Other	222 228 230 Other	222 228 230 Other	222 228 230 Other
CB A Demand	[ ] [ ] [/]	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]
CB B Demand	[ ] [ ] [/]	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]
CB C Demand	[ ] [ ] [/]	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]
CB D Demand	[ ] [ ] [ ] 147	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]
S/D A Demand	[ ] [ ] [/]	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]
S/D B Demand	[ ] [ ] [/]	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]
CB A F2	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB A B10	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB A K14	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB A P6	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB A K2	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB A B6	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB A F14	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB A P10	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB B F4	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB B D10	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB B K12	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB B M6	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB B K4	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB B D6	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB B F12	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB B M10	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB C D4	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB C D12	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB C M12	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB C M4	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB C H6	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB C F8	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB C H10	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB C K8	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]

Appendix 1, continued

Rod No.	222 228 230 Other	222 228 230 Other	222 228 230 Other	222 228 230 Other	222 228 230 Other	222 228 230 Other
CB D H2	[ ] [ ] [ ] 150	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB D B8	[ ] [ ] 150	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB D H14	[ ] [ ] 150	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB D P8	[ ] [ ] 150	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB D F6	[ ] [ ] 150	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB D F10	[ ] [ ] 150	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB D K10	[ ] [ ] 150	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB D K6	[ ] [ ] 150	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
S/D A G3	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
S/D A C9	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
S/D A J13	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
S/D A N7	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
S/D A J3	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
S/D A C7	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
S/D A G13	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
S/D A N9	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
S/D B E5	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
S/D B E11	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
S/D B L11	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
S/D B L5	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
S/D B G7	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
S/D B G9	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
S/D B J9	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
S/D B J7	[ ] [/]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]

ACCEPTANCE CRITERIA

All Shutdown and Control Rod position indicator channels and the demand position indication system are operable and capable of determining control rod positions within ± 12 steps.

Acceptance Criteria met: (initials)	BA					

Record data every four hours, per step 5.1.2

Appendix 2
Computer Inoperable
Axial Flux Difference (%)

ACCEPTANCE CRITERIA

Indicated AFD is within the limits specified in the COLR.

Date: today

	Time	Target	N-41	N-42	N-43	N-44	Acceptance Criteria met: (initials)
INITIAL DATA	time	-2.00%	-15.20%	-15.03%	-23.00%	30.00%	
**							
**							
**							
**							
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**							
**							
**							
**							
**							
**							
**							
**							
**							
**							
**							
**							
OPERABLE DATA							

** Record data every four hours, per step 5.2.2

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HANDOUT

CONDITIONS

When I tell you to begin, you are to **Evaluate Inoperable Plant Computer Based Alarm Functions**. The conditions under which this task is to be performed are:

a. Unit 1 is Mode 1 and stable at 80% power.
b. The Plant Computer became Inoperable twenty (20) minutes ago and is not expected to return for five (5) more hours.
c. N-44 has been declared INOPERABLE.
d. Another operator will record data for Appendix 3 of STP-37.0.
e. Target Flux for 80% power is -2.00%

Your task is to complete the steps listed below of STP-37.0, POWER DISTRIBUTION SURVEILLANCE (PLANT COMPUTER INOPERABLE), using the data provided.

1. Step 5.1, to include step 5.1.2 and 5.1.3
2. Step 5.2 to include 5.2.1, 5.2.3 and 5.2.4.
3. Fill out the Acceptance Criteria table.

Circle your answer below

	ACCEPTANCE CRITERIA	
Step 5.1.3 (Rods)	**MET**	**NOT MET**
Step 5.2.3 (Flux)	**MET**	**NOT MET**

SAFETY RELATED

POWER DISTRIBUTION SURVEILLANCE (PLANT COMPUTER INOPERABLE)

PROCEDURE LEVEL OF USE CLASSIFICATION PER NMP-AP-003	
CATEGORY	**SECTIONS**
Continuous:	**ALL**
Reference:	**NONE**
Information:	**NONE**

Approved By: David L Reed (for)
Operations Manager

Effective Date: April 8, 2012

SURVEILLANCE TEST REVIEW SHEET

SURVEILLANCE TEST NO.	TECHNICAL SPECIFICATION REFERENCE
FNP-1-STP-37.0	SR 3.2.3.1 Bases, FSAR 15.2.3
TITLE POWER DISTRIBUTION SURVEILLANCE (PLANT COMPUTER INOPERABLE)	MODE(S) REQUIRING TEST: 1, 2

TEST RESULTS (TO BE COMPLETED BY TEST PERFORMER)

PERFORMED BY _____ / _____ DATE/TIME _____
(PRINT) (SIGNATURE)

COMPONENT OR TRAIN TESTED (if applicable) _____

[ ] ENTIRE STP PERFORMED [ ] FOR SURVEILLANCE CREDIT

[ ] PARTIAL STP PERFORMED [ ] NOT FOR SURVEILLANCE CREDIT

REASON FOR PARTIAL: _____

TEST COMPLETED: [ ] Satisfactory [ ] Unsatisfactory

[ ] The following deficiencies occurred:

_____

_____

[ ] Corrective action taken or initiated:

_____

_____

_____

SHIFT SUPERVISOR/ SHIFT SUPPORT SUPERVISOR REVIEW

[ ] Procedure properly completed and satisfactory per step 9.1 of FNP-0-AP-5.0.
[ ] Comments: _____

_____

REVIEWED BY _____ / _____ DATE _____
(PRINT) (SIGNATURE)

ENGINEERING SUPPORT GROUP SCREENING (IF APPLICABLE) SCREENED BY _____ DATE _____

[ ] Comments: _____

_____

Procedure Version Description

Version Number	Version Description
25.0	Updated procedure to requirements of NMP-AP-002, SNC FLEET PROCEDURES WRITERS GUIDE.
25.1	Updated ARO Rod Height from 227 to 230 for Fuel Cycle 25.

Table of Contents

Page

1.0 Purpose

To provide a means of determining and logging axial flux difference and rod position indication operability.

2.0 Acceptance Criteria

2.1 The indicated Axial Flux Difference (AFD) shall be maintained within the limits of the COLR.

2.2 All shutdown and control rod position indicator channels and the demand position indication system shall be operable and capable of determining the control rod positions within ± 12 steps.

3.0 Initial Conditions

3.1 The version of this procedure has been verified to be the current version. (OR 1-98-498) PK

3.2 This procedure has been verified to be the correct unit for the task. (OR 1-98-498. PK

3.3 The plant is in Mode 1 or 2 PK

3.4 One of the following conditions requires performance of this test: PK

- The plant computer is inoperable, and the inoperability is approaching 1 hour.
- Main Control Board Annunciator FF5 is inoperable, or in an alarm condition, and the inoperability is approaching 1 hour.
- Main Control Board Annunciator FC4 is inoperable, or in an alarm condition, and the inoperability is approaching 1 hour.

3.5 Record date/time condition entered requiring performance of this test.

Date today Time 20 min ago

4.0 Precautions and Limitations

4.1 IF the plant computer goes out of service, THEN annunciators FF5 and FC4 are considered to have been inoperable. This procedure must be performed to completion.

5.0 Instructions

NOTES

If the plant computer and annunciator FF5 is returned to service within one hour step 5.1 is N/A.

FSAR Section 15.2.3.1 states "If the rod deviation alarm is not operable, the operator is required to log the RCCA positions in a prescribed time sequence to confirm alignment." Within one hour was picked as a conservative and realistic time frame to take this action.

If necessary, additional copies of Appendix 1, 2 or 3 may be attached, as required, until the computer is declared operable.

5.1 IF annunciator FF5, COMP ALARM ROD SEQ/DEV OR PR FLUX TILT, is inoperable either due to the computer being inoperable or due to some other cause, THEN **perform** the following:

5.1.1 Closely monitor individual rod position during control rod movement to ensure correct rod control system and control rod position indicator response. (NSAL-93-007) BK

5.1.2 Within one hour record current power level, bank demand position, and individual rod position, and every four (4) hours there after until the computer and the alarm are declared operable. (Appendix 1) _____

5.1.3 Check that Acceptance Criteria is met and initial Appendix 1 in the space provided. Inform Shift Supervisor of any readings not meeting Acceptance Criteria. _____

NOTES

If the plant computer and annunciator FC4 is returned to service within one hour step 5.2 is N/A. ☐

The ITS AFD surveillance frequency of seven days is considered adequate based on AFD being monitored by the computer and any deviation from requirements is alarmed. Within one hour to take initial compensatory actions is considered conservative and realistic. The old requirement to log AFD once per hour when the alarm is inoperable has been deleted. ☐

5.2 IF annunciator FC4, DIFF FLUX DEV ALERT, is inoperable due to the computer being inoperable or to some other cause, AND power is greater than 50%, THEN record axial flux difference for each operable excore channel as follows, and inform Shift Supervisor of any readings not meeting Acceptance Criteria.

5.2.1 **Record** INITIAL DATA within one hour of the computer or the alarm being declared inoperable. (Appendix 2) _____

5.2.2 Every four hours **record** current target value and axial flux difference until the computer and annunciator FC4 are declared operable. (Appendix 2) _____

5.2.3 **Check** Acceptance Criteria satisfied and initial Appendix 2 in space provided. _____

5.2.4 **Inform** Shift Supervisor of any readings not meeting Acceptance Criteria. _____

5.2.5 WHEN the computer and the alarm are declared operable, THEN **record** one set of OPERABLE DATA readings of target value and axial flux difference to channel check Delta I channels. (Appendix 2) _____

NOTE

If the plant computer is returned to service within one hour step 5.3 is N/A. ☐

5.3 IF the plant computer is inoperable, THEN **record** power level once per hour per Appendix 3. _____

Appendix 1

CAUTION

While annunciator FF5 is inoperable, closely monitor individual rod position during control rod movement to ensure correct rod control system and control rod position indicator response. (NSAL-93-007) ☐

Time	_____	_____	_____	_____	_____	_____
Rx Power	_____	_____	_____	_____	_____	_____
Rod No.	222 228 230 Other	222 228 230 Other	222 228 230 Other	222 228 230 Other	222 228 230 Other	222 228 230 Other
CB A Demand	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]
CB B Demand	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]
CB C Demand	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]
CB D Demand	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]
S/D A Demand	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]
S/D B Demand	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]	[ ] [ ] [ ]
CB A F2	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB A B10	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB A K14	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB A P6	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB A K2	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB A B6	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB A F14	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB A P10	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB B F4	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB B D10	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB B K12	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB B M6	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB B K4	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB B D6	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB B F12	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB B M10	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB C D4	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB C D12	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB C M12	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB C M4	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB C H6	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB C F8	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB C H10	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB C K8	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]

Appendix 1, continued

Rod No.	222 228 230 Other	222 228 230 Other	222 228 230 Other	222 228 230 Other	222 228 230 Other	222 228 230 Other
CB D H2	[ ] [ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB D B8	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB D H14	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB D P8	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB D F6	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB D F10	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB D K10	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
CB D K6	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
S/D A G3	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
S/D A C9	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
S/D A J13	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
S/D A N7	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
S/D A J3	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
S/D A C7	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
S/D A G13	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
S/D A N9	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
S/D B E5	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
S/D B E11	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
S/D B L11	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
S/D B L5	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
S/D B G7	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
S/D B G9	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
S/D B J9	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]
S/D B J7	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]	[ ] [ ]

ACCEPTANCE CRITERIA

All Shutdown and Control Rod position indicator channels and the demand position indication system are operable and capable of determining control rod positions within ± 12 steps.

Acceptance Criteria met: (initials)	_____	_____	_____	_____	_____	_____

Record data every four hours, per step 5.1.2

Appendix 2
Computer Inoperable
Axial Flux Difference (%)

ACCEPTANCE CRITERIA

Indicated AFD is within the limits specified in the COLR.

Date:______________

	Time	Target	N-41	N-42	N-43	N-44	Acceptance Criteria met: (initials)
INITIAL DATA							
**							
**							
**							
**							
**							
**							
**							
**							
**							
**							
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**							
**							
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**							
**							
**							
**							
**							
**							
**							
**							
**							
**							
OPERABLE DATA							

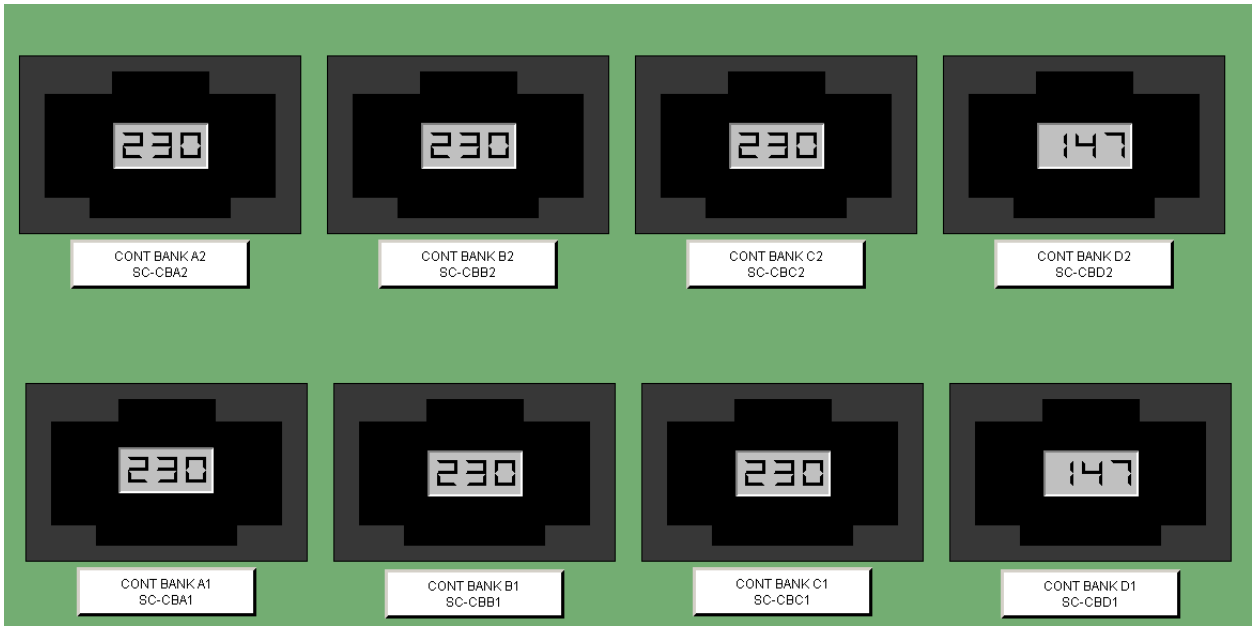
** Record data every four hours, per step 5.2.2

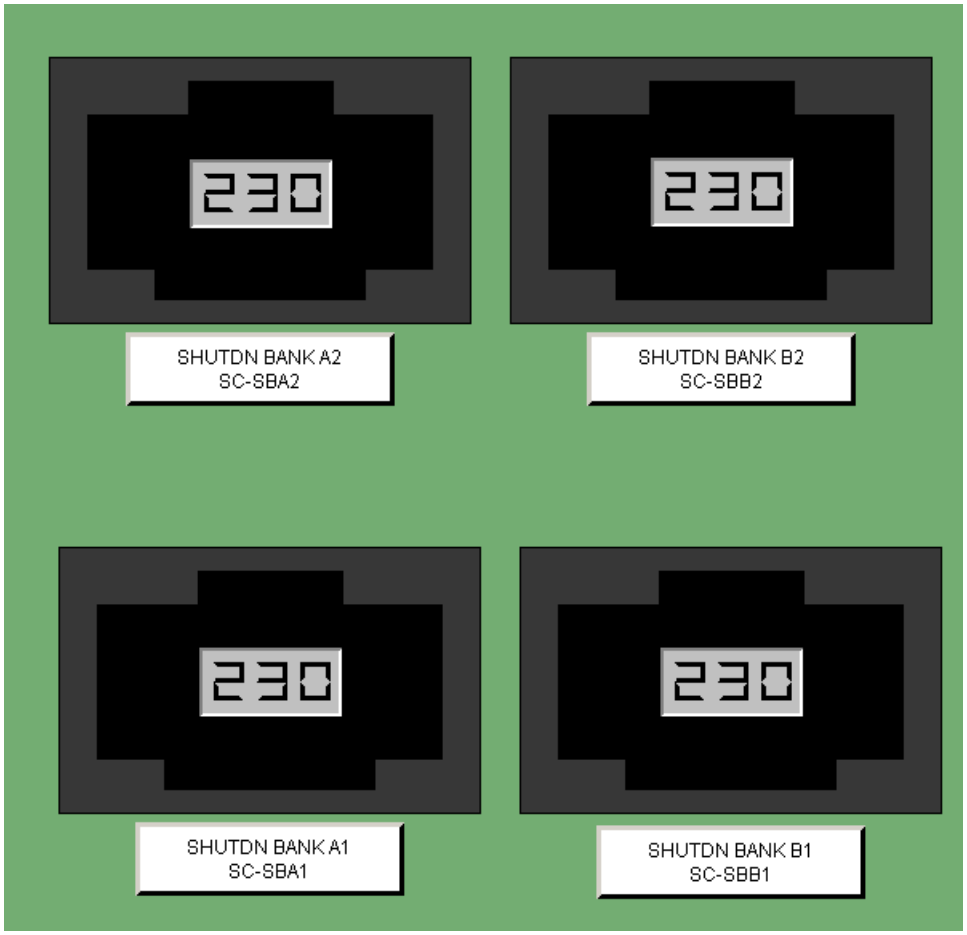
Appendix 3
Computer Inoperable
Reactor Power (%)

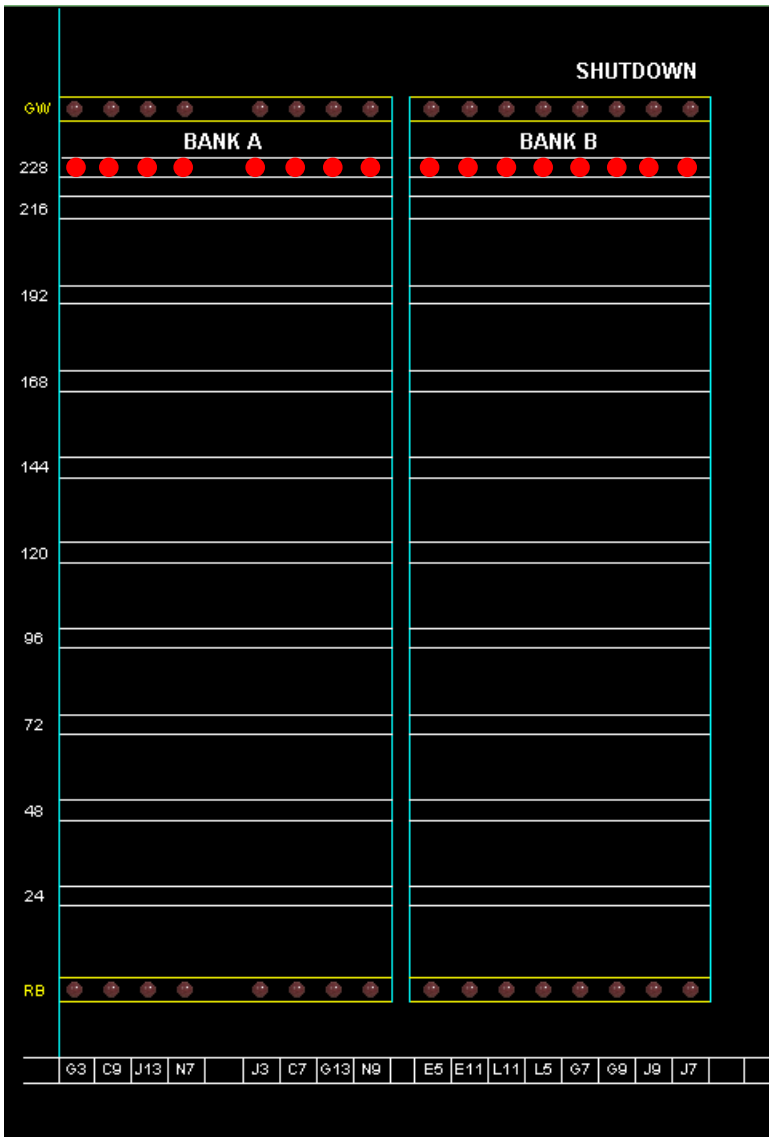
Date:______________

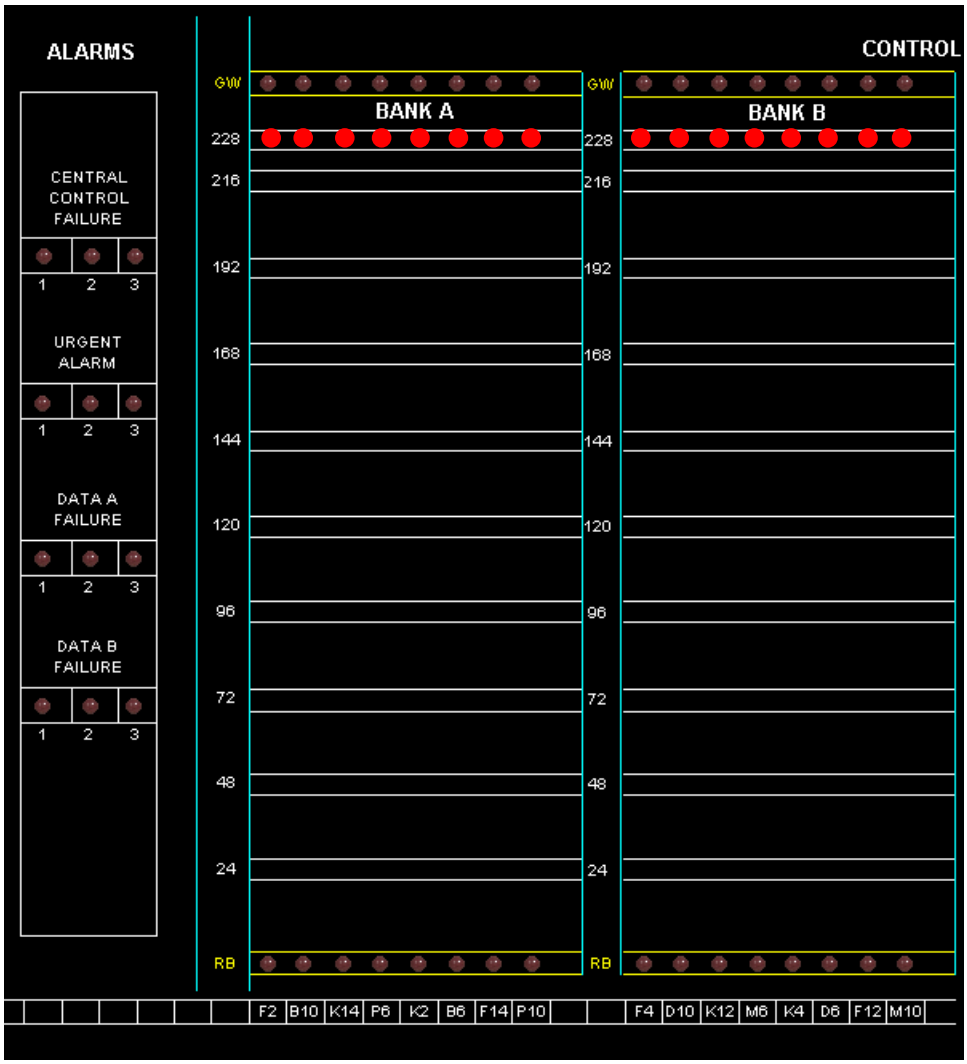
Time	Reactor Power (%)

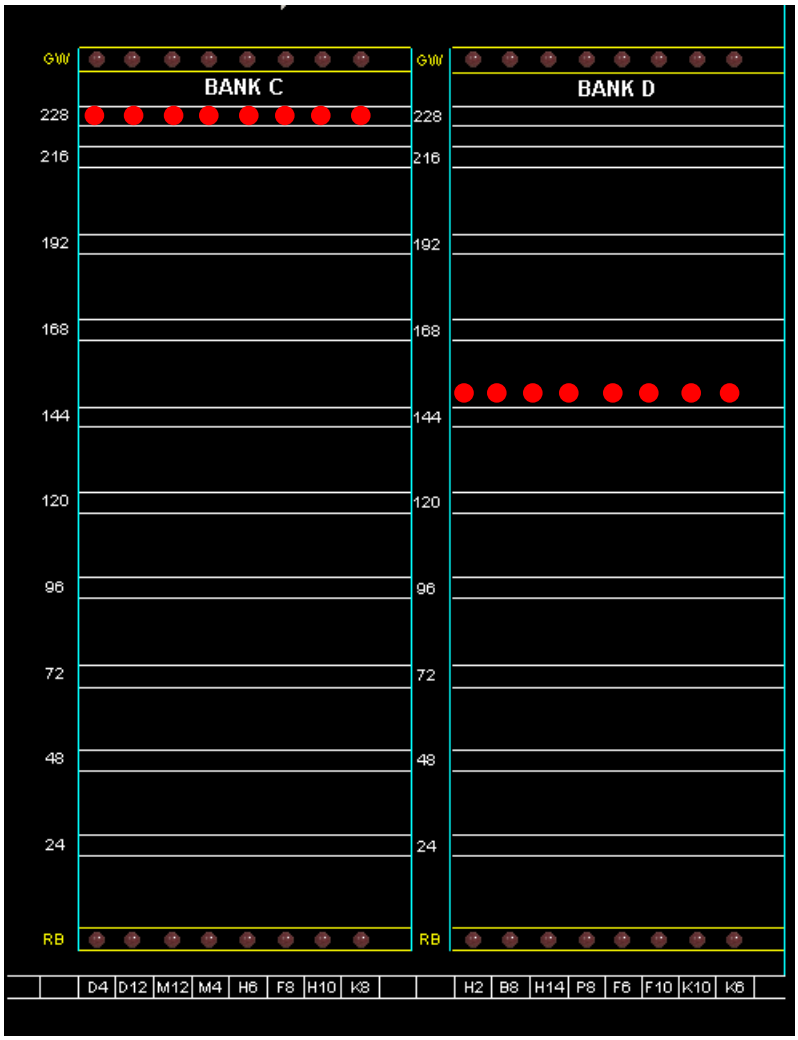
Record reactor power level hourly, per step 5.3


230
230
230
147
CONT BANK A2
SC-CBA2
CONT BANK B2
SC-CBB2
CONT BANK C2
SC-CBC2
CONT BANK D2
SC-CBD2
230
230
230
147
CONT BANK A1
SC-CBA1
CONT BANK B1
SC-CBB1
CONT BANK C1
SC-CBC1
CONT BANK D1
SC-CBD1


230
230
SHUTDN BANK A2
SC-SBA2
SHUTDN BANK B2
SC-SBB2
230
230
SHUTDN BANK A1
SC-SBA1
SHUTDN BANK B1
SC-SBB1


SHUTDOWN
GW
BANK A
BANK B
228
216
192
168
144
120
96
72
48
24
RB
G3
C9
J13
N7
J3
C7
G13
N9
E5
E11
L11
L5
G7
G9
J9
J7


ALARMS
CONTROL
CENTRAL CONTROL FAILURE
1 2 3
URGENT ALARM
1 2 3
DATA A FAILURE
1 2 3
DATA B FAILURE
1 2 3
GW
BANK A
228
216
192
168
144
120
96
72
48
24
RB
GW
BANK B
228
216
192
168
144
120
96
72
48
24
RB
F2 B10 K14 P6 K2 B6 F14 P10
F4 D10 K12 M6 K4 D6 F12 M10


GW
BANK C
228
216
192
168
144
120
96
72
48
24
RB
GW
BANK D
228
216
192
168
144
120
96
72
48
24
RB
D4 D12 M12 M4 H6 F8 H10 K8
H2 B8 H14 P8 F6 F10 K10 K6

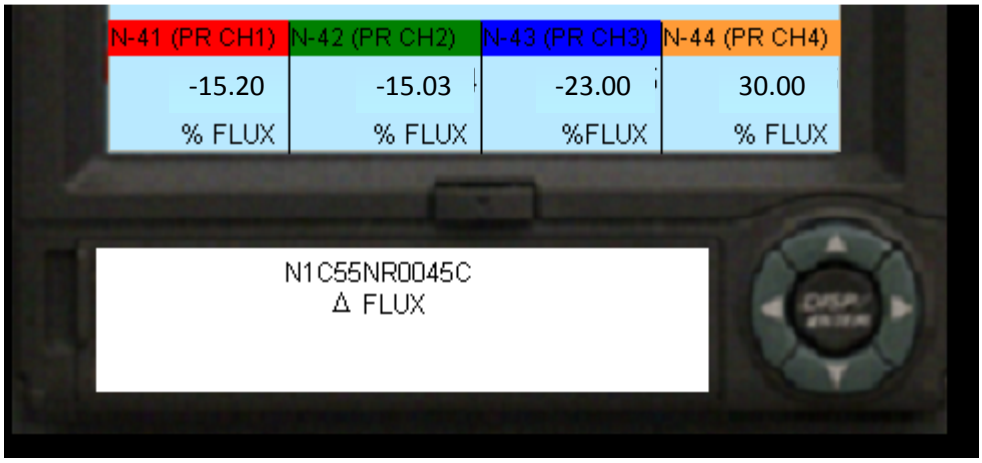
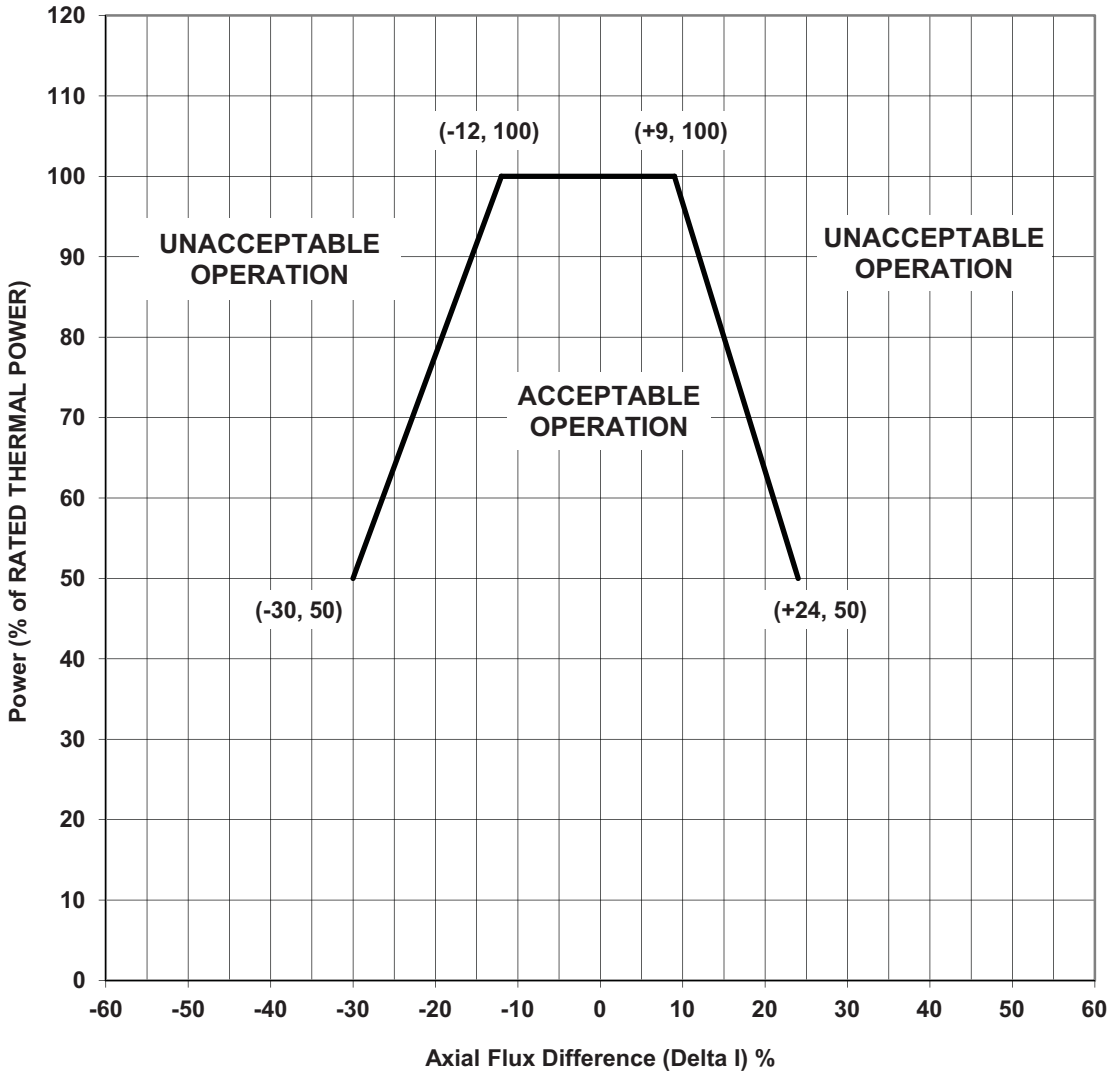

N-41 (PR CH1)
N-42 (PR CH2)
N-43 (PR CH3)
N-44 (PR CH4)
-15.20
% FLUX
-15.03
% FLUX
-23.00
%FLUX
30.00
% FLUX
N1C55NR0045C
Δ FLUX

Figure 3
Axial Flux Difference Limits as a Function of
Rated Thermal Power for RAOC



A.1.b Conduct of operations - SRO + RO

TITLE: **Determine The Minimum Amount And Duration Required For An RCS Boration**
EVALUATION LOCATION: __X__ CLASS ROOM
PROJECTED TIME: __15 MIN__ SIMULATOR IC NUMBER: __N/A
ALTERNATE PATH ___ TIME CRITICAL ___ PRA_____

JPM DIRECTIONS:

1. This task can be conducted individually or in a group setting in which all the necessary references are available.
2. Provide student with HANDOUT pages and sign off applicable steps already completed.
3. Allow student time to review data.
4. Student will have access to the computer for material purposes. Access will be limited to the exam log in and **NO** internet access or lesson plan material can be accessed.

TASK STANDARD: Upon successful completion of this JPM, the examinee will:

- Determine minimum volume of required boration.
- Determine time required to achieve the boration requirement.

Examinee:
Overall JPM Performance: Satisfactory ☐ Unsatisfactory ☐
Evaluator Comments (attach additional sheets if necessary)

EXAMINER: _____

Developer	Aaron Forsha	Date: 2/6/2012
NRC Approval	SEE NUREG 1021 FORM ES-301-3	

CONDITIONS

When I tell you to begin, you are to **DETERMINE THE MINIMUM AMOUNT AND DURATION REQUIRED FOR AN RCS BORATION**.
The conditions under which this task is to be performed are:

a. Unit 1 is in Mode 3, 13,500 MWD/MTU, On-service BAT 7350 ppm.
b. All RCPs are running.
c. The RCS is at the Critical Boron Concentration of 600 ppm.
d. While warming up Main Steam lines in preparation for opening MSIV's, an inadvertent uncontrolled RCS cooldown occurred.
e. Tavg is 501ºF on TC-4601, TC-4602 & TC-4603D and stable.
f. Tcold is 501ºF on TR-410 Loop A, B, & C and stable.
g. AOP-27.0, Emergency Boration, through step 8, has been completed.
h. Emergency boration flow is 95 gpm.

You have been directed by the Shift Supervisor to evaluate AOP-27.0 EMERGENCY BORATION, Step 9 using the data provided and:
1. Determine the minimum amount of RCS boration required.
2. Determine minimum time required to complete the boration.
3. Record answers in table below.

INITIATING **CUE**: "You may begin."

EVALUATION CHECKLIST

ELEMENTS:		**STANDARDS:**	**RESULTS: (CIRCLE)**
____ START TIME			
1.	(step 9.1) Determines reactor is not critical.	Determines reactor is not critical.	S / U
2.	(step 9.2) Determines Tavg is less than 525ºF.	Determines Tavg value is not used because RCP are not running and Tcold is less than 525ºF. Tave is 501°F.	S / U
3.	(step 9.3) Determines from table that 55gals/ºF<525ºF is the amount of boration for the existing Boron concentration per AOP-27 Table.	Determines minimum gal per ºF for the existing Boron concentration: 55gals/ºF<525ºF. **No tolerance allowed on table value**	S / U
4.	Determines number of degrees Tavg is below 525ºF. $525 - 501 = 24^{\circ} F$	Determines Tavg is 24ºF below 525ºF. **No tolerance allowed on calculation**	S / U

EVALUATION CHECKLIST

ELEMENTS:	STANDARDS:	RESULTS: (CIRCLE)
*5. Determines total boration required for RCS Tavg 24º<525º . $(24^{\circ}F)\frac{55gals}{^{\circ}F}=1{,}320gals$	Determines total boration required for RCS Tavg 24º<525º is 1,320 gals. **No tolerance allowed on calculation**	S / U
*6. Determines duration of emergency boration at current flowrate. $\frac{1320gals}{\frac{95gals}{\min}}=13.895\min$	Determines duration of emergency boration at current flowrate. **Tolerance 13.8-14.0 minutes due to potential differences in rounding & significant digits.** **This converts to the tolerance of 13.8 – 14 minutes 00 secs. (13 min 48 sec-14 min)**	S / U

_____ STOP TIME

Terminate when minimum amount and duration of emergency boration have been determined.

CRITICAL ELEMENTS: Critical Elements are denoted with an asterisk (*) before the element number.

GENERAL REFERENCES:

1. FNP-1-AOP-27.0 Rev. 16
2. Core Phyics Curves 61 Rev. 33, 61A Pgs 1 & 2 Rev. 21
3. K/A: G2.1.7 RO 4.4 SRO 4.7
   G2.1.25 RO 3.9 SRO 4.2
   G2.1.20 RO 4.6 SRO 4.6

GENERAL TOOLS AND EQUIPMENT:

Provide: FNP-1-AOP-27.0
Calculator

Critical ELEMENT justification:

STEP	Evaluation
1.	**Not critical:** This information is given in conditions.

2. **Not critical:** Calculation only.
3. **Not critical:** Calculation only.
4. **Not critical:** Calculation only.
5. **Critical:** Answer is the assigned task.
6. **Critical:** Answer is the assigned task.

COMMENTS:

KEY

Minimum RCS Boration Required	**1320Gallons**
Time required to complete required Boration	**13.8 (13 MINUTES 48 SECONDS) TO 14 Minutes**

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HANDOUT

When I tell you to begin, you are to **DETERMINE THE MINIMUM AMOUNT AND DURATION REQUIRED FOR AN RCS BORATION**.
The conditions under which this task is to be performed are:

a. Unit 1 is in Mode 3, 13,500 MWD/MTU, On-service BAT 7350 ppm.
b. All RCPs are running.
c. The RCS is at the Critical Boron Concentration of 600 ppm.
d. While warming up Main Steam lines in preparation for opening MSIV's, an inadvertent uncontrolled RCS cooldown occurred.
e. Tavg is 501ºF on TC-4601, TC-4602 & TC-4603D and stable.
f. Tcold is 501ºF on TR-410 Loop A, B, & C and stable.
g. AOP-27.0, Emergency Boration, through step 8, has been completed.
h. Emergency boration flow is 95 gpm.

You have been directed by the Shift Supervisor to evaluate AOP-27.0 EMERGENCY BORATION, Step 9 using the data provided and:

1. Determine the minimum amount of RCS boration required.
2. Determine minimum time required to complete the boration.
3. Record answers in table below.

Provide your answer below

Minimum RCS Boration Amount Required	
Time required to complete required Boration	

FARLEY NUCLEAR PLANT

ABNORMAL OPERATING PROCEDURE

FNP-1-AOP-27.0

SAFETY RELATED

EMERGENCY BORATION

PROCEDURE USAGE REQUIREMENTS PER FNP-0-AP-6	SECTIONS
Continuous Use	ALL
Reference Use	
Information Use	

Approved:

Jim L Hunter (for)
Operations Manager

Date Issued: November 24, 2009

Table of Contents

A. Purpose

This procedure provides actions to emergency borate the RCS when a reactor trip is not required.

This procedure is applicable in Modes 1, 2, 3, 4, 5 and 6.

B. Symptoms or Entry Conditions

I. This procedure is entered when emergency boration is required by any of the following:

a. Shutdown margin is determined to be less than required by Technical Specifications {or the TRM}

b. Unexplained or uncontrolled reactivity insertion

c. Actuation of CONT ROD BANK POSITION LO-LO annunciator FE2

d. Inadvertent cooldown below 525°F with critical boron concentration established

Step	Action/Expected Response	Response Not Obtained
1	**Start a boric acid transfer pump.** BATP [ ] 1A [ ] 1B	1 Perform the following. 1.1 Align charging pump suction to RWST. [ ] Q1E21LCV115B open [ ] Q1E21LCV115D open VCT OUTLET ISO [ ] Q1E21LCV115C closed [ ] Q1E21LCV115E closed 1.2 Proceed to step 3.

NOTE: IF emergency boration is being aligned to the manual emergency boration flow path, THEN consideration should be given to starting a boration through the blender via FCV113A & B in accordance with FNP-1-SOP-2.3, CHEMICAL AND VOLUME CONTROL SYSTEM REACTOR MAKEUP CONTROL SYSTEM, while personnel are being dispatched to locally open Q1E21V185.

2	**Align normal emergency boration flow path.** EMERG BORATE TO CHG PUMP SUCT [ ] Q1E21MOV8104 open	2 Align manual emergency boration flow path. BORIC ACID TO BLENDER [ ] Q1E21FCV113A open MAN EMERG BORATION [ ] Q1E21V185 open (100 ft, AUX BLDG rad-side chemical mixing tank area)

__Page Completed

Step	Action/Expected Response	Response Not Obtained

****

CAUTION: Oscillating flow indications and/or ammeter indications could be indicative of air or gas intrusion into the charging pump suction. IF such indications are present, THEN consideration should be given to securing both letdown and any running charging pump AND ensuring the charging pump suction piping is adequately vented per FNP-1-SOP-2.1 prior to return to service.(Ref. SOER 97-1) (AI 2008206545)

****

3 **Verify at least one CHG PUMP - STARTED.**

4 **Establish adequate letdown.**

4.1 Verify 45 gpm letdown orifice - IN SERVICE.

LTDN ORIF ISO
45 GPM
[ ] Q1E21HV8149A open

4.2 Verify at least one 60 gpm letdown orifice - IN SERVICE.

LTDN ORIF ISO
60 GPM
[ ] Q1E21HV8149B open
[ ] Q1E21HV8149C open

5 **Establish adequate charging flow.**

- IF boration is from boric acid storage tank, THEN verify charging flow - GREATER THAN 40 gpm.

OR

- IF boration is from the RWST, THEN verify charging flow - GREATER THAN 92 gpm.

__Page Completed

Step	Action/Expected Response	Response Not Obtained
6	**Verify emergency boration flow adequate.** • IF normal emergency boration flow path aligned, THEN check emergency boration flow greater than 30 gpm. BORIC ACID EMERG BORATE [ ] FI 110 OR • IF manual emergency boration flow path aligned, THEN check boric acid flow greater than 30 gpm. MAKEUP FLOW TO CHG/VCT [ ] BA FI 113 OR • IF boration is from the RWST, THEN verify charging flow - GREATER THAN 92 gpm.	6 Verify boration flow path using ATTACHMENT 1, BORATION FLOW PATH.
7	**Direct Chemistry to secure the zinc addition system (ZAS).**	

__Page Completed

Step	Action/Expected Response	Response Not Obtained

NOTE: The intent of the following step is to optimize the effectiveness of an emergency boration when no RCP is running and RHR is in operation.

N/A 8 **IF no RCP is running AND RHR is aligned for cooldown operation, THEN perform the following.**

8.1 Verify alternate charging path in service.

RCS ALT
CHG LINE
[ ] Q1E21HV8147 open

RCS NORMAL
CHG LINE
[ ] Q1E21HV8146 closed

__ **9 Check emergency boration complete.**

9.1 Check reactor - NOT CRITICAL.

9.1 Perform the following.

9.1.1 IF control rod insertion below rod insertion limit,
THEN continue emergency boration and return to step 5.
IF NOT, proceed to RNO step 9.1.2.

9.1.2 IF emergency borating as a result of inoperable {untrippable} control rods per Tech. Spec. 3.1.3.1 {3.1.4.A},
THEN verify shutdown margin greater than Technical Specification requirement using FNP-1-STP-29.5, SHUTDOWN MARGIN CALCULATION IN MODES 1 AND 2 (TAVG ≥ 547°F) WITH INOPERABLE OR IMMOVABLE CONTROL RODS(S) {WITH UNTRIPPABLE CONTROL ROD(S)}.
IF NOT, proceed to step 10.

Step 9 continued on next page

__Page Completed

Step	Action/Expected Response	Response Not Obtained
		9.1.3 WHEN shutdown margin greater than Technical Specification requirement, THEN proceed to step 10. 9.1.4 Continue emergency boration and return to step 5.
	NOTE: In response to an uncontrolled cooldown below 525°F, the cold shutdown boron concentration is the maximum boron concentration required regardless of the extent of the cooldown.	
	9.2 Check RCS TAVG - LESS THAN 525°F. 9.2.1 IF RCP's are running, THEN use TAVG temperature indication on MCB OR IPC. TAVG (NARROW RANGE - MCB) 1A,(1B,1C) RCS LOOP [ ] TI 412D [ ] TI 422D [ ] TI 432D TAVG (WIDE RANGE - IPC) 1A,(1B,1C) RCS LOOP [ ] TC4601 [ ] TC4602 [ ] TC4603 9.2.2 IF RCP's are not running, THEN use RCS cold leg temperature indication. RCS COLD LEG TEMP RECORDER [ ] TR 410	9.2 Perform the following. a) Verify shutdown margin greater than Technical Specification requirement using FNP-1-STP-29.1, SHUTDOWN MARGIN CALCULATION (TAVG 547°F) or FNP-1-STP-29.2, SHUTDOWN MARGIN CALCULATION (TAVG < 547°F OR BEFORE THE INITIAL CRITICALITY FOLLOWING REFUELING). b) WHEN shutdown margin greater than Technical Specification requirement, THEN proceed to step 10. c) Continue emergency boration and return to step 5.

Step 9 continued on next page

__Page Completed

Step	Action/Expected Response	Response Not Obtained

9.3 Continue emergency boration based on initial boron concentration and RCS TAVG.

Approximate Boration (4 wt% boric acid)	
Initial RCS Boron Concentration	Each °F TAVG Is Less Than 525 °F
0 ppm	50 gal
300 ppm	52 gal
600 ppm	55 gal
1200 ppm	60 gal
1500 ppm	64 gal
1800 ppm	68 gal

NOTE: Step 9 must be complete before continuing with this procedure.

__ **10 Check BAT is emergency boration source.**

10 Perform the following.

10.1 Stop running boric acid transfer pump.

BATP
[ ] 1A
[ ] 1B

10.1 Align charging pump suction to VCT.

VCT
OUTLET ISO
[ ] Q1E21LCV115C open
[ ] Q1E21LCV115E open

RWST
TO CHG PUMP
[ ] Q1E21LCV115B closed
[ ] Q1E21LCV115D closed

10.2 Proceed to step 12.

__Page Completed

Step	Action/Expected Response	Response Not Obtained
__	**11 Check normal emergency boration flow path aligned.**	11 Secure manual emergency boration flow path.
	11.1 Secure normal emergency boration flow path. EMERG BORATE TO CHG PUMP SUCT [ ] Q1E21MOV8104 closed	BORIC ACID TO BLENDER [ ] Q1E21FCV113A closed MAN EMERG BORATION [ ] Q1E21V185 closed (100 ft, AUX BLDG rad-side chemical mixing tank area)
__	**12 Direct Chemistry to sample RCS for boron concentration using FNP-1-CCP-651, SAMPLING THE REACTOR COOLANT SYSTEM.**	
__	**13 Verify reactor makeup control system aligned for auto makeup using** FNP-1-SOP-2.3, CHEMICAL AND VOLUME CONTROL SYSTEM REACTOR MAKEUP CONTROL SYSTEM	13 Manually control reactor makeup system using FNP-1-SOP-2.3, CHEMICAL AND VOLUME CONTROL SYSTEM REACTOR MAKEUP CONTROL SYSTEM.

__Page Completed

Step	Action/Expected Response	Response Not Obtained
__ 14	**Check Shutdown Margin verified greater than Technical Specification requirement by Step 9.2 RNO.**	14 Verify shutdown margin greater than Technical Specification requirement using applicable procedure: • FNP-1-STP-29.1, SHUTDOWN MARGIN CALCULATION (TAVG 547°F) OR • FNP-1-STP-29.2, SHUTDOWN MARGIN CALCULATION (TAVG < 547°F OR BEFORE THE INITIAL CRITICALITY FOLLOWING REFUELING) OR • FNP-1-STP-29.5, SHUTDOWN MARGIN CALCULATION IN MODES 1 AND 2 (TAVG ≥ 547°F) WITH INOPERABLE OR IMMOVABLE CONTROL RODS(S) {WITH UNTRIPPABLE CONTROL ROD(S)}

NOTE: After a completion of any fast ramp or emergency boration, the suction piping of any idle charging pump could have a significantly higher boron concentration than the existing RCS. (OE-17609 & AI 2004200233)

__ 15	**Go to procedure and step in effect.**	

-END-

__Page Completed

Step **Action/Expected Response** **Response Not Obtained**

ATTACHMENT 1

BORATION FLOW PATH

__ **1 IF normal emergency boration flow path aligned,**
THEN verify running charging pump header valves open.

Running CHG PUMP	1A	1B	1C
CHG PUMP SUCTION HDR ISO Q1E21MOV	[]8130A []8130B []8131A []8131B	[]8131A []8131B	
CHG PUMP DISCH HDR ISO Q1E21MOV		[]8132A []8132B	[]8132A []8132B []8133A []8133B

1 IF manual emergency boration flow path aligned,
THEN verify running charging pump header valves open.

Running CHG PUMP	1A	1B	1C
CHG PUMP SUCTION HDR ISO Q1E21MOV		[]8130A []8130B	[]8130A []8130B []8131A []8131B
CHG PUMP DISCH HDR ISO Q1E21MOV		[]8132A []8132B	[]8132A []8132B []8133A []8133B

__Page Completed

Step	Action/Expected Response	Response Not Obtained

ATTACHMENT 1

BORATION FLOW PATH

__ **2 Check boration flow adequate.**

2.1 IF normal emergency boration flow path aligned,
THEN check emergency boration flow greater than 30 gpm

BORIC ACID
EMERG BORATE
[ ] FI 110

2.2 IF manual emergency boration flow path aligned,
THEN check boric acid flow greater than 30 gpm.

MAKEUP FLOW
TO CHG/VCT
[ ] BA
[ ] FI 113

2 Perform the following:

a) Align charging pump suction to RWST:

RWST
TO CHG PUMP
[ ] Q2E21LCV115B open
[ ] Q2E21LCV115D open

VCT
OUTLET ISO
[ ] Q2E21LCV115C closed
[ ] Q2E21LCV115E closed

b) Stop running boric acid transfer pump.

BATP
[ ] 1A
[ ] 1B

c) Secure normal emergency boration flow path.

EMERG BORATE
TO CHG PUMP SUCT
[ ] Q1E21MOV8104 closed

__ **3 Verify charging flow path aligned.**

3.1 Verify charging pump discharge flow path - ALIGNED.

CHG PUMPS TO
REGENERATIVE HX
[ ] Q1E21MOV8107 open
[ ] Q1E21MOV8108 open

Step 3 continued on next page

__Page Completed

Step	Action/Expected Response	Response Not Obtained

ATTACHMENT 1

BORATION FLOW PATH

3.2 Verify only one charging line valve - OPEN.

RCS NORM
CHG LINE
[ ] Q1E21HV8146

RCS ALT
CHG LINE
[ ] Q1E21HV8147

3.3 IF boration is from the boric acid storage tank,
THEN verify charging flow - GREATER THAN 40 gpm.

CHG FLOW
[ ] FK 122 manually adjusted

3.3 IF boration is from the RWST,
THEN verify charging flow - GREATER THAN 92 gpm.

CHG FLOW
[ ] FK 122 manually adjusted

__ **4 Notify control room of boration status.**

__ **5 Return to step 7.**

-END-

__Page Completed

A.2 Conduct of operations ADMIN RO

TITLE: **RCP Seal Injection Leakage Test**
EVALUATION LOCATION: __X__ CLASS ROOM
PROJECTED TIME: __10 MIN__ SIMULATOR IC NUMBER: __N/A
ALTERNATE PATH ___ TIME CRITICAL ___ PRA_____

JPM DIRECTIONS:

1. This task can be conducted individually or in a group setting in which all the necessary references are available.
2. Provide student with HANDOUT and calculator.

TASK STANDARD: Upon successful completion of this JPM, the examinee will:

- Correctly assess and determine if STP-8.0 Acceptance Criteria is met.

Examinee:
Overall JPM Performance: Satisfactory ☐ Unsatisfactory ☐
Evaluator Comments (attach additional sheets if necessary)

EXAMINER: _____

Developer	Aaron Forsha	Date: 2/6/2012
NRC Approval	SEE NUREG 1021 FORM ES-301-3	

CONDITIONS

When I tell you to begin, you are to complete the **RCP SEAL INJECTION LEAKAGE TEST**. The condition under which this task is to be performed is:

a. Unit 1 is at 24% power.

Your task is to complete the steps listed below of FNP-1-STP-8.0, RCP SEAL INJECTION LEAKAGE TEST, using the data provided.

1. Step 5.5
2. Step 5.6
3. Complete answer table below to determine the flow limit and Acceptance Criteria.

INITIATING **CUE**: "You may begin."

EVALUATION CHECKLIST

ELEMENTS:	**STANDARDS:**	**RESULTS: (CIRCLE)**
_____ START TIME		
1. (step 5.5.1) Determine total seal injection flow.	Transfers data from steps 5.3.1-5.3.3 and adds values. 13+13+13=39 gpm **No tolerance allowed**	S / U
2. (step 5.5.2) Determine average PRZR pressure.	Transfers data from steps 5.3.5-5.3.7 and averages the values. (2240+2245+2235)/3=2240psig **No tolerance allowed**	S / U
3. (step 5.6.1) Determine differential pressure.	Transfers data from 5.3.4 and 5.5.2 and calculates the difference. 2600-2240=360psid **No tolerance allowed**	S / U

Note: In the following element the calculated psid is off the chart and flow limit is determined by the note at the bottom of Figure 1.

*4. (step 5.6.1) Determine flow limit from figure 1.	Using 360 psid from step 5.6.1 using Figure 1 determines **that flow limit is 40 gpm.**	S / U
*5. Evaluate acceptance criteria.	Determines total flow and individual flow **acceptance criteria is met**	S / U
_____ STOP TIME		

Terminate JPM when answer table is completed.

CRITICAL ELEMENTS: Critical Elements are denoted with an asterisk (*) before the element number.

KEY

Step 5.6.2 (FLOW LIMIT)	**__40__ gpm**	
	ACCEPTANCE CRITERIA	
Step 5.6.2	**MET**	**NOT MET**

GENERAL REFERENCES:

1. Tech Specs Amendment 146 U1/ 137 U2
2. FNP-1-STP-8.0 Ver 22.1
3. KA G2.2.12 RO 3.7 SRO 4.1

GENERAL TOOLS AND EQUIPMENT:

Provide: Calculator

Critical ELEMENT justification:

STEP **Evaluation**

1. **Not critical:** Calculation only.
2. **Not critical:** Calculation only.
3. **Not critical:** Calculation only.
4. **Critical:** Task depends on accurate interpretation of Figure to establish correct acceptance results.
5. **Critical:** This is the assigned task.

COMMENTS:

HANDOUT

CONDITIONS

When I tell you to begin, you are to complete the **RCP SEAL INJECTION LEAKAGE TEST**. The condition under which this task is to be performed is:

a. Unit 1 is at 24% power.

Your task is to complete the steps listed below of FNP-1-STP-8.0, RCP SEAL INJECTION LEAKAGE TEST, using the data provided.

1. Step 5.5
2. Step 5.6
3. Complete answer table below to determine the flow limit and Acceptance Criteria.

Provide your answer below

Step 5.6.2 (FLOW LIMIT)	**_____ gpm**	
	ACCEPTANCE CRITERIA Circle One	
Step 5.6.2	**MET**	**NOT MET**

SAFETY RELATED

RCP SEAL INJECTION LEAKAGE TEST

PROCEDURE LEVEL OF USE CLASSIFICATION PER NMP-AP-003	
CATEGORY	**SECTIONS**
Continuous:	**ALL**
Reference:	**NONE**
Information:	**NONE**

Approved By: David L Reed (for)
Operations Manager

Effective Date: February 22, 2013

SURVEILLANCE TEST REVIEW SHEET

SURVEILLANCE TEST NO.	TECHNICAL SPECIFICATION REFERENCE
FNP-1-STP-8.0	SR 3.5.5.1
TITLE	MODE(S) REQUIRING TEST:
RCP SEAL INJECTION LEAKAGE TEST	1, 2, 3

TEST RESULTS (TO BE COMPLETED BY TEST PERFORMER)

PERFORMED BY: _____ / _____ DATE/TIME: _____ /
(Print) (Signature)

COMPONENT OR TRAIN TESTED (if applicable) _____

☐ ENTIRE STP PERFORMED ☐ FOR SURVEILLANCE CREDIT

☐ PARTIAL STP PERFORMED ☐ NOT FOR SURVEILLANCE CREDIT

REASON FOR PARTIAL _____

TEST COMPLETED ☐ Satisfactory ☐ Unsatisfactory

☐ The following deficiencies occurred

☐ Corrective action taken or initiated

SHIFT SUPERVISOR/ SHIFT SUPPORT SUPERVISOR REVIEW

☐ Procedure properly completed and satisfactory per step 9.1 of FNP-0-AP-5

☐ Procedure to be placed in Operations Office for IST Engineer review following OPS Review.

☐ Comments _____

REVIEWED BY: _____ / _____ DATE: _____
(Print) (Signature)

*Reviewer must be AP-31 Level II certified & cannot be the Performing Individual

IST ENGINEER REVIEW (REQUIRED)

REVIEWED BY: _____ / _____ DATE: _____
(Print) (Signature)

☐ Comments _____

Procedure Version Description

Version Number	Version Description
21.0	Updated procedure to requirements of NMP-OS-008-001, Operations Procedure Writing Instructions Rewrote procedure providing detailed guidance previously implied. Added Appendix 1. Changed requirement to verify throttle valves sealed for each performance, whether adjustments made or not.
22.0	Added check boxes to initial conditions. Deleted check boxes from steps that also require recording data. Step 5.9, corrected referenced step number. Inserted check boxes for P&L steps 4.1 & 4.2. Modified step 5.7.2 for clarity. Added CR references to step 5.9. Made all signoff blanks the INIT blanks per template configuration.
22.1	TE 497178 - Revised the STRS to require IST engineer review. Added new step to scan the procedure and email to FNP IST Engineer.

Table of Contents

Page

1.0 Purpose

To determine the amount of seal injection flow to the reactor coolant pump seals and to verify operability of CVCS seal injection to RCP check valves (Q1E21V0115A/B/C) to pass full forward flow in accordance with the requirements of the ASME OM Code.

2.0 Acceptance Criteria

2.1 Manual seal injection throttle valves are adjusted to give a flow within the limits of Figure 1 with SEAL WTR INJECTION HIK 186 full open.

2.2 Flow through each CVCS seal injection to RCP check valve (Q1E21V0115A/B/C) is greater than 6.7 gpm.

NOTE

Asterisked steps (*) are those associated with Acceptance Criteria.

3.0 Initial Conditions

3.1 The version of this procedure has been verified to be the current version. (OR 1-98-498) ☑

3.2 This procedure has been verified to be the correct unit for the task. (OR 1-98-498) ☑

3.3 Reactor coolant system pressure is between 2215 psig and 2255 psig. ☑

3.4 RCP seal injection system is aligned per FNP-1-SOP-2.1A. ☑

3.5 IF operating at power, THEN power level is constant. ☑

3.6 Reactor coolant system temperature is ≥ 290°F. ☑

3.7 Pressurizer level is stable and in the normal operating band. ☑

3.8 Charging Flow is stable. ☑

3.9 Record Charging Pump(s) in Service 1A.

4.0 Precautions and Limitations

4.1 Do not change power level during this test. ☑

4.2 When letdown flow has been changed from two orifices in service to only one orifice in service, then FNP-1-STP-8.0 must be performed immediately to verify the requirements of Technical Specification SR 3.5.5.1. ☑

5.0 Instructions

5.1 **Record** seal injection flow to RCPs (MCB indication).

- 1A RCP SHAFT SEAL FLOW FI 130A 7 gpm
- 1B RCP SHAFT SEAL FLOW FI 127A 7 gpm
- 1C RCP SHAFT SEAL FLOW FI 124A 7 gpm

5.2 *__Increase__ seal water flow to maximum by fully opening SEAL WTR INJECTION HIK 186.

BL
Initial

5.3 *__Record__ the following (MCB indication):

5.3.1 1A RCP SHAFT SEAL FLOW FI 130A 13 gpm

5.3.2 1B RCP SHAFT SEAL FLOW FI 127A 13 gpm

5.3.3 1C RCP SHAFT SEAL FLOW FI 124A 13 gpm

5.3.4 CHG HDR PRESS PI 121 2600 psig

5.3.5 PRZR PRESS PI 455 2240 psig

5.3.6 PRZR PRESS PI 456 2245 psig

5.3.7 PRZR PRESS PI 457 2235 psig

5.4 **Adjust** SEAL WTR INJECTION HIK 186 to attain desired seal injection flowrate.

BL
Initial

5.5 **Perform** the following calculations:

5.5.1 Determine total seal injection flow.

_____
Initial

Sum of values recorded in steps 5.3.1 + 5.3.2 + 5.3.3

Step 5.3.1 _____+ step 5.3.2 _____ + step 5.3.3 _____ = Total _____ gpm

5.5.2 Determine average PRZR Pressure.

_____
Initial

Sum of values recorded in steps 5.3.5 + 5.3.6 + 5.3.7 ÷ # of operable channels.

Step 5.3.5 _____+ step 5.3.6 _____ + step 5.3.7 _____ = Total _____ psig

Total _____ psig ÷ # of operable channels _____ = Average pressure _____

5.6 *Determine the FLOW LIMIT from Figure 1 based on the differential pressure between average pressurizer pressure and charging header pressure.

5.6.1 Determine ΔP as follows.

CHG HDR PRESS step 5.3.4 - Average PRZR Pressure value step 5.5.2 = ΔP

Step 5.3.4 _____ - Step 5.5.2 _____ = _____ psid

_____ Initial

5.6.2 FLOW LIMIT from FIGURE 1(Based on the ΔP determined in step 5.6.1.

FLOW LIMIT from FIGURE 1 _____ gpm

_____ Initial

ACCEPTANCE CRITERIA

Total Flow within limits of Figure 1 with SEAL WTR INJECTION HIK 186 fully open.

Flow is ≥ 6.7 gpm through each line.

5.7 IF flow adjustment necessary, THEN perform the following:

5.7.1 **Adjust** seal injection manual throttle valves to obtain proper flow using
FNP-1-SOP-2.1, Appendix I, Balancing Seal Injection Flows To RCP's and Adjusting Total Seal Injection Flow.

_____ Initial

5.7.2 **Perform** Appendix 1 of this procedure.

_____ Initial

5.8 **Verify** the following seal injection throttle valves are sealed in position: (NRC Cmt. 0004355) (CR 2010113165)

- 1-CVC-V-8369A (Q1E21V116A)

_____ Initial

- 1-CVC-V-8369B (Q1E21V116B)

_____ Initial

- 1-CVC-V-8369C (Q1E21V116C)

_____ Initial

5.9 IF adjustments were made per step 5.7, THEN **Independently verify** the following seal injection throttle valves are sealed in position: (NRC Cmt. 0004355) (CR 2010113165)

- 1-CVC-V-8369A (Q1E21V116A) _____ Initial
- 1-CVC-V-8369B (Q1E21V116B) _____ Initial
- 1-CVC-V-8369C (Q1E21V116C) _____ Initial

5.10 **Scan** the entire procedure to the following Email address: “FNP IST Engineer”. _____ Initial

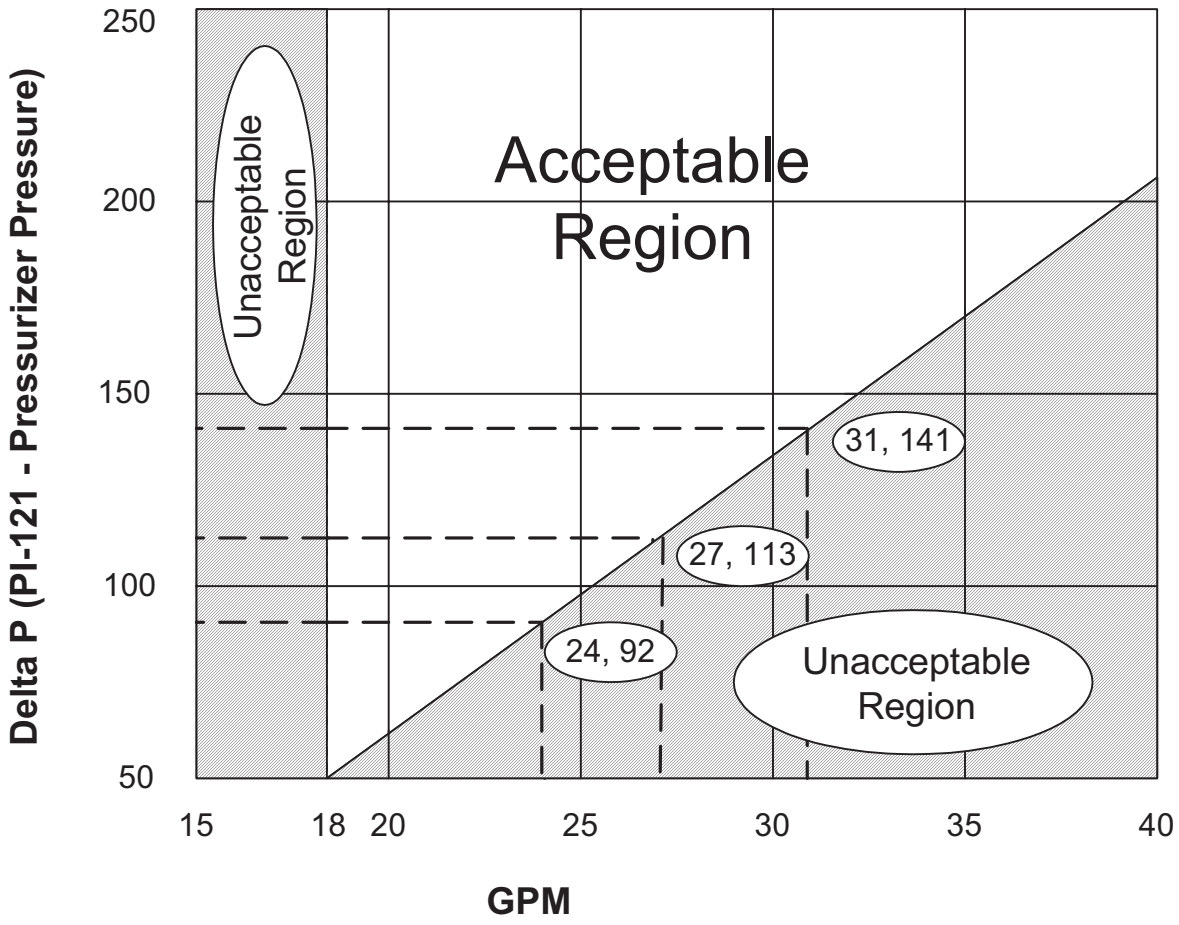
6.0 References

6.1 D-175039 - CVCS P & ID, Sheets 1 & 2

6.2 Fourth 10-Year Interval IST Program

6.3 Technical Specification 3.5.5

FIGURE 1



* FOR Delta P's > 250 PSID the Flow Limit is 40 GPM.

Appendix 1

Throttle Valve Adjustment and Re-calculation of Controlled Leakage

NOTE

Any throttle valve adjustments should be verified acceptable per SR 3.5.5.1 by performing two FNP-1-STP-8.0s, RCP SEAL INJECTION LEAKAGE TEST, within four hours. One FNP-1-STP-8.0 should be performed with the "strongest" charging pump supplying flow and one FNP-1-STP-8.0 performed with the "weakest" charging pump supplying flow. The "strongest" and "weakest" charging pump can be determined by comparing the data in the Surveillance Test Data book. (Engineering Support should be contacted if assistance is required in making this determination.) If it is not feasible to run FNP-1-STP-8.0 using either the strongest or weakest pump (i.e., pump not capable of running or breaker racked out), then the surveillance should be run with the two available charging pumps and an admin LCO written for the inoperable pump to ensure FNP-1-STP-8.0 is run when the pump is returned to service.

7.0 Instructions

7.1 IF necessary, THEN adjust seal injection manual throttle valves to obtain proper flow and record the following below: {CMT 0004422}

_____ Initial

7.2 *Increase seal water flow to maximum by fully opening SEAL WTR INJECTION HIK 186.

_____ Initial

7.3 *Record the following (MCB indication):

7.3.1 1A RCP SHAFT SEAL FLOW FI 130A _____ gpm

7.3.2 1B RCP SHAFT SEAL FLOW FI 127A _____ gpm

7.3.3 1C RCP SHAFT SEAL FLOW FI 124A _____ gpm

7.3.4 CHG HDR PRESS PI 121 _____ psig

7.3.5 PRZR PRESS PI 455 _____ psig

7.3.6 PRZR PRESS PI 456 _____ psig

7.3.7 PRZR PRESS PI 457 _____ psig

7.4 Adjust SEAL WTR INJECTION HIK 186 to attain desired seal injection flowrate.

_____ Initial

7.5 Perform the following calculations:

7.5.1 Determine total seal injection flow.

_____ Initial

Sum of values recorded in steps 7.3.1 + 7.3.2 + 7.3.3

Step 7.3.1 _____+ step 7.3.2 _____ + step 7.3.3 _____ = Total _____ gpm

7.5.2 Determine average PRZR Pressure.

_____ Initial

Sum of values recorded in steps 7.3.5 + 7.3.6 + 7.3.7 ÷ # of operable channels.

Step 7.3.5 _____+ step 7.3.6 _____ + step 7.3.7 _____ = Total _____ psig

Total _____ psig ÷ # of operable channels _____ = Average pressure _____

7.6 *Determine the FLOW LIMIT from Figure 1 based on the differential pressure between average pressurizer pressure and charging header pressure.

7.6.1 Determine ΔP as follows.

CHG HDR PRESS step 7.3.4 - Average PRZR Pressure value step 7.5.2 = ΔP

Step 7.3.4 _____ - Step 7.5.2 _____ = _____ psid

_____ Initial

7.6.2 FLOW LIMIT from FIGURE 1(Based on the ΔP determined in step 7.6.1).

FLOW LIMIT from FIGURE 1 _____ gpm

_____ Initial

ACCEPTANCE CRITERIA

Total Flow within limits of Figure 1 with SEAL WTR INJECTION HIK 186 fully open.

Flow is ≥ 6.7 gpm through each line.

NOTE

The surveillance can be recorded as satisfactory even if acceptance criteria not satisfied at step 5.6, providing acceptance criteria satisfied following adjustment per Appendix 1.

7.7 Return to step 5.8 in the body of the procedure.

_____ Initial

A.2 Conduct of operations ADMIN SRO

TITLE: **RCP Seal Injection Leakage Test**
EVALUATION LOCATION: __X__ CLASS ROOM
PROJECTED TIME: __15 MIN__ SIMULATOR IC NUMBER: __N/A
ALTERNATE PATH ___ TIME CRITICAL ___ PRA_____

JPM DIRECTIONS:

1. This task can be conducted individually or in a group setting in which all the necessary references are available.
2. Provide student with HANDOUT and calculator.
3. Computer with exam security log in.

TASK STANDARD: Upon successful completion of this JPM, the examinee will:

- Correctly assess and determine if STP-8.0 Acceptance Criteria is met.
- Correctly assess Tech Spec requirements.

Examinee:
Overall JPM Performance: Satisfactory ☐ Unsatisfactory ☐
Evaluator Comments (attach additional sheets if necessary)

EXAMINER: _____

CONDITIONS

When I tell you to begin, you are to complete the **RCP SEAL INJECTION LEAKAGE TEST**. The condition under which this task is to be performed is:

a. Unit 1 is at 24% power.

Your task is to complete the steps listed below of FNP-1-STP-8.0, RCP SEAL INJECTION LEAKAGE TEST, using the data provided.

1. Step 5.5
2. Step 5.6
3. Complete answer table below to determine the flow limit and Acceptance Criteria.

INITIATING **CUE**: "You may begin."

Part 2 – administer this portion of the JPM after completion of the above task.

JPM DIRECTIONS:

1. Provide student with **Part 2 HANDOUT**.

CONDITIONS

Based on your previously provided conditions, evaluate Tech Specs.

EVALUATION CHECKLIST

ELEMENTS:	**STANDARDS:**	**RESULTS: (CIRCLE)**
_____ START TIME		
*1. (step 5.5.1) Determine total seal injection flow.	Transfers data from steps 5.3.1-5.3.3 and adds values. 14+13+14= 41gpm **No tolerance allowed**	S / U
*2. (step 5.5.2) Determine average PRZR pressure.	Transfers data from steps 5.3.5-5.3.7 and averages the values. (2245+2240+2235)/3=2240 psig **No tolerance allowed**	S / U
*3. (step 5.6.1) Determine differential pressure.	Transfers data from 5.3.4 and 5.5.2 and calculates the difference. 2600-2240=360 psid **No tolerance allowed**	S / U

EVALUATION CHECKLIST

ELEMENTS:	STANDARDS:	RESULTS: (CIRCLE)

Note: In the following element the calculated psid is off the chart and flow limit is determined by the note at the bottom of Figure 1.

*4. (step 5.6.1) Determine flow limit from figure 1.	Using 360 psid from step 5.6.1 determines using Figure 1 that flow limit is 40 gpm.	S / U
*5. Evaluate acceptance criteria.	Determines total flow and individual flow acceptance criteria is **NOT met**.	S / U

Part 2 – administer this portion of the JPM after completion of the above task.

*6. Evaluates Tech Spec Requirements.	Tech Spec 3.5.5 Condition A is entered and adjustments must be made within 4 hours.	S / U

_____ STOP TIME

Terminate JPM when Tech Spec evaluation is complete.

CRITICAL ELEMENTS: Critical Elements are denoted with an asterisk (*) before the element number.

GENERAL REFERENCES:

1. Tech Specs Amendment 146 U1/ 137 U2
2. FNP-1-STP-8.0 Ver 22.1
3. KA G2.2.12 RO 3.7 SRO 4.1

GENERAL TOOLS AND EQUIPMENT:

Provide: Calculator

Critical ELEMENT justification:

STEP **Evaluation**

1. **Not critical:** Calculation only.
2. **Not critical:** Calculation only.
3. **Not critical:** Calculation only.
4. **Critical:** Task depends on accurate interpretation of Figure to establish correct acceptance results.
5. **Critical:** This is the assigned task.
6. **Critical:** This is the assigned task.

COMMENTS:

KEY

Step 5.6.2 (FLOW LIMIT)	**__40__ gpm**	
	ACCEPTANCE CRITERIA	
Step 5.6.2	**MET**	**NOT MET**

This page is intentionally blank.

Part 2

HANDOUT

CONDITIONS

Based on your previously provided conditions, evaluate Tech Specs.

HANDOUT

CONDITIONS

When I tell you to begin, you are to complete the **RCP SEAL INJECTION LEAKAGE TEST**. The condition under which this task is to be performed is:

a. Unit 1 is at 24% power.

Your task is to complete the steps listed below of FNP-1-STP-8.0, RCP SEAL INJECTION LEAKAGE TEST, using the data provided.

1. Step 5.5
2. Step 5.6
3. Complete answer table below to determine the flow limit and Acceptance Criteria.

Provide your answer below

Step 5.6.2 (FLOW LIMIT)	**____ gpm**	
	ACCEPTANCE CRITERIA Circle One	
Step 5.6.2	**MET**	**NOT MET**

SAFETY RELATED

RCP SEAL INJECTION LEAKAGE TEST

PROCEDURE LEVEL OF USE CLASSIFICATION PER NMP-AP-003	
CATEGORY	**SECTIONS**
Continuous:	**ALL**
Reference:	**NONE**
Information:	**NONE**

Approved By: David L Reed (for)
Operations Manager

Effective Date: February 22, 2013

SURVEILLANCE TEST REVIEW SHEET

SURVEILLANCE TEST NO.	TECHNICAL SPECIFICATION REFERENCE
FNP-1-STP-8.0	SR 3.5.5.1
TITLE	MODE(S) REQUIRING TEST:
RCP SEAL INJECTION LEAKAGE TEST	1, 2, 3

TEST RESULTS (TO BE COMPLETED BY TEST PERFORMER)

PERFORMED BY: _____ / _____ DATE/TIME: _____ /
(Print) (Signature)

COMPONENT OR TRAIN TESTED (if applicable) _____

☐ ENTIRE STP PERFORMED ☐ FOR SURVEILLANCE CREDIT

☐ PARTIAL STP PERFORMED ☐ NOT FOR SURVEILLANCE CREDIT

REASON FOR PARTIAL _____

TEST COMPLETED ☐ Satisfactory ☐ Unsatisfactory

☐ The following deficiencies occurred

☐ Corrective action taken or initiated

SHIFT SUPERVISOR/ SHIFT SUPPORT SUPERVISOR REVIEW

☐ Procedure properly completed and satisfactory per step 9.1 of FNP-0-AP-5

☐ Procedure to be placed in Operations Office for IST Engineer review following OPS Review.

☐ Comments _____

REVIEWED BY: _____ / _____ DATE: _____
(Print) (Signature)

*Reviewer must be AP-31 Level II certified & cannot be the Performing Individual

IST ENGINEER REVIEW (REQUIRED)

REVIEWED BY: _____ / _____ DATE: _____
(Print) (Signature)

☐ Comments _____

Procedure Version Description

Version Number	Version Description
21.0	Updated procedure to requirements of NMP-OS-008-001, Operations Procedure Writing Instructions Rewrote procedure providing detailed guidance previously implied. Added Appendix 1. Changed requirement to verify throttle valves sealed for each performance, whether adjustments made or not.
22.0	Added check boxes to initial conditions. Deleted check boxes from steps that also require recording data. Step 5.9, corrected referenced step number. Inserted check boxes for P&L steps 4.1 & 4.2. Modified step 5.7.2 for clarity. Added CR references to step 5.9. Made all signoff blanks the INIT blanks per template configuration.
22.1	TE 497178 - Revised the STRS to require IST engineer review. Added new step to scan the procedure and email to FNP IST Engineer.

Table of Contents

Page

1.0 Purpose

To determine the amount of seal injection flow to the reactor coolant pump seals and to verify operability of CVCS seal injection to RCP check valves (Q1E21V0115A/B/C) to pass full forward flow in accordance with the requirements of the ASME OM Code.

2.0 Acceptance Criteria

2.1 Manual seal injection throttle valves are adjusted to give a flow within the limits of Figure 1 with SEAL WTR INJECTION HIK 186 full open.

2.2 Flow through each CVCS seal injection to RCP check valve (Q1E21V0115A/B/C) is greater than 6.7 gpm.

NOTE

Asterisked steps (*) are those associated with Acceptance Criteria.

3.0 Initial Conditions

3.1 The version of this procedure has been verified to be the current version. (OR 1-98-498) ☑

3.2 This procedure has been verified to be the correct unit for the task. (OR 1-98-498) ☑

3.3 Reactor coolant system pressure is between 2215 psig and 2255 psig. ☑

3.4 RCP seal injection system is aligned per FNP-1-SOP-2.1A. ☑

3.5 IF operating at power, THEN power level is constant. ☑

3.6 Reactor coolant system temperature is ≥ 290°F. ☑

3.7 Pressurizer level is stable and in the normal operating band. ☑

3.8 Charging Flow is stable. ☑

3.9 Record Charging Pump(s) in Service 1A.

4.0 Precautions and Limitations

4.1 Do not change power level during this test. ☑

4.2 When letdown flow has been changed from two orifices in service to only one orifice in service, then FNP-1-STP-8.0 must be performed immediately to verify the requirements of Technical Specification SR 3.5.5.1. ☑

5.0 Instructions

5.1 **Record** seal injection flow to RCPs (MCB indication).

- 1A RCP SHAFT SEAL FLOW FI 130A 7 gpm
- 1B RCP SHAFT SEAL FLOW FI 127A 7 gpm
- 1C RCP SHAFT SEAL FLOW FI 124A 7 gpm

5.2 *__Increase__ seal water flow to maximum by fully opening SEAL WTR INJECTION HIK 186.

BL
Initial

5.3 *__Record__ the following (MCB indication):

5.3.1 1A RCP SHAFT SEAL FLOW FI 130A 14 gpm

5.3.2 1B RCP SHAFT SEAL FLOW FI 127A 13 gpm

5.3.3 1C RCP SHAFT SEAL FLOW FI 124A 14 gpm

5.3.4 CHG HDR PRESS PI 121 2600 psig

5.3.5 PRZR PRESS PI 455 2240 psig

5.3.6 PRZR PRESS PI 456 2245 psig

5.3.7 PRZR PRESS PI 457 2235 psig

5.4 **Adjust** SEAL WTR INJECTION HIK 186 to attain desired seal injection flowrate.

BL
Initial

5.5 **Perform** the following calculations:

5.5.1 Determine total seal injection flow.

_____
Initial

Sum of values recorded in steps 5.3.1 + 5.3.2 + 5.3.3

Step 5.3.1 _____+ step 5.3.2 _____ + step 5.3.3 _____ = Total _____ gpm

5.5.2 Determine average PRZR Pressure.

_____
Initial

Sum of values recorded in steps 5.3.5 + 5.3.6 + 5.3.7 ÷ # of operable channels.

Step 5.3.5 _____+ step 5.3.6 _____ + step 5.3.7 _____ = Total _____ psig

Total _____ psig ÷ # of operable channels _____ = Average pressure _____

5.6 *Determine the FLOW LIMIT from Figure 1 based on the differential pressure between average pressurizer pressure and charging header pressure.

5.6.1 Determine ΔP as follows.

CHG HDR PRESS step 5.3.4 - Average PRZR Pressure value step 5.5.2 = ΔP

Step 5.3.4 _____ - Step 5.5.2 _____ = _____ psid

_____ Initial

5.6.2 FLOW LIMIT from FIGURE 1(Based on the ΔP determined in step 5.6.1.

FLOW LIMIT from FIGURE 1 _____ gpm

_____ Initial

ACCEPTANCE CRITERIA

Total Flow within limits of Figure 1 with SEAL WTR INJECTION HIK 186 fully open.

Flow is ≥ 6.7 gpm through each line.

5.7 IF flow adjustment necessary, THEN perform the following:

5.7.1 **Adjust** seal injection manual throttle valves to obtain proper flow using
FNP-1-SOP-2.1, Appendix I, Balancing Seal Injection Flows To RCP's and Adjusting Total Seal Injection Flow.

_____ Initial

5.7.2 **Perform** Appendix 1 of this procedure.

_____ Initial

5.8 **Verify** the following seal injection throttle valves are sealed in position: (NRC Cmt. 0004355) (CR 2010113165)

- 1-CVC-V-8369A (Q1E21V116A)

_____ Initial

- 1-CVC-V-8369B (Q1E21V116B)

_____ Initial

- 1-CVC-V-8369C (Q1E21V116C)

_____ Initial

5.9 IF adjustments were made per step 5.7, THEN **Independently verify** the following seal injection throttle valves are sealed in position: (NRC Cmt. 0004355) (CR 2010113165)

- 1-CVC-V-8369A (Q1E21V116A) _____ Initial
- 1-CVC-V-8369B (Q1E21V116B) _____ Initial
- 1-CVC-V-8369C (Q1E21V116C) _____ Initial

5.10 **Scan** the entire procedure to the following Email address: “FNP IST Engineer”. _____ Initial

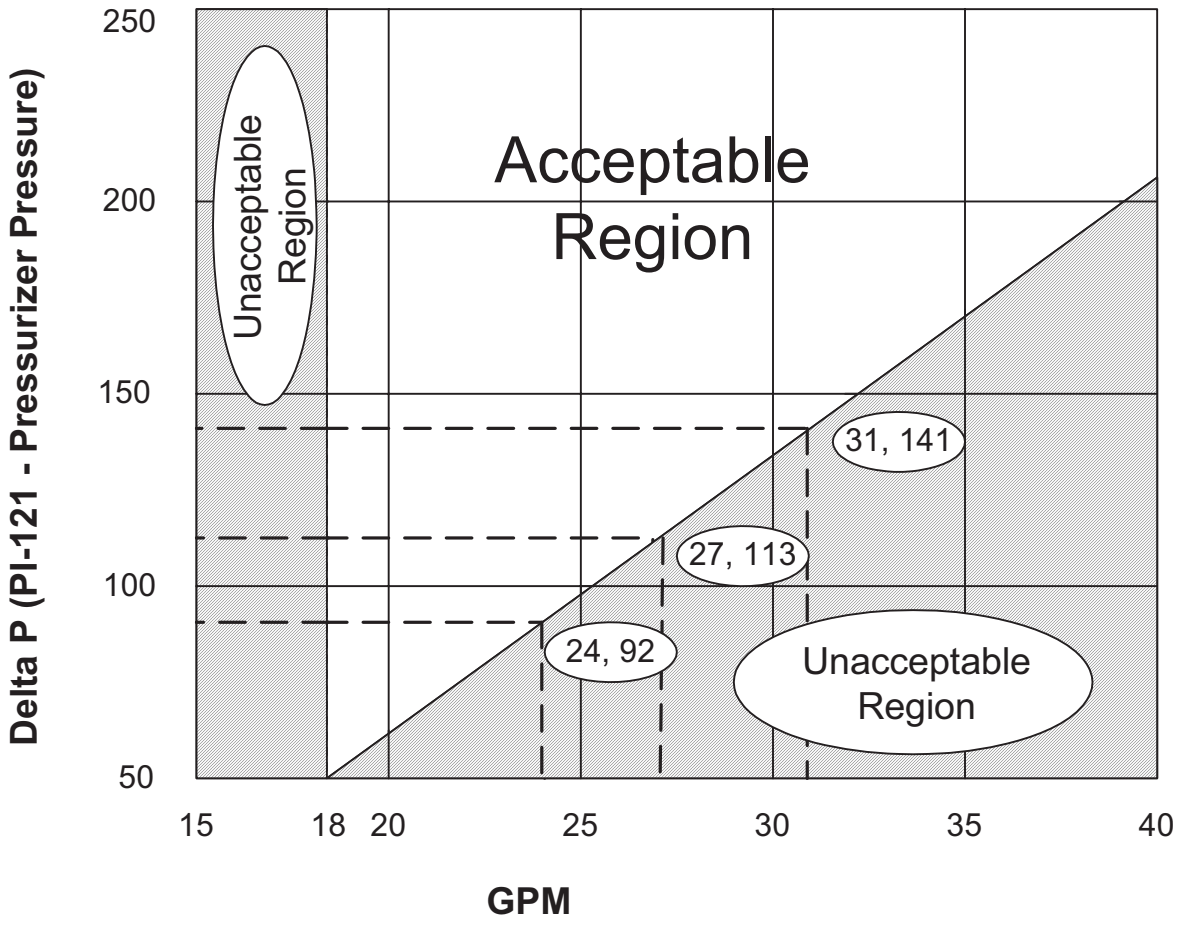
6.0 References

6.1 D-175039 - CVCS P & ID, Sheets 1 & 2

6.2 Fourth 10-Year Interval IST Program

6.3 Technical Specification 3.5.5

FIGURE 1



* FOR Delta P's > 250 PSID the Flow Limit is 40 GPM.

Appendix 1

Throttle Valve Adjustment and Re-calculation of Controlled Leakage

NOTE

Any throttle valve adjustments should be verified acceptable per SR 3.5.5.1 by performing two FNP-1-STP-8.0s, RCP SEAL INJECTION LEAKAGE TEST, within four hours. One FNP-1-STP-8.0 should be performed with the "strongest" charging pump supplying flow and one FNP-1-STP-8.0 performed with the "weakest" charging pump supplying flow. The "strongest" and "weakest" charging pump can be determined by comparing the data in the Surveillance Test Data book. (Engineering Support should be contacted if assistance is required in making this determination.) If it is not feasible to run FNP-1-STP-8.0 using either the strongest or weakest pump (i.e., pump not capable of running or breaker racked out), then the surveillance should be run with the two available charging pumps and an admin LCO written for the inoperable pump to ensure FNP-1-STP-8.0 is run when the pump is returned to service.

7.0 Instructions

7.1 IF necessary, THEN adjust seal injection manual throttle valves to obtain proper flow and record the following below: {CMT 0004422}

_____ Initial

7.2 *Increase seal water flow to maximum by fully opening SEAL WTR INJECTION HIK 186.

_____ Initial

7.3 *Record the following (MCB indication):

7.3.1 1A RCP SHAFT SEAL FLOW FI 130A _____ gpm

7.3.2 1B RCP SHAFT SEAL FLOW FI 127A _____ gpm

7.3.3 1C RCP SHAFT SEAL FLOW FI 124A _____ gpm

7.3.4 CHG HDR PRESS PI 121 _____ psig

7.3.5 PRZR PRESS PI 455 _____ psig

7.3.6 PRZR PRESS PI 456 _____ psig

7.3.7 PRZR PRESS PI 457 _____ psig

7.4 Adjust SEAL WTR INJECTION HIK 186 to attain desired seal injection flowrate.

_____ Initial

7.5 Perform the following calculations:

7.5.1 Determine total seal injection flow.

_____ Initial

Sum of values recorded in steps 7.3.1 + 7.3.2 + 7.3.3

Step 7.3.1 _____+ step 7.3.2 _____ + step 7.3.3 _____ = Total _____ gpm

7.5.2 Determine average PRZR Pressure.

_____ Initial

Sum of values recorded in steps 7.3.5 + 7.3.6 + 7.3.7 ÷ # of operable channels.

Step 7.3.5 _____+ step 7.3.6 _____ + step 7.3.7 _____ = Total _____ psig

Total _____ psig ÷ # of operable channels _____ = Average pressure _____

7.6 *Determine the FLOW LIMIT from Figure 1 based on the differential pressure between average pressurizer pressure and charging header pressure.

7.6.1 Determine ΔP as follows.

CHG HDR PRESS step 7.3.4 - Average PRZR Pressure value step 7.5.2 = ΔP

Step 7.3.4 _____ - Step 7.5.2 _____ = _____ psid

_____ Initial

7.6.2 FLOW LIMIT from FIGURE 1(Based on the ΔP determined in step 7.6.1).

FLOW LIMIT from FIGURE 1 _____ gpm

_____ Initial

ACCEPTANCE CRITERIA

Total Flow within limits of Figure 1 with SEAL WTR INJECTION HIK 186 fully open.

Flow is ≥ 6.7 gpm through each line.

NOTE

The surveillance can be recorded as satisfactory even if acceptance criteria not satisfied at step 5.6, providing acceptance criteria satisfied following adjustment per Appendix 1.

7.7 Return to step 5.8 in the body of the procedure.

_____ Initial

A.3 Conduct of operations ADMIN SRO + RO

TITLE: **Determine Access Personnel Exposure**
EVALUATION LOCATION: __X__ CLASS ROOM
PROJECTED TIME: __30 MIN__ SIMULATOR IC NUMBER: __N/A__
ALTERNATE PATH ___ TIME CRITICAL ___ PRA_____

JPM DIRECTIONS:

1. Initiation of task may be in group setting, evaluation performed individually upon completion.
2. Provide student with HANDOUT and calculator.
3. Allow time to review data.

TASK STANDARD: Upon successful completion of this JPM, the examinee will:

- Determine the best route to minimize exposure and recognize workers current limit will not allow either route.

Examinee:
Overall JPM Performance: Satisfactory ☐ Unsatisfactory ☐
Evaluator Comments (attach additional sheets if necessary)

EXAMINER: _____

Developer	Aaron Forsha	Date: 2/13/2013
NRC Approval	SEE NUREG 1021 FORM ES-301-3	

CONDITIONS

This is pre-job brief: When I tell you to begin, you are to determine which route allows the lowest exposure and if total personnel exposure for a containment entry and valve operation is acceptable without exceeding your dose limits.

a. Unit 1 is shutdown and the crew is attempting to place a system in service, but they are unable to remotely open a valve.
b. You have been tasked with **entering containment alone, manually opening the valve and then returning to your work location**.
c. Your allowable dose limit is 18 mrem.
d. Health Physics personnel are currently unavailable to provide calculation assistance.
e. Two routes are available to the valve:

- Route 1 consists of two segments.
  Segment 1 has you walk through a 40 mrem/hr general field for 3 minutes.
  Segment 2 has you walk through a 60 mrem/hr general field to the valve for 5 minutes.
  Total time to reach valve is 8 minutes.

- Route 2 consists of two segments.
  Segment 1 has you walk through a 10 mrem/hr general field for 6 minutes.
  Segment 2 has you walk through a 60 mrem/hr general field to the valve for 5 minutes.
  Total time to reach valve is 11 minutes.

- Manual operation of the valve is in a 120 mrem/hr field and you should be able to open the valve in 5 minutes.

- For each routes evaluation use the same route for leaving containment.

You task is to:
1. Determine the best route to minimize total exposure.
2. Determine if containment entry and valve operation is acceptable without exceeding your dose limits.
3. Complete answer table below.

INITIATING **CUE**: "You may begin."

EVALUATION CHECKLIST

ELEMENTS:	STANDARDS:	RESULTS: (CIRCLE)
_____ START TIME		
NOTE: The applicant can perform the calculations in any order.		
1. Calculate exposure at valve	120 mrem/hr* 1hr/60 min * 5 min = 10 mrem	S / U

EVALUATION CHECKLIST

ELEMENTS:	STANDARDS:	RESULTS: (CIRCLE)
2. Calculate exposure from using Route 1	Segment 1 40 mrem/hr * 1hr/60 min * 3 min * 2 = 4 mrem Segment 2 60 mrem/hr * 1hr/60 min * 5 min * 2 = 10 mrem Total Dose 4 + 10 + 10 =24 mrem	S / U
3. Calculate exposure from using Route 2	Segment 1 10 mrem/hr * 1hr/60 min * 6 min * 2 = 2 mr Segment 2 60 mrem/hr * 1hr/60 min * 5 min * 2 = 10 mr Total Dose 2 + 10 + 10 =22 mrem	S / U
*4. Determine the lowest exposure path	Compared results of calculations and determined that: **Route 2 to be the lowest exposure.**	S / U
*5. Compare calculated exposure to margin	Compared exposure to margin and determined: **NOT acceptable be made within allowable margin of 18 mrem.**	S / U

_____ STOP TIME

Terminate JPM when it is determined that no success path exists without exceeding dose margin limits.

CRITICAL ELEMENTS: Critical Elements are denoted with an asterisk (*) before the element number.

GENERAL REFERENCES:

1. GEN-004 Radiation Worker Training/Retraining
2. KA 2.3.4 RO 3.2 SRO 3.7

GENERAL TOOLS AND EQUIPMENT:

Provide: Calculator

Critical ELEMENT justification:

STEP **Evaluation**

1. **Not critical:** This is common to both paths.
2. **Not critical:** Calculation only.
3. **Not critical:** Calculation only.
4. **Critical:** Answer is the assigned task.
5. **Critical:** Answer is the assigned task.

COMMENTS:

KEY

Solution Matrix	Circle One	
Best route to minimize exposure is:	Route 1	Route 2
Acceptable to perform this task:	Yes	No

HANDOUT

CONDITIONS

This is pre-job brief: When I tell you to begin, you are to determine which route allows the lowest exposure and if total personnel exposure for a containment entry and valve operation is acceptable without exceeding your dose limits.

a. Unit 1 is shutdown and the crew is attempting to place a system in service, but they are unable to remotely open a valve.
b. You have been tasked with **entering containment alone, manually opening the valve and then returning to your work location**.
c. Your allowable dose limit is 18 mrem.
d. Health Physics personnel are currently unavailable to provide calculation assistance.
e. Two routes are available to the valve:

- Route 1 consists of two segments.
  Segment 1 has you walk through a 40 mrem/hr general field for 3 minutes.
  Segment 2 has you walk through a 60 mrem/hr general field to the valve for 5 minutes.
  Total time to reach valve is 8 minutes.

- Route 2 consists of two segments.
  Segment 1 has you walk through a 10 mrem/hr general field for 6 minutes.
  Segment 2 has you walk through a 60 mrem/hr general field to the valve for 5 minutes.
  Total time to reach valve is 11 minutes.

- Manual operation of the valve is in a 120 mrem/hr field and you should be able to open the valve in 5 minutes.

- For each routes evaluation use the same route for leaving containment.

You task is to:
1. Determine the best route to minimize total exposure.
2. Determine if containment entry and valve operation is acceptable without exceeding your dose limits.
3. Complete answer table below.

Circle your answer below

Best route to minimize exposure is:	**Route 1**	**Route 2**
Acceptable to perform containment entry and valve operation:	**Yes**	**No**

A.4 Admin SRO only - Emergency Plan

TITLE: **Classify an Emergency Event per NMP-EP-110, Emergency Classification Determination and Initial Action, and complete Checklist 1, Classification Determination.**

EVALUATION LOCATION: __X__ CLASS ROOM

PROJECTED TIME: __25 MIN__ SIMULATOR IC NUMBER: __N/A__

ALTERNATE PATH ___ TIME CRITICAL __X__ PRA___

THIS JPM IS TIME CRITICAL

JPM DIRECTIONS:

1. This task can be conducted individually or in a group setting in which all the necessary references are available.
2. Provide the candidate the HANDOUT page and a copy of Checklist 1, Classification Determination, to allow for familiarization with the task for the event in progress.
3. Allow the candidate time to review and understand the task.
4. Then, provide the candidate a copy of the procedure NMP-EP-110, NMP-EP-110-GL001, and EAL Boards and direct the candidate to begin; This starts the time critical time.
5. When the candidate indicates that he has completed his task, record the time of completion. This ends the TIME CRITICAL portion of the task.
6. Upon completion of EP-110, Checklist 1, provide a copy of EP-111, Figure 1 and give the instructions of step 2 of the task to complete EP-111, Figure 1, steps 10 and 11.
7. Ensure a clock is in the room in which this task will be conducted.

CAUTION: A KEY (2 pages) is included and precedes the student handout.

TASK STANDARD: Upon successful completion of this JPM, the examinee will:

- Correctly assess the Classification and correctly fill out EP-110, Checklist 1; which includes line 5; Name, Date and Time. The time is required to be within 15 minutes of the Start Time.
- Correctly assess the type of declaration and affected Unit and correctly fill out EP-111, Figure 1, steps 10 & 11.

Examinee:		
Overall JPM Performance:	**Satisfactory** ☐	**Unsatisfactory** ☐
Evaluator Comments (attach additional sheets if necessary)		

EXAMINER: _____

Developer	Aaron Forsha	Date: 2/6/2012
NRC Approval	SEE NUREG 1021 FORM ES-301-3	

CONDITIONS

When I tell you to begin, you are to Classify an Emergency Event per NMP-EP-110, Emergency Classification Determination and Initial Action, and complete Checklist 1, Classification Determination.

The conditions under which this task is to be performed are:

a. FNP-0-AOP-49 IMMINENT SECURITY THREAT has been entered due to a confirmed attack at the AL- 95 main gate.

b. **Unit 1** was tripped from 70% power. ESP-0.1 and AOP-2.0 are in progress due to a 20 gpm SG tube leak.

c. **Unit 1** indications are as follows:
   • R-15A, SJAE EXH, is in alarm and is reading 1 x 10^6 cpm.
   • R-15C, Condenser Air Ejector (High Range) is reading 0.070 R/hr.

d. **Unit 2** was tripped from 100% power. Entry conditions for FRP-H.1 have been met and FRP-H.1 actions are in progress.

e. The current MET Tower data is as follows:
   - Wind Direction from 125 degrees.
   - Wind Speed 4.5 mph.
   - Precipitation none.
   - Stability Class E.

NOTE: The classification should NOT be based on ED discretion

Your task is to classify the event, fill out NMP-EP-110, Checklist 1, Classification Determination Form, through step 6.

This task has TIME CRITICAL elements.

Upon completion, report to the proctor that you have finished.

INITIATING **CUE**: "You may begin, Place the **TIME** in the **START CRITICAL TIME** space."

Part 2 – administer this portion of the JPM after completion of the above task.

JPM DIRECTIONS:

1. Provide student with **Part 2 HANDOUT** and page (1 of 2) NMP-EP-111 Figure 1.

CONDITIONS

Based on your previously provided conditions, complete items 10 and 11 of NMP-EP-111, Figure 1, Emergency Notification Form (page 1 of 2). This task is NOT TIME CRITICAL.

Ensure the CANDIDATE places the START TIME on the HANDOUT SHEET. Put that same time in the START CRITICAL TIME block below.

EVALUATION CHECKLIST

	ELEMENTS:	STANDARDS:	RESULTS: (CIRCLE)
	_____ START CRITICAL TIME		
	1. Applicant completes Steps 1, 2, and 3 of Checklist 1 by providing all of the following information (see answer key).	• Fuel Cladding Integrity: *POTENTIAL LOSS* • Reactor Coolant System: *POTENTIAL LOSS* • Containment Integrity: *INTACT* • Highest applicable fission product barrier Initiating Condition: *FS1*	S / U
*	**2.** Applicant completes Steps 4 and 5 of Checklist 1 by providing all of the following critical information (see answer key) and provides the completed Checklist 1 to the proctor **within 15 minutes.**	• Highest applicable IC/EAL: *FS1* • Classification: *Site Area – FS1* • Name of Applicant, date, and current time **Met data is not critical since it is not required to be added to the form for an initial** • Meteorological Data: *125°F, 4.5 mph, E, none*	S / U
	_____ STOP CRITICAL TIME		
	Part 2 – administer this portion of the JPM after completion of the above task.		
*	**3.** After the applicant has turned in his/her completed Checklist 1, provide a copy of NMP-EP-111, Figure 1, Emergency Notification Form, Page 1 of 2 and ask the applicant to complete items 10 & 11.	• Step 10. Declaration Time: *From classification form* • Step 11. Affected Unit: *Box 2 – For Unit 2*	S / U
	_____ STOP TIME		

Terminate when all elements of the task have been completed.

CRITICAL ELEMENTS: Critical Elements are denoted with an asterisk (*) before the element number.

GENERAL REFERENCES:

1. NMP-EP-110 Version 4.0
2. NMP-EP-110-GL01, Version 2.0
3. NMP-EP-111 Version 7.1
4. KA: G2.4.41 SRO (4.6)

GENERAL TOOLS AND EQUIPMENT:

NMP-EP-110
NMP-EP-110-GL01
NMP-EP-111

Critical ELEMENT justification:

STEP	**Evaluation**
1.	**Not critical** since this part of the form is not required to be filled out to provide a correct classification.
2.	**Critical:** Task completion; information provided is essential for correct classification and Emergency Notification form being correctly filled out within required time.
3.	**Critical:** Task completion; information provided is essential for correct Emergency Notification form being correctly filled out.

COMMENTS:

This event has an overall classification of an ALERT, HA4, for the security event.
Unit 1 is in an ALERT, RA1.
Unit 2 is in a higher classification.

Filling out EP-111, figure 1, items 10 and 11 is appropriate since these are high miss issues and tests the applicant's ability to find the correct instructions for these blocks and follow those directions correctly.

KEY part 1

Checklist 1 – Classification Determination (page 1 of 1)

NOTE

Key Parameters should be allowed to stabilize to accurately represent plant conditions prior to classifying an event.

Initial Actions Completed by

1. **Determine** the appropriate Initiating Condition Matrix for classification of the event based on the current operating mode: AF

   X HOT IC/EAL Matrix Evaluation Chart (**GO** to Step **2)** to evaluate the Barriers)

   ☐ COLD IC/EAL Matrix Evaluation Chart (**GO** to Step **3**)

2. Evaluate the status of the fission product barrier using Figure 1, Fission Product Barrier Evaluation.

   a. Select the condition of each fission product barrier: AF

	LOSS	POTENTIAL LOSS	INTACT
Fuel Cladding Integrity	☐	X	☐
Reactor Coolant System	☐	X	☐
Containment Integrity	☐	☐	X

   b. Determine the highest applicable fission product barrier Initiating Condition (IC): AF

   (select one) ☐ FG1 X FS1 ☐ FA1 ☐ FU1 ☐ None

3. **Evaluate** and **determine** the highest applicable IC/EAL using the Matrix Evaluation Chart identified in step 1 **THEN GO** to step **4**. AF

   IC# FS1 or ☐ None

4. **Check** the **highest** emergency classification level identified from either step 2b or 3: AF

Classification	**Based on IC#**	**Classification**	**Based on IC#**
☐ General		☐ Alert	
X Site-Area	FS1	☐ NOUE	
		☐ None	N/A

   Remarks (Identify the specific EAL, as needed):

5. **Declare** the event by approving the Emergency Classification. AF

   Candidate Signature Date: Date/ / Time: Time
   Emergency Director

6. **Obtain** Meteorological Data (not required prior to event declaration): AF

   Wind Direction (from) **125** Wind Speed **4.5** Stability Class **E** Precipitation **none**

7. **Initiate** Checklist 2, Emergency Plan Initiation.

KEY part 2

Figure 1 – Emergency Notification Form (page 1 of 2)

1. [A] DRILL [B] ACTUAL EVENT MESSAGE # _____
2. [A] INITIAL [B] FOLLOW-UP NOTIFICATION: TIME_____DATE_____/_____/__ AUTHENTICATION #_____
3. SITE: _____ Confirmation Phone #_____

4. EMERGENCY CLASSIFICATION: [A] UNUSUAL EVENT [B] ALERT [C] SITE AREA EMERGENCY [D] GENERAL EMERGENCY
BASED ON EAL# _____ EAL DESCRIPTION:_____

5. PROTECTIVE ACTION RECOMMENDATIONS: [A] NONE
   [B] EVACUATE _____
   [C] SHELTER _____
   [D] Advise Remainder of EPZ to Monitor Local Radio/TV Stations/Tone Alert Radios for Additional Information and Consider the use of KI (potassium iodide) in accordance with State plans and policy.
   [E] OTHER_____

6. EMERGENCY RELEASE: [A] None [B] Is Occurring [C] Has Occurred

7. RELEASE SIGNIFICANCE: [A] Not applicable [B] Within normal operating limits [C] Above normal operating limits [D] Under evaluation

8. EVENT PROGNOSIS: [A] Improving [B] Stable [C] Degrading

9. METEOROLOGICAL DATA: Wind Direction from _____ degrees* Wind Speed _____mph*

(*May not be available for Initial Notifications)* Precipitation _____* Stability Class* [A] [B] [C] [D] [E] [F] [G]

10. [X] DECLARATION [B] TERMINATION Time __ LINE 5 EP-110 Form_ Date __LINE 5 EP-110 Form

11. AFFECTED UNIT(S): [1] [X] [All]

12. UNIT STATUS: (Unaffected Unit(s) Status Not Required for Initial Notifications)
[A] U1 _____% Power Shutdown at Time _____ Date ___/_____/____
[B] U2 _____% Power Shutdown at Time _____ Date ___/_____/____

13. REMARKS:_____

FOLLOW-UP INFORMATION (Lines 14 through 16 Not Required for Initial Notifications)

EMERGENCY RELEASE DATA NOT REQUIRED IF LINE 6 A IS SELECTED.

14. RELEASE CHARACTERIZATION: TYPE: [A] Elevated [B] Mixed [C] Ground UNITS: [A] Ci [B] Ci/sec [C] µCi/sec

MAGNITUDE: Noble Gases:_____ Iodines:_____ Particulates:_____ Other: _____

FORM: [A] Airborne Start Time _____ Date ___/_____/____Stop Time _____ Date ___/_____/____
[B] Liquid Start Time _____ Date ___/_____/____Stop Time _____ Date ___/_____/____

15. PROJECTION PARAMETERS: Projection period: _____Hours Estimated Release Duration _____Hours
Projection performed: Time _____ Date ___/_____/____ Accident Type: _____

16. PROJECTED DOSE:

DISTANCE	TEDE (mrem)	Adult Thyroid CDE (mrem)
Site boundary		
2 Miles		
5 Miles		
10 Miles		

17. APPROVED BY: _____ Title_____ Time _____Date___/_____/____

NOTIFIED BY: _____

RECEIVED BY: _____ Time _____Date___/_____/____
(To be completed by receiving organization)

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Part 2

HANDOUT

CONDITIONS

Based on your previously provided conditions, complete items 10 and 11 of NMP-EP-111, Figure 1, Emergency Notification Form (page 1 of 2). This task is NOT TIME CRITICAL.

Figure 1 – Emergency Notification Form (page 1 of 2)

1. [A] DRILL [B] ACTUAL EVENT MESSAGE # _____
2. [A] INITIAL [B] FOLLOW-UP NOTIFICATION: TIME_____DATE_____/_____/__ AUTHENTICATION #_____
3. SITE: _____ Confirmation Phone #_____

4. EMERGENCY CLASSIFICATION: [A] UNUSUAL EVENT [B] ALERT [C] SITE AREA EMERGENCY [D] GENERAL EMERGENCY
BASED ON EAL# _____ EAL DESCRIPTION:_____

5. PROTECTIVE ACTION RECOMMENDATIONS: [A] NONE
[B] EVACUATE _____
[C] SHELTER _____
[D] Advise Remainder of EPZ to Monitor Local Radio/TV Stations/Tone Alert Radios for Additional Information and Consider the use of KI (potassium iodide) in accordance with State plans and policy.
[E] OTHER_____

6. EMERGENCY RELEASE: [A] None [B] Is Occurring [C] Has Occurred

7. RELEASE SIGNIFICANCE: [A] Not applicable [B] Within normal operating limits [C] Above normal operating limits [D] Under evaluation

8. EVENT PROGNOSIS: [A] Improving [B] Stable [C] Degrading

9. METEOROLOGICAL DATA: Wind Direction from _____ degrees* Wind Speed _____mph*

(*May not be available for Initial Notifications)* Precipitation _____* Stability Class* [A] [B] [C] [D] [E] [F] [G]

10. [A] DECLARATION [B] TERMINATION Time _____ Date _____/_____/_____

11. AFFECTED UNIT(S): [1] [2] [All]

12. UNIT STATUS: (Unaffected Unit(s) Status Not Required for Initial Notifications)
[A] U1 _____% Power Shutdown at Time _____ Date ___/_____/____
[B] U2 _____% Power Shutdown at Time _____ Date ___/_____/____

13. REMARKS:_____

FOLLOW-UP INFORMATION (Lines 14 through 16 Not Required for Initial Notifications)

EMERGENCY RELEASE DATA NOT REQUIRED IF LINE 6 A IS SELECTED.

14. RELEASE CHARACTERIZATION: TYPE: [A] Elevated [B] Mixed [C] Ground UNITS: [A] Ci [B] Ci/sec [C] µCi/sec

MAGNITUDE: Noble Gases:_____ Iodines:_____ Particulates:_____ Other: _____

FORM: [A] Airborne Start Time _____ Date ___/_____/____Stop Time _____ Date ___/_____/____
[B] Liquid Start Time _____ Date ___/_____/____Stop Time _____ Date ___/_____/____

15. PROJECTION PARAMETERS: Projection period: _____Hours Estimated Release Duration _____Hours
Projection performed: Time _____ Date ___/_____/____ Accident Type: _____

16. PROJECTED DOSE:

DISTANCE	TEDE (mrem)	Adult Thyroid CDE (mrem)
Site boundary		
2 Miles		
5 Miles		
10 Miles		

17. APPROVED BY: _____ Title_____ Time _____Date___/_____/____

NOTIFIED BY: _____

RECEIVED BY: _____ Time _____Date___/_____/____
(To be completed by receiving organization)

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HANDOUT

CONDITIONS

When I tell you to begin, you are to **Classify an Emergency Event per NMP-EP-110, Emergency Classification Determination and Initial Action, and complete Checklist 1, Classification Determination.**

The conditions under which this task is to be performed are:

a. FNP-0-AOP-49 has been entered due to a confirmed attack at the AL- 95 main gate.

b. **Unit 1** was tripped from 70% power. ESP-0.1 and AOP-2.0 are in progress due to a 20 gpm SG tube leak.

c. **Unit 1** indications are as follows:
   • R-15A, SJAE EXH, is in alarm and is reading 1 x 10^6 cpm.
   • R-15C, Condenser Air Ejector (High Range) is reading 0.070 R/hr.

d. **Unit 2** was tripped from 100% power. Entry conditions for FRP-H.1 have been met and FRP-H.1 actions are in progress.

e. The current MET Tower data is as follows:
   - Wind Direction from 125 degrees.
   - Wind Speed 4.5 mph.
   - Precipitation none.
   - Stability Class E.

NOTE: The classification should NOT be based on ED discretion

Your task is to classify the event, fill out NMP-EP-110, Checklist 1, Classification Determination Form, through step 6.

This task has TIME CRITICAL elements.

Upon completion, report to the proctor that you have finished.

_____ START TIME

Checklist 1 – Classification Determination (page 1 of 1)

NOTE

Key Parameters should be allowed to stabilize to accurately represent plant conditions prior to classifying an event.

Initial Actions Completed by

1. **Determine** the appropriate Initiating Condition Matrix for classification of the event based on the current operating mode: _____
   - ☐ HOT IC/EAL Matrix Evaluation Chart (**GO** to Step **2)** to evaluate the Barriers)
   - ☐ COLD IC/EAL Matrix Evaluation Chart (**GO** to Step **3**)
2. Evaluate the status of the fission product barrier using Figure 1, Fission Product Barrier Evaluation.

   a. Select the condition of each fission product barrier: _____

	LOSS	POTENTIAL LOSS	INTACT
Fuel Cladding Integrity	☐	☐	☐
Reactor Coolant System	☐	☐	☐
Containment Integrity	☐	☐	☐

   b. Determine the highest applicable fission product barrier Initiating Condition (IC): _____

   (select one) ☐ FG1 ☐ FS1 ☐ FA1 ☐ FU1 ☐ None

3. **Evaluate** and **determine** the highest applicable IC/EAL using the Matrix Evaluation Chart identified in step 1 **THEN GO** to step **4**. _____

   IC#_____or ☐ None

4. **Check** the **highest** emergency classification level identified from either step 2b or 3: _____

Classification	Based on IC#	Classification	Based on IC#
☐ General		☐ Alert	
☐ Site-Area		☐ NOUE	
		☐ None	N/A

Remarks (Identify the specific EAL, as needed):_____

5. **Declare** the event by approving the Emergency Classification. _____

_____Date: ____/____/____Time: _____

Emergency Director

6. **Obtain** Meteorological Data (not required prior to event declaration): _____

Wind Direction (from)___ Wind Speed____ Stability Class___ Precipitation_____

7. **Initiate** Checklist 2, Emergency Plan Initiation. _____