

## Final Submittal

### **NORTH ANNA JUNE EXAM 50-338 & 50-339/2004-301**

**JUNE 17 - 25, 2004**

1. Administrative Questions/JPMs
2. In-plant JPMs
3. Control Room JPMs (simulator JPMs)

*PART OF 2*

## FINAL CHANGES

1/m;

- 1.Changed initial conditions
- 2.Changed initiating cues
- 3.Corrected typos in steps 2 and 3

Leakrate;

- 1.Procedure revision came out that changed attachment numbers from 3 and 5 to 2 and 4. Changed all references to these attachments and filled in new answer key attached to JPM. IT **DID NOT CHANGE CONTENT OR METHOD OF COMPLETION.**
2. Changed Tave from 580.8 to 580.7 in plant data under 1900. It was a typo.
- 3.Deleted reference to 4 decimal places.
- 4.Added negative sign to (d). It was typo.

Stay Time;

- 1.Added the word maximum to the initiating cue
- 2.Deleted tolerance for stay time located in note on step 2.

Work Request:

- 1.Changed wording in initiating cue per your direction
- 2.Added comment on step 3 that breaker numbers were not required

State Notification;

- 1.Added statement of time criticality to front of JPM
- 2.Deleted requirement for completed copy of attachment 2
- 3.Change initial conditions
- 4.Added the word initial to state and local notifications in initiating cues.
- 5.Changed step 6 to read items 4 through 8.
- 6.Added comment to step 7
- 7.Step 11 a report will be issued instead **of** not issued
- 8.Clarified stopping point in step 13.

Classify:

- 1.Made sign off documentation for each of the 3 scenarios.

## **Adm. JPM Index**

- Tab 13 Perform A 1/M Plot And Evaluate For Continued Approach To Criticality.
- Tab 14 Perform A Reactor Coolant System Leakrate Hand Calculation
- Tab 15 Determine **Stay** Time And Dressout Requirements For A Given Task
- Tab 16 Review And Approve A Work Request For Work Under An Existing Tagout.
- Tab 17 Make State And Local Notifications In Accordance With EPIP 2.01, "Report **Of** Emergency To State and Local Governments."
- Tab 18 Qassify Per EPIP 1.01, "Emergency Manager Controlling Procedure."

**NORTH ANNA POWER STATION  
INITIAL LICENSE EXAMINATION  
ADMINISTRATIVE  
JOB PERFORMANCE MEASURE**

**ADMIN JPM**

Perform A 1/M Plot And Evaluate For Continued Approach  
To Criticality.

CANDIDATE

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EXAMINER

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**NORTH ANNA POWER STATION  
INITIAL LICENSE EXAMINATION  
ADMINISTRATIVE  
JOB PERFORMANCE MEASURE**

**Task**

Perform a 1/M plot in accordance with Attachment 7 of 1-OP-1.5, " UNIT STARTUP FROM MODE 3 TO MODE 2 " and evaluate for continued approach to criticality. Validation time 32 mins.

**References:**

1-OP-1.5, " UNIT STARTUP FROM MODE 3 TO MODE 2. "  
Attachment 7 of 1-OP-1.5, " UNIT STARTUP FROM MODE 3 TO MODE 2. "

=====

**Candidate:** \_\_\_\_\_  
NAME

**Performance Rating:** SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

**Examiner:** \_\_\_\_\_  
NAME SIGNATURE DATE

**COMMENTS**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Tools/Equipment/Procedures Needed:

1-OP-1.5, " UNIT STARTUP FROM MQDE 3 TO MODE 2. "  
Calculator  
Straight edge

REAR TO OPERATOR

DIRECTION TO TRAINEE:

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

INITIAL CONDITIONS:

Unit-1 is in Mode 3 in the process of a reactor startup

The following data has been taken:

TIME	ROD HEIGHT	N-31	N-32	N-35	N-36
0800	B100	50	70	$2 \times 10^{-11}$	$3 \times 10^{-11}$
0808	D60	100	140	$2 \times 10^{-11}$	$4 \times 10^{-11}$
0814	D160	250	300	$3 \times 10^{-11}$	$6 \times 10^{-11}$
0824	D180	525	600	$6 \times 10^{-11}$	$9 \times 10^{-11}$

1-OP-1.5 has been completed to the point of reactor startup.

INITIATING CUES:

You are requested to perform a **1/M plot** using the information provided. At the end of the third **doubling**, list the predicted rod height for criticality on your handout sheet. Based on your predictions, what further actions are required?

<p><b><u>STEP 1:</u></b> Obtain a copy of the appropriate procedure.</p> <p><b><u>STANDARD:</u></b> Operator obtains a partially-completed copy of 1-OP-1.5, " UNIT STARTUP FROM MODE 3 TO <b>MODE 2.</b> "</p> <p><b><u>COMMENTS:</u></b></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><b><u>STEP 2</u></b> Calculate and then plot the first doubling. (attach. 7)</p> <p><b><u>STANDARD:</u></b> Operator uses data provided in initial conditions to fill in Attachment 7. The second <math>1/m</math> plots are calculated. .5 for the source range and .75 for the intermediate range. Points are then plotted on the line corresponding to D Bank at 60 steps.</p> <p><b><u>COMMENTS:</u></b></p> <p><b><u>NOTES:</u></b> Operator may fill in all the data from initial conditions at this time or as each doubling is calculated. Either way is permissible.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><b><u>STEP 3</u></b> Calculate and plot the second doubling. (attach. 7)</p> <p><b><u>STANDARD:</u></b> Operator uses data provided in initial conditions to fill in Attachment 7. The third <math>1/m</math> plots are calculated. .233 for the source range and .5 for the intermediate range. Points are then plotted on the line corresponding to D Bank at 160 steps.</p> <p><b><u>COMMENTS:</u></b></p>	<p>___ SAT</p> <p>___ UNSAT</p>

***\*\*Italicized Cues Are To Be Used Only If JPM Performance Is Being Simulated.***

<p><b>STEP 4:</b> Calculate and plot the third doubling. (attach. 7)</p> <p><b>STANDARD:</b> Operator uses data provided in initial conditions to fill in Attachment 7. The third 1/m plots are calculated. .116 for the source range and .33 for the intermediate range. Points are then plotted on the line corresponding to D Bank at 180 steps.</p> <p><b>COMMENTS:</b></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><b>STEP 5:</b> List predicted rod height for criticality and evaluate 1/M plot for continued approach to criticality. List basis for your answer on handout sheet.</p> <p><b>STANDARD:</b> Predicted criticality for rod height is SR 202 steps; @ 2. Operator recognizes need to discontinue startup and insert the control rods. This is based on the reactor going critical above the upper limit.</p> <p><b>COMMENTS:</b> Tolerance for rod height is plus or minus 5 steps. <b>This is a critical step.</b></p> <p><b>NOTES:</b> This can be done using guidance in the body of 1-QP-1.5. It can also be done by performing attachment 3. Either way is acceptable.</p> <p><b>END OF TASK</b></p>	<p>___ SAT</p> <p>___ UNSAT</p>

***\*\*Italicized Cues Are To Be Used Only If JPM Performance Is Being Simulated.***



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

**INITIAL CONDITIONS:**

Unit-1 is in Mode 3 in the process of a reactor startup.

The following data has been taken:

TIME	ROD HEIGHT	N-31	N-32	N-35	N-36
0800	B100	50	70	$2 \times 10^{-11}$	$3 \times 10^{-11}$
0808	D60	100	140	$2 \times 10^{-11}$	$4 \times 10^{-11}$
0814	D160	250	300	$3 \times 10^{-11}$	$6 \times 10^{-11}$
0824	D180	525	600	$6 \times 10^{-11}$	$9 \times 10^{-11}$

1-0P-I.5 has been completed to the point of reactor startup.

**INITIATING CUES:**

You are requested to perform a  $1/M$  plot using the information provided. At the end of the third doubling, list the predicted rod height for criticality on your handout sheet. Based on your predictions, what further actions are required?



## NORTH ANNA POWER STATION

PROCEDURE NO:

PROCEDURE NO: **POP-1.5**REVISION NO: **POP-1.5**REVISION NO: **60**

PROCEDURE TYPE:

**OPERATING PROCEDURE**

UNIT NO:

**1**

PROCEDURE TITLE:

**UNIT STARTUP FROM MODE 3 TO MODE 2****SURV  
REQ****ICCE  
II****EOP  
AP****REACT  
MGT**

REVISION SUMMARY:

Converted to FrameMaker using template 030.

- Incorporated DCP 01-007, Phase 2 PCS Installation and P-250 Removal - Unit 1:
  - Added DCP to references as Step 2.3.17.
  - Added new conditional lead-in Step 5.35.1 and moved existing Steps 5.35.1, 5.35.2, and 5.35.3 to substeps of new Step 5.35.1 for P-250 computer removal.

PROBLEMS ENCOUNTERED: ☐ NO☐ YES**Note:** If YES, note problems in remarks.

REMARKS: \_\_\_\_\_

(Use **back** for additional remarks.)

SHIFT SUPERVISOR: \_\_\_\_\_

DATE: \_\_\_\_\_

## TABLE OF CONTENTS

Section	Page
1.0 PURPOSE	3
2.0 REFERENCES	8
3.0 INITIAL CONDITIONS	12
4.0 PRECAUTIONS AND LIMITATIONS	15
5.0 INSTRUCTIONS	18
ATTACHMENTS	
1 Secondary Brains Level Control Valve Operability Checklist	37
2 Criticality Imminent Below The ECP Lower Limit	42
3 Criticality Not Achieved Below The ECP Upper Limit	43
4 Deenergizing Source Range NI Detectors	44
5 Reactor Startup Data Sheet	46
6 Setting K0839 To 400 On Unit 1 PCS	47
7 1/M Plot	48

## 1.0 PURPOSE

To provide instructions for directing Unit startup from Hot Standby with  $K_{eff}$  less than 0.99 and  $T_{ave}$  at 547° F (Mode 3) to Startup with  $K_{eff}$  of at least 0.99,  $T_{ave}$  at 547° F, and the Reactor Critical at 5 percent power or less (Mode 2).

The following synopsis is designed as an aid to understanding the procedure, and is not intended to alter or take the place of the actual purpose, instructions, or text of the procedure itself.

**This** procedure **starts** up the Reactor. It ensures a safe evolution by ensuring that the startup **is performed** in a controlled manner and that criticality occurs within the projected ECP band and above the Insertion Limit. It raises Reactor power through the Point of Adding Heat to a stable point at or below 5 percent power.

The Point of Adding Heat (POAH) is achieved at approximately  $2 \times 10^{-6}$  amps on the Intermediate Range detectors. **As** power exceeds the POAH, the RCS will heat up causing **an** increase in secondary plant heat load. Steam dumps **will** need to be opened to control **SG** pressure. Startup rate should be low during approach to POAH (ideally **0.1** to 0.2 dpm.) Below the POAH, Control Rods and changes in Boron concentration control Reactor power. Above the POAH, steam demand controls Reactor power and Control Rods and changes in Boron concentration control RCS temperature. The following are indications of POAH:

- **RCS** temperature increases
- **SG** pressure increases
- **PRZR** level increases
- Steam Dump demand present
- Power Range **NI** indication coming on scale

The Steam Dumps must be in Steam **Pressure** Mode because there **is** no signal from  $T_{ref}$  available at this point. The Steam Dumps or **SG** PORVs **must** be operable to remove heat that will be produced when the reactor power level **is** above the Point of Adding Heat.

Steam Generators must be at normal operating levels because the SGs must be available as a heat ~~sink~~ when the reactor is started up.

Applicable steps of 1-OP-IC must be performed so that the ESTIMATED CRITICAL POSITION is known to allow a safe reactor startup.

The NI Periodic Test **must** have been performed to ensure that the NIs will indicate reactor power properly as power is increased.

Approval from Station Management is required before any reactor startup. Reactor Engineering must concur with any startup made under abnormal conditions, such as during coastdown. The specific requirements can be found in VPAP-1404, Reactor Control.

Tech Spec 3.4.4 requires that in Modes 1 or 2 all three RCS loops are in operation. Tech Spec 3.4.17 requires that in Mode 1, 2, 3 or 4 each RCS hot and cold leg isolation valve is open with power removed from each operator.

The Pre Job Brief is done to ensure that all participants in the startup are anticipating the events to occur during the startup and are familiar with the sequence and contingencies associated with the **startup**.

The Control Rod Fully Withdrawn position is no longer **228** steps necessarily; this is to allow the rods to **be** parked at different heights on different cycles to even out wear on the Control Rods. **As** a Reactor Safety concern, criticality should **be** anticipated at any time whenever positive reactivity is occurring. **This** reactivity addition can be as a result **of** pulling rods, diluting, or cooling down the RCS by any number of methods **such** as feeding SGs or increasing steam flow. **The** positive reactivity additions should be made cautiously to allow the operator time to respond to power changes.

If the rods have ~~k e n~~ withdrawn and criticality has not ~~been~~ achieved in **8** hours, then a Shutdown Margin calculation is necessary to ensure that the shutdown margin has not been lost by dilution, ~~Xenon~~ burnup and decay or other reasons.

CRDM cooling air is required when the RCS ~~is~~ above 350°F because the heat from the RCS will be conducted into the CRDM. **This** heat must be removed to prevent thermal damage to the CRDMs.

Below 50 percent power the tolerance for the difference between the IRPI and Group Step Counter is 24 steps instead of 12; **this** gives the operator more flexibility during the power escalation. During the power escalation, changing RCS temperature causes the IRPIs to **drift**. The IRPIs must be adjusted by the INST Department when **this** occurs and the power escalation temporarily suspended.

**The** basis for maintaining control rods above their insertion limit is to ensure that an adequate Shutdown Margin **is** maintained.

The Reactor Trip system instrumentation channels must be operable to ensure that a reactor trip will be initiated if any reactor trip setpoint is exceeded. Source and Intermediate Range Nuclear Instrumentation channels must be operable to monitor reactor power. These are verified prior to placing the first Rod Control MG set in operation; with no MG set in operation, control rod withdrawal is not possible.

Auxiliary Feedwater must be operable to ensure that the RCS can be cooled down to where RHR can be placed in service in the event of a **loss** of Offsite power.

The test of the MSTVs MSTV B/P valves and the MS NRVs (PT-212.9) is done while there is minimal heat production and **steam** flow because the **MSTVs** won't open against a  $\Delta P$  and the MS system is used **for** heat removal.

The Turbine Stop Valve and Auto Stop Oil Turbine Trip signals **are** verified as a good practice in **this** procedure. Channel operational tests on the Low Auto Stop Oil Pressure turbine trip initiation of a reactor trip required by Tech Spec. **3.3.1**, Table **3.3.1-1**, Item **16** are done by the performance of **1-OP-15.1**, with verification **of** operable status lights after the turbine was tripped in that procedure.

The MSRs are aligned for startup to verify that they don't put a large steam demand on the plant through the 1 inch warm-up lines. This can cause a **AP** across the MS NRVs and TVs; if they **are** cycled a **SG** swell transient would occur.

Secondary Drain level control operability checklist **is** performed to assist the operators in preparing the secondary plant for startup. In the past, a turbine trip occurred as a result of a 5th PT FW heater Hi-Hi level which happened because the air was isolated to the level control valves.

In preparation for the reactor startup the Reactor Trip Breakers are tested, an MG set must be placed in service and the reactor trip breakers closed. Prior to closing the Reactor Trip Breakers and making rods capable of withdrawal, the Reactor Trip Instrumentation must be verified operable in accordance with Tech Specs. Before control rods are moved, RCS total suspended solids must be less than their limit, to make sure that the crud in the coolant doesn't get into the CRDMs. The Chemistry Department uses CH-93.130, CHEMISTRY CONTROLS: UNIT STARTUP, to analyze the RCS and determine when rod motion is allowable.

The Shutdown Banks are withdrawn first in compliance with Tech Specs for insertion limits; the rods must be fully withdrawn in mode 1 or 2.

The estimated critical rod height is calculated so that the operator knows that the reactor will become critical above the insertion limit and so that it can be assured that the reactor is responding to the positive reactivity addition from rod withdrawal in an expected, controlled manner. A  $1/M$  plot is made to give the operators a visual change in the margin to criticality versus rod height to help ensure that the approach to criticality is controlled and proceeding as anticipated.

Contingencies are given to the operator to perform if the criticality is not occurring as projected. If criticality is projected below the insertion limit then the Tech Spec for shutdown margin is not met and a boration is performed as required by the Tech Spec action.

During control rod withdrawal, the operator closely monitors many affected parameters such as count ~~rate~~, IRPI drift, startup rate,  $T_{ave}$  and rod position. Only a licensed Operator may perform the startup. Non-licensed individuals may not perform evolutions that change reactivity in accordance with NRC requirements. At  $10^{-10}$  amps on both Intermediate Range detectors (P-6), the Source Range detectors are deenergized, blocking the Source Range high level Reactor trip, then the Intermediate Range instrumentation is **used**. The blocking of the Source Range high level trip is performed at **P-6** after ensuring both source range and intermediate range channels have at least one decade of overlap by verifying both IR channels read  $\geq 1 \times 10^{-10}$  amps and both SR channels read on scale. This may occur before or after criticality. The basis for verifying the one decade of overlap **is** to provide assurance that the instrumentation (that will be used to monitor future reactivity additions) is responding as expected and **is** well into its normal range before the presently monitored instrumentation (that **is** being used to monitor current reactivity addition) is powered down.

**If** criticality is imminent below the **ECP** lower limit or criticality is not attained at the **ECP** upper limit, the unit will be placed in a stable, shutdown condition and the Reactor Engineer notified. The data **used** in the **ECP** calculation will be reviewed or verified. If the reason criticality was not attained within the **ECP** limits is **NOT** readily apparent, contact Nuclear Analysis and Fuel for resolution. SNSOC will review the reason for not attaining criticality within the **ECP** limits, new **ECP** calculations will be performed as required, and the startup will recommence.

Once criticality is achieved, reactor power **is** raised to **and** stabilized at  $10^{-8}$  amps, so that critical data can be recorded. After the data is recorded, a check is performed to ensure blowdown of the hotwell **is** not in progress and if a second condensate pump is required. Then power **is** increased to **5** percent or less and the steam dumps control the RCS temperature.



Control bank height should be about, or below, 120 steps at 10% power. This is due *to* a strong D Bank position effect on the Intermediate Range and Power Range Detectors. **If** D Bank rods **are** at 180 steps at 10% power, the IR Detector signal **is** approximately 25% greater than when the D Bank control rods are at 120 steps. **The** IR High Power Rod Stop and High **Flux** Trip setpoints were determined by the Reactor Engineer assuming D Bank was withdrawn 120 steps or less. Maintaining the control rods at **this** height at 10% power provides a larger margin to the IR High Power Rod Stop setpoint when power **is** increased and assist in preventing an inadvertent reinstatement of the low power trip setpoints due to quadrant tilt. **If** control rods are above this height while in Mode 2, then consideration should be given to diluting to achieve **this** rod height.

Chemistry Department will determine the Primary-Secondary leakrate in Modes 1-4 by measuring the concentration of tritium or other chemicals **such** as boron or lithium. Mode 2 entry is prohibited when Primary-to-Secondary leakrate exceeds Chemistry Department administrative limits.

## 2.0 REFERENCES

### 2.1 Source Documents

2.1.1 UFSAR, Sections 6, 7, 8, 9, and 10

### 2.2 Technical Specifications

2.2.1 Tech Spec 3.1.4

2.2.2 Tech Spec 3.1.5

2.2.3 Tech Spec 3.1.6

2.2.4 Tech Spec 3.1.7

2.2.5 Tech **Spec** 3.3.1

2.2.6 Tech Spec 3.3.1, Table 3.3.1-1

2.2.7 Tech **Spec** 3.3.2

2.2.8 Tech Spec 3.3.3

2.2.9 Tech Spec 3.4.2

2.2.10 Tech Spec 3.4.4

2.2.11 Tech Spec 3.4.17

2.2.12 Tech Spec 3.7.4

2.2.13 Tech Spec 3.7.5

## 2.3 Technical References

2.3.1 STD-GN-0008, Equipment Mark Numbers

2.3.2 DCP 88-01, Changed Unit 1 annunciators

2.3.3 Westinghouse Operating Procedures

2.3.4 Westinghouse Startup Procedures

2.3.5 NAPS PLS Document

2.3.6 OPAP-0004, Logs and Operating Records

2.3.7 Operating Procedures:

- a. 1-OP-1C, Estimated Critical Position Calculation
- b. 1-OP-1.5A, Mode Change Checklist Mode 3 to Mode 2
- c. 1-OP-1.4, Unit Startup from Mode 3 to Mode 2
- d. 1-OP-2.1, Unit Startup from Mode 2 to Mode 1
- e. 1-OP-3.1, Unit Shutdown from Mode 2 to Mode 3
- f. 1-OP-8.3, Boron Concentration Control
- g. 1-OP-28.3, Operation of the Moisture Separator Reheaters
- h. 1-OP-58.1, Motor Generator Set Operation

- i. 1-OP-58.2, Rod Control System Operation
- j. 1-OP-58.4, Testing Reactor Trip Breakers
- k. 1-OP-15.1, Operation of the Main Turbine
- l. 1-BP-1.7, Unit Startup From Mode 3 to Mode 2 Following Refueling

2.3.8 Periodic Test Procedures:

- a. 1-PT-17.1, Control Rod Operability
- b. 1-PT-30.1, NIS Intermediate Range Channel Operational Test
- c. 1-PT-41.3, Safe Shutdown Equipment Control Location Verification
- d. 1-PT-212.9, Valve Inservice Inspection (Main Steam)
- e. 0-PT-92.0, Chi-square Test
- f. 1-PT-30.5, MS Source Range Channel Operational Test
- g. 1-PT-30.7.1, Power Range Low Setpoint Channel I (N-41) Channel Operational Test
- h. 1-PT-30.7.2, Power Range Low Setpoint Channel II (N-42) Channel Operational Test
- i. 1-PT-30.7.3, Power Range Low Setpoint Channel III (N-43) Channel Operational Test
- j. 1-PT-30.7.4, Power Range Low Setpoint Channel N (N-44) Channel Operational Test
- k. 1-PT-36.9, P-4 Interlock TADOT on Reactor Trip and Bypass Breakers

2.3.9 This procedure is referenced by the following emergency/abnormal procedures:

- a. 1-ES-0.1, Reactor Trip Response
- b. 1-ES-1.1, SI Termination
- c. 1-ECA-0.1, Loss of All AC Power Recovery without SI Required

d. 1-AP-1.2, Dropped Rod

2.3.10 VPAP-0108, Infrequently Conducted or Complex Tests or Evolutions

2.3.11 VPAP-1401, Conduct of Operations

2.3.12 Memorandum from R. M. Garver to M. D. Crist dated 02-09-94, AFW Testing Frequency Tech Spec Change Implementation (TS Change Request # **301**)

2.3.13 Memorandum, R.G. McAndrew - J.R. Hayes, IR Rod Stop during recent Unit 2 Startup, June 29, 1994 (**see** Revision 51 of 1-OP-2.1, Unit Startup From Mode 2 To Mode 1)

2.3.14 CH-93.130, Chemistry Controls: **Unit** Startup

2.3.15 DCP 96-005, P-250 Upgrade

2.3.16 DCP 01-005, ERF Computer System Replacement

2.3.17 **DCP** 01-007, **Phase** 2 PCS Installation and P-250 Removal - Unit 1

## 2.4 **Commitment Documents**

2.4.1 CTS Assignment 01-88-5141, Commitment 001

2.4.2 CTS Assignment 02-89-4056, Commitment 003, DR 89-1527

2.4.3 CTS Assignment 02-91-1802, Commitment 004, Revise procedures identified ~~in~~ COLR implementation Action Plan to include Tech Spec Amendment

2.4.4 CTS Assignment 02-91-0208, Commitment 002, Revise procedures to improve SG level control

2.4.5 DR N94-0084, Auto Stop Oil Reactor Trip Channel Functional Test methodology review, including memo from R. M. Garver to D. A. Heacock, dated 02-05-94 (Rev 42).

- 2.4.6 CTS Assignment 02-91-1805, Commitment 001, Tech Spec Amendment 1491133
- 2.4.7 CTS Assignment 02-91-2295, Commitment 001, Revise procedure to include recommendations of CNS Report No. 91-15-NAPS-E
- 2.4.8 SOER 91-01, Conduct of Infrequently performed Tests or Evolutions
- 2.4.9 CTS Assignment 02-92-2290, Commitment 002, Identify and revise applicable documents to maintain status control of Radiation Monitor Channel RMS-162.
- 2.4.10 CTS 02-92-2260, Item 113, Surveillance Review for TS 4.3.1.1.1, Table 4.3-1, Item 1
- 2.4.11 CTS Assignment 02-97-0200, Commitment 001, Reactor Vessel Level Dynamic Range Indication Inoperable on “ A Train Due to Procedural Error
- 2.4.12 CTS Assignment 02-96-4041, Commitment 007, implementation of TRM TR 3.1
- 2.4.13 VPAP-2201, Nuclear Plant Chemistry Program, Table 27, Primary System Chemistry-Start-up
- 2.4.14 CTS Assignment 02-99-1801-003, Tech Spec Change 290
- 2.4.15 PI N-2000-1077, Transition from Mode 2 to Mode 1

### 3.0 INITIAL CONDITIONS

- 3.1 Reactor startup using 1-OP-1.7, Unit Startup From Mode 3 to Mode 2 Following Refueling, is **NOT** desired. (1-OP-1.7 is normally **used** for the initial startup following refueling as determined by the Reactor Engineer.)

- 3.2 The unit is at Not Standby with one of the following completed:
- I-OP-1.4, Unit Startup from Mode 4 to Mode 3
  - 1-OP-3.1, Unit Shutdown from Mode 2 to Mode 3
  - 1-ES-0.1, Reactor Trip Response, if recovering from a Reactor Trip
  - 1-ECA-0.1, **Loss** of All AC Power Recovery without SI Required
  - I-ES-1.1, SI Termination, if recovering from a Reactor Trip and Safety Injection
- 3.3 The Condenser Steam Dump System is operable in STEAMPRESS Mode OR the Atmospheric Dumps *are* operable.
- 3.4 SGs are at normal operating levels.
- 3.5 Applicable steps of I-OP-IC, Estimated Critical Position Calculation, have been completed.
- 3.6 The following PTs have been performed within the last 92 days:
- 1-PT-30.7.1, Power Range Low Setpoint Channel I (N-41) Channel Operational Test
  - 1-PT-30.7.2, Power Range Low Setpoint Channel II (N-42) Channel Operational Test
  - 1-PT-30.7.3, Power Range Low Setpoint Channel III (N-43) Channel Operational Test
  - 1-PT-30.7.4, Power Range Low Setpoint Channel IV (N-44) Channel Operational Test
  - 1-FT-30.1, NIS Intermediate Range Channel Operational Test
  - 1-PT-30.5, NIS Source Range Channel Operational Test
- 3.4 All Reactor Coolant Loops *are* in operation with power removed from the Loop Stop Valve Operators.

**3.8** The Shift Supervisor has conducted a ~~Pre-Job Brief~~ for starting up the Reactor plant with all of the individuals required to support this procedure as follows:

**3.8.1** The following items and the items indicated on the Detailed Pre-Job Briefing Checklist, form No. **721961**, have been discussed:

- 1-OP-1C, Estimated Critical Position Calculation
- Avoidance of Control Room activities, such as high ~~noise~~.level, shift turnover, and surveillance testing, that could distract Operators and Supervisors involved with the startup
- IRPIs to Rod Bank Limits of Tech Specs
- 1-OP-1.5, Unit Startup from Mode 3 to Mode 2
- Strict procedural compliance and conservative Operator action required at all times
- Other pertinent details relating to the startup, such as Abnormal Status and Action Statements

**3.8.2** A Detailed Pre-Job Briefing Checklist, form No. **721961**, has been completed and is attached to this procedure.

**3.8.3** A startup has been performed on the Simulator with conditions, such as core burnup, xenon and boron, modeled as close as possible, given the current simulator core model, to the expected conditions for unit criticality. ~~If~~ desired to waive ~~this~~ step, THEN the Superintendent of Operations has approved the waiver.

**3.9** The Control Rod fully withdrawn position is available from the Core Operating Limits Report. (Reference **2.4.6**)

#### 4.0 PRECAUTIONS AND LIMITATIONS

- 4.1 Comply with the following guidelines when marking steps N/A:
- ~~IF~~ the conditional requirements of a step do not require the action to be performed, THEN ~~mark~~ the step N/A.
  - IF any other step ~~is~~ marked N/A, THEN have the Shift Supervisor (or designee) approve the N/A and justify the N/A on the Procedure Cover Sheet.
- 4.2 WHENEVER positive reactivity is added to the core, THEN criticality should be anticipated.
- 4.3 Do NOT make sudden changes in the RCS temperature or boron concentration at low power or during startup.
- 4.4 IF the Control ~~Bank~~ Rods are withdrawn and criticality has NOT been achieved in at least 8 hours, THEN insert the Control ~~Bank~~ Rods and perform a Shutdown Margin Calculation.
- 4.5 WHEN RCS temperature is greater than 350°F, THEN Control Rod Drive Mechanism Cooling air is required.
- 4.6 Operations not requiring the completion of preceding steps may be performed out of sequence at the discretion of the ~~Shift~~ Supervisor.
- 4.7 The unit should not be taken critical outside the Administrative Limits for the Estimated Critical Position calculated in I-OP-IC. IF criticality is imminent ~~and~~ the control rods are below the Low Administrative Limit OR criticality was NOT attained with the control rods at the High Administrative Limit, THEN the unit should be placed in a stable shutdown condition AND the ~~startup~~ evaluated before criticality is again approached.
- 4.8 Consider uncertainties in the 1/M measurement before declaring criticality imminent below the Low Administrative ECP Limit. This will avoid unnecessary halts in control rod withdrawal.



- 4.9 Changing plant conditions such as RCS temperature, Xenon worth, or RCS boron concentration may affect the ECP calculations.
- 4.10 The Chemistry Department will be contacted to obtain at least two RCS boron concentration samples which shall be taken from the same sample line at least 10 minutes apart. The **first** sample will be used in the ECP calculations and will be taken at least 20 minutes after any borations or dilutions to the RCS or make-up additions to the VCT. The last sample will be taken within two hours of pulling the control banks to begin the approach to criticality. The last sample must be within 10 ppm of the sample used in the ECP calculations to ensure that the RCS boron concentration is not changing.
- 4.11 **Starting** up the Reactor plant is an evolution that has the potential to degrade safety due to the complexity of the process. Therefore this evolution is considered a Category **II** ICCE. (Reference 2.3.10)
- 4.12 ICCE controls must be established by satisfying the ICCE category **II** requirements in accordance with Section 6.2.4 of VPAP-0108, Infrequently Conducted or Complex Tests or Evolutions. (Reference 2.4.8)
- 4.13 Unit 1 Rod Drive Room ventilation system should be in service and should maintain an acceptable Rod Drive Room temperature of  $\leq 95^{\circ}\text{F}$ .

**4.14** The following requirements apply:

- Tech Spec **3.1.4**, Rod Group Alignment Limits
- Tech Spec 3.1.5, Shutdown ~~Bank~~ Insertion ~~Limits~~
- Tech Spec 3.1.6, Control Bank Insertion Limits
- Tech Spec **3.1.7**, Rod Position Indication Operating
- Tech Spec 3.3.1, Reactor ~~Trip~~ System Instrumentation
- Tech Spec 3.3.2, ~~ESFAS~~ Instrumentation
- Tech Spec 3.3.3, Post Accident Monitoring Instrumentation
- Tech Spec 3.4.2, RCS ~~Minimum~~ Temperature for Criticality
- Tech Spec **3.4.4**, RCS Loops - Modes 1 and 2
- Tech Spec **3.4.17**, RCS Loop ~~Isolation~~ Valves
- Tech Spec 3.7.4, ~~Steam~~ Generator PORVs
- Tech Spec 3.7.5, ~~Auxiliary~~ Feedwater System

Init      Verif

## 5.0 INSTRUCTIONS

5.1 Verify that Initial Conditions are satisfied.

5.2 Review Precautions and Limitations.

5.3 Initiate 1-OP-1.5A, Mode Change Checklist Mode 3 to Mode 2.

5.4 IF RVLIS dynamic range level indication was NOT checked in 1-OP-1.4, Unit Startup From Mode 4 to Mode 3, THEN do the following: (Reference 2.4.11)

5.4.1 Check the RVLIS dynamic range level indication for Train A and Train B.

5.4.2 IF either RVLIS dynamic range level indication is NOT indicating 98% to 102%, THEN do the following:

- IF either RVLIS dynamic range level indication is indicating less than 96% OR greater than 104%, THEN declare the out of tolerance RVLIS Train inoperable and enter the **Action** of Tech Spec 3.3.3 AND initiate a Work Request to have the out of tolerance RVLIS Train normalized.
- IF either **RVLIS** dynamic range level indication is indicating 96% to less than 98% OR greater than 102% to 104%, THEN initiate a Work Request to have the out of tolerance RVLIS Train normalized.

5.5 IF 1-ET-212.9, Valve Inservice Inspection (Main Steam), has NOT been done in the last 31 days AND the unit has been in Mode 5, THEN do 1-PT-212.9.

NOTE: The Manipulator Crane Radiation Monitor is normally disabled at power to avoid damaging the detectors.

N/A

5.6 IF desired, THEN verify that the Instrument Department has disabled 1-RM-RMS-162 using 1-IPM-RPS-G-001, Instrument Systems Setup And Recovery For Modes **5** and **6**. (Reference **2.4.9**)

5.7 Verify Turbine Stop Valves are closed by verifying the following: (Reference **2.4.5**)

Y

- Panel N A-1, MAIN TURB STOP VLV NO. 1 CLSD, *is* LIT.

Y

- Panel N A-2, MAIN TURB STOP VLV NO. 2 CLSD, is LIT.

Y

- Panel N A-3, MAIN TURB STOP VLV NO. 3 CLSD, is LIT.

Y

- Panel N A-4, MAIN TURB STOP VLV NO. 4 CLSD, is LIT.

Y

- Computer readout Y0391D is in ALARM.

Y

- Computer readout Y0393D is in ALARM.

Y

- Computer readout Y0392D is in ALARM.

Y

- Computer readout Y0394D *is* in ALARM.

5.8 Verify Auto Stop Oil pressure ~~is~~ less than setpoint by verifying the following:

- Panel N B-1, **TURB AUTO STOP OIL LO PRESS CHNL I**, is **LIT**.
- Panel N B-2, **TURB AUTO STOP OIL LO PRESS CHNL II**, is **LIT**.
- Panel N B-3, **TURB AUTO STOP OIL LO PRESS CHNL III**, is **LIT**.

5.9 Do 1-PF-41.3, Safe Shutdown Equipment Control Location Verification.

5.10 Verify the Reheat Steam System is aligned for startup using 1-OP-28.3, Operation of the Moisture Separator Reheaters.

NOTE Performance of Attachment I, Secondary Drains Level Control Valve Operability Checklist, may not be required for short duration shutdowns.

5.11 IF required, THEN initiate Attachment I, Secondary Drains Level Control Valve Operability Checklist. IF NOT required, THEN mark this step N/A.

5.12 IF this procedure has been entered upon completion of 1-ES-0.1, Reactor Trip Response or **1-ES-1.2**, SI Termination, THEN do the following:

5.12.1 Reset the NIS Rate Trips, one for each drawer, as required.

5.12.2 Reset the FW Bypass Valve Reset buttons for Train A and Train B.

5.13 IF the Reactor Trip Breakers are open, THEN to prevent tripping the PCS Computer Historical File, have the STA verify the following PCS Computer Points are DELETED FROM PROCESSING:

Point ID	ID Mark No.	Description
• X1RD033D	52-BYB	Bypass Reactor Trip Breaker
• X1RD035D	52-RTA	Reactor Trip Breaker
• X1RD034D	52-BYA	Bypass Reactor Trip Breaker
• X1RD036D	52-RTB	Reactor Trip Breaker

5.14 IF the Reactor Trip Breakers are open AND have NOT been tested in the last 7 days, THEN test the breakers using 1-OP-58.4, Testing Reactor Trip Breakers.

NOTE: The following step is a surveillance required for each cycle of the reactor trip breakers for Tech Spec SR 3.3.2.10, Trip Actuating Device Operational Test (TADOT) for the P-4 interlock as required by Tech Spec 3.3.2, Table 3.3.2-1, Item Xa

5.15 IF the reactor trip breakers are open, THEN perform the “open breaker” sections of 1-PT-36.9, ~~P-4~~ Interlock TADOT on Reactor Trip and Bypass Breakers, for Train “A” and Train “B”.

5.16 Verify the following Reactor Trip Instrumentation **is** operable prior **to** control rods being capable of withdrawal. **(Reference 2.4.10)**

  
SRO

- Manual Reactor Trip

  
SRO

- Source Range

  
SRO

- Intermediate Range

  
SRO

- Reactor Trip Breakers

  
SRO

- Bypass Trip Breakers

  
SRO

- Automatic Trip **Logic**

  
19

5.17 Place one Rod Control MG Set in operation using I-OP-58.1, Motor Generator **Set** Operation.

  
19

5.18 Close the Reactor Trip Breakers.

**NOTE:** The following step is a surveillance required for each cycle of the reactor trip breakers for Tech Spec SR 3.3.2.10, Trip Actuating Device Operational Test (TADOT) for the P-4 interlock **as** required by Tech Spec 3.3.2, Table **3.3.2-1**, Item 8a.

  
19

5.19 WHEN the reactor trip breakers are closed, THEN perform **the** “closed breaker” sections **of** 1-PT-36.9, P-4 Interlock **TADOT** on Reactor Trip and Bypass Breakers, for Train “A” and Train “B”.

JS

5.20 IF available, THEN place the second Rod Control MG Set in operation using 1-OP-58.1, Motor Generator Set Operation.

5.21 IF the **Startup** Reset Buttons for Group Step Counters and Control System Logic have NOT been reset, THEN perform the following:

JS

5.21.1 Ensure Rod Control switch is in manual.

JS

5.21.2 Simultaneously push **both** Startup Reset buttons for the Group Step Counters and Control System Logic.

JS

5.22 Place the highest reading Source Range Channel and the highest reading Intermediate Range Channel on NR-45 at fast speed.

**NOTE:** Control Rods should NOT be moved until **RCS** total suspended solids are within the limits of CH-93.130, Chemistry Controls: Unit Startup.  
(Reference 2.3.14)

N/A

5.23 IF one of the following conditions applies, THEN verify ~~the~~ Reactor Coolant sample obtained in 1-OP-1.4, Unit Startup from Mode 4 to Mode 3, is within limits:

- The RCS **has** been shutdown for maintenance and Hydrogen Peroxide has been added to the RCS.
- All RCPs have been stopped.

JS

5.24 Perform 1-PT-17.1, Control Rod Operability, as Control Rods are being pulled.

JS

5.25 Withdraw the Shutdown Rod **Banks** using 1-OP-58.2, Rod Control System Operation.

JS

5.26 Block the High Flux at Shutdown Alarm.



### CAUTION

Chemical addition through the Chemical Mixing Tank is **NOT** allowed during Reactor startup. Chemical Addition will cause a dilution of the boron concentration in the Reactor Coolant system because **PG** is used to flush the chemicals from the Chemical Mixing Tank into the CVCS system.

**NOTE:** Due to the effects of dilution during startup, the reactor coolant dissolved hydrogen concentration may **range between** 15 and 25 cc/Kg. Although the Action level clock starts at < 25 cc/Kg, **startup** should continue as long as the hydrogen concentration is  $\geq$  15 cc/Kg. **(Reference 2.4.10)**

#### 5.27 Do the following:

fy  
5.27.1 Contact Chemistry Department to determine if lithium hydroxide or other RCS chemical addition **is** required at this time **OR** will be required during the time that the Reactor **startup is** projected to occur.

fy  
5.27.2 **IF** lithium hydroxide or other **RCS** chemical addition is required, **THEN** coordinate with Chemistry Department and ensure that all additions are completed **prior** to commencing the Reactor startup.

fy  
5.27.3 Gas the VCT as required to maintain adequate hydrogen concentration **in** the RCS.

fy  
5.28 Verify 1-OP-1C, Estimated Critical Position Calculation, has been completed through the review requirements.

fy  
5.29 Dilute **OR** borate the **RCS** as determined by **E-OP-1C**.

CAUTION

0-PT-92.0, Chi-square Test, cannot be performed during control rod movement OR borations or dilutions to the RCS.

5.30 Have the STA or Engineer do 0-PT-92.0, Chi-Square Test, on each Source Range Detector.

  
STA/ENG

- N-31, CH-I Source Range Detector

- N-32, CH-II Source Range Detector

STATE G

  
SRO

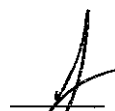
5.31 Have an SRO verify that 1-OP-1.5A, Mode Change Checklist Mode 3 to Mode 2, has been completed.

  
&

5.32 Verify 1-OP-1C, Estimated Critical Position Calculation, is current within **4** hours of projected criticality.

  
18

5.33 Verify any changes in unit conditions such as RCS temperature, borations or dilutions to the RCS, or Xenon **worth** have NOT affected the Estimated Critical Rod Position. **(Reference 2.4.7)**

  
SS

5.34 Have ~~the~~ Shift Supervisor evaluate on going Secondary Plant evolutions for possible adverse effects on feed flow to the Steam Generators and thus ~~an~~ adverse effect on RCS temperature. IF any evolution could adversely effect Steam Generator feed flow, THEN secure the evolution. **(Reference 2.4.15)**

**NOTE** The following step must be **performed** prior to entering **Mode 2**.

**5.35** Do the following to ensure that the Automatic **Rod** Position Deviation Monitor will be operating:

**5.35.1** IF the Unit 1 **P-250** Computer has NOT been removed by DCP 01-007, THEN do the following:

- N/A
- N/A
- N/A SV
- a. Using the “PRINT VALUE” function, print the value for the Unit 1 **P-250** computer constant K0839, Low Temperature Cutoff Point.
  - b. Verify that the Unit 1 **P-250** computer constant K0839 is set at 400.
  - c. IF K0839 is NOT set to 400 on the Unit 1 P-250, THEN using the “ENTER VALUE” function, set K0839 to **400**.

**5.35.2** Do the following at the Unit 1 PCS:

- JS
- N/A SV
- a. **Display** the value for K0839.
  - b. IF K0839 is NOT set to 400, THEN perform Attachment 6, Setting K0839 To 400 On Unit 1 PCS.

**5.36** Have the STA verify the following PCS Computer Points are RESTORED TO PROCESSING:

Point ID	ID Mark No.	Description
• X1RD033D	52-BYE	Bypass Reactor Trip Breaker
• X1RD035D	52-KTA	Reactor Trip Breaker
• X1RD034D	52-BYA	Bypass Reactor Trip Breaker
e X1RD036D	52-RTB	Reactor Trip Breaker

M  
STA

M  
STA

M  
STA

**&-**

5.37 Record the following information from I-OP-IC: (References 2.4.3 and 2.4.7)

- 1y
- Estimated Time of Criticality: 1 hr From now
- 1y
- Applicable Time Interval for BCP 1 hr ago To 2 hrs from now
- 1y
- Lower limit: Steps 42 Bank D
- 1y
- Predicted position: Steps 100 Bank D
- 1y
- Upper limit: Steps 175 Bank D
- 1y
- Low-Low Insertion Limit steps C Bank 118

1y

5.38 Record the Rod Height from the Core Operating Limits Report: Control Rod fully withdrawn position: 228 steps (Reference 2.4.6)

5.39 Review the following:

- 1y
- 5.39.1 Within 15 minutes of withdrawing any rods in Control Banks A, B, C, or D when approaching Reactor Criticality, the Shutdown Rod Banks must be verified to be fully withdrawn.
- 1y
- 5.39.2 The lowest operable RCS  $T_{ave}$  must be at least 541°F within 30 minutes of achieving Reactor Criticality.
- 1y
- 5.39.3 Criticality **must** be anticipated **at** any time during a positive reactivity addition.
- 1y
- 5.39.4 A licensed CRO or SRO will always directly control the withdrawal of Control Rods to achieve Criticality.

5.39.5 IF criticality will be achieved with Control Rods below ~~the~~ Rod Insertion Limit, THEN the following must be done immediately:

- a. **Start** a boration of at least **10** gpm and continue until the required SDM is restored.
- b. ~~Insert~~ all Control Banks to Zero steps.
- c. Perform **1-PT-10**, Shutdown Margin Determination.
- d. Enter the Action Statement of **Tech** Spec 3.1.6 for Surveillance Requirement 3.1.6.1.
- e. Notify the Superintendent of Operations ~~or~~ the Operations Manager On Call before continuing.

**CAUTION**

Uncertainties in the 1/M measurement should be considered **before** declaring criticality imminent.

5.39.6 IF criticality is imminent below the ECP Lower **Limit**, THEN GO TO Attachment 2, Criticality Imminent Below ~~The~~ ECP Lower Limit.

5.39.7 WHEN approaching criticality, THEN all attendant instrumentation, such as NIs, NR-45, audio count-rate, annunciators, and IRPIs, must be closely monitored.

5.39.8 **To** allow neutron indication to stabilize, continuous rod motion must be minimized and enough time must elapse between rod withdrawals to **allow** the neutron population to stabilize during the approach to criticality.

5.39.9 The STA and the Reactor Engineer must be present in the Control Room during Reactor **Startup**, in accordance with VPAP-1404.



- 5.40 Notify the Reactor Engineer to initiate trending of Intermediate Range Detector response data.

**NOTE** Due to the effects of dilution during startup, the reactor coolant dissolved hydrogen concentration may range between 15 and 25 cc/Kg. Although the Action Bevel clock starts at  $< 25$  cc/Kg, startup should continue as long as the hydrogen concentration is  $\geq 15$  cc/Kg. (Reference 2.4.13)



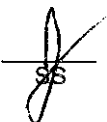
- 5.41 Ensure that the reactor coolant dissolved hydrogen concentration  $\geq 15$  cc/Kg. (Reference 2.4.13)

**NOTE:** Starting up the Reactor plant from Mode 3 to Mode 2 is an evolution that has the potential to degrade safety due to the complexity of the process. Therefore *this* evolution *is* considered a Category II ICCE. (Reference 2.3.10)

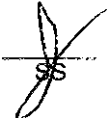
- 5.42 Have the **Shift** Supervisor establish ICCE controls using VPAP-0108, Infrequently Conducted or Complex Tests or Evolutions, as follows: (Reference 2.4.8)



- 5.42.1 Activate the Operations and Test Organization for Performing an ICCE, as outlined in Attachment 1 of VPAP-0108.



- 5.42.2 Ensure the ICCE Category II requirements as outlined by Section 6.2.4 of VPAP-0108, are satisfied.



- 5.42.3 Ensure the Management Expectations Pre-Job Briefing Checklist for an ICCE, (form No. 722089) of VPAP-0108, is completed by the Operations Manager on Call, in charge of this ICCE, and the form is attached to this procedure.



- 5.42.4 Conduct a Pre-Job-Brief for starting up the Reactor plant from Mode 3 to Mode 2 and complete a Detailed Pre-Job Briefing Checklist, (front and back of form No. 721961) of VPAP-1401, Conduct of Operations, and attach to this procedure. (Reference 2.3.11)

5.43 Begin Reactor startup as follows:

\_\_\_\_\_ 5.43.1 Plot the Rod Height information of Step 5.37 on the horizontal axis (0.0) of Attachment 7, 1/M Plot.

\_\_\_\_\_ 5.43.2 Initiate Attachment 5, Reactor Startup Data Sheet, AND record data every 15 minutes until criticality is reached.

\_\_\_\_\_ 5.43.3 Announce on the Gai-Tronics: Attention all personnel, Unit 1 Reactor Startup is Commencing. Attention all personnel, Unit 1 Reactor Startup is Commencing.

5.43.4 Start withdrawing Control Rods as follows:

a. Record starting time: \_\_\_\_\_

**NOTE** IF any Control Rod is known to be greater than 12 steps out of alignment, THEN appropriate action must be taken to return the Control Rod to within 12 steps.

b. Hold Rod Control Lever in the OUT direction and verify the following:

- IRPIs are within 24 steps of the Group Step Counters.
- Group 1 and Group 2 are within 1 step of each other.
- IRPIs indicate rods are moving ~~in~~ the OUT direction.

\_\_\_\_\_ c. WHEN Control Bank A indicates 129 steps, THEN verify Control Bank B is moving OUT.

\_\_\_\_\_ d. WHEN Control Bank A is at the fully withdrawn position as recorded in Step 5.38, THEN stop rod withdrawal. (Reference 2.4.6)

\_\_\_\_\_ e. Record entering Mode 2 in the Unit 1 narrative log.

5.43.5 Record initial 1/M data on Attachment 7, 1/M Plot.

5.43.6 WHEN  $1 \times 10^{-10}$  amps is indicated on both Intermediate Range Channels, THEN stop rod withdrawal and GO TO Attachment 4, Deenergizing Source Range NI Detectors.

5.43.7 Continue rod withdrawal and do the following steps as the conditions occur:

a. WHEN Control Bank B indicates 129 steps, THEN verify Control Bank C is moving OUT.

b. WHEN Control Bank B is fully withdrawn, THEN verify the position is the same as recorded in Step 5.38. (Reference 2.4.6)

c. BEFORE withdrawing Control Bank D, estimate what time the unit should attain criticality.

d. IF it appears that the Unit will attain criticality outside the Applicable Time Interval recorded in Step 5.37 AND additional ECP calculations are available from 1-OP-1C, THEN do the following:

1. Record the following information below:

• Estimated Time of Criticality: \_\_\_\_\_

• Applicable Time Interval  
for ECP calculation: \_\_\_\_\_ To \_\_\_\_\_

• Lower limit: Steps \_\_\_\_\_ Bank \_\_\_\_\_

• Predicted position: Steps \_\_\_\_\_ Bank \_\_\_\_\_

• Upper limit: Steps \_\_\_\_\_ Bank \_\_\_\_\_

2. Plot the Rod Height information on the horizontal axis (0.0) of Attachment 7.



- \_\_\_\_\_
- e. WHEN the initial count rate recorded on Attachment 7 approximately doubles, THEN do the following:
1. Stop rod withdrawal.
  2. Allow count rate to stabilize.
  3. Record and plot the **1/M** data on Attachment 7.
  4. Continue rod withdrawal until the count rate recorded in Step 5.43.7.e.3 approximately doubles.
  5. Stop rod withdrawal.
  6. Allow count rate to stabilize.
  7. Record and plot the 1/M data on Attachment 7.
  8. Continue rod withdrawal and plotting 1/M data until rods are within the ECP Window.
- f. WHEN Control Bank C indicates **129** steps, THEN verify Control Bank D is moving OUT.
- g. WHEN Control ~~Bank~~ C is fully withdrawn, THEN verify the position is the same as recorded in Step 5.38. (Reference 2.4.6)

\_\_\_\_\_

5.44 IF the Reactor is NOT critical at the ECP Upper Limit, THEN GO TO Attachment 3, Criticality Not Achieved **Below** The ECP Upper Limit.

\_\_\_\_\_

5.45 IF the Reactor is critical within the ECP band, THEN record the time Reactor Criticality was achieved:

Date \_\_\_\_\_ Time: \_\_\_\_\_

5.46 IF the Reactor is critical with  $T_{ave}$  less than **547° F** AND Annunciator Panel B-A7, Median / Hi  $T_{ave} < > T_{ref}$  Deviation, is LIT, THEN do the following:

\_\_\_\_\_

5.46.1 Continue to verify  $T_{ave}$  is at least **541° F**.

\_\_\_\_\_ 5.46.2 Record the temperature on Attachment **5** every 30 minutes until  $T_{ave}$  exceeds  $547^{\circ}\text{F}$  OR Annunciator Panel B-A7, Median / Hi  $T_{ave} < > T_{ref}$  Deviation, resets.

\_\_\_\_\_ 5.47 Establish a stable SUR of less than 1 dpm.

\_\_\_\_\_ 5.48 Level the neutron flux at approximately  $1 \times 10^{-8}$  amps as indicated on the highest reading Intermediate Range Channel.

5.49 Do the following:

\_\_\_\_\_ 5.49.1 Nave Chemistry Department obtain **an** RCS boron sample.

\_\_\_\_\_ 5.49.2 Record the following Critical Conditions:

- Date and Time \_\_\_\_\_
- Control Bank C position: \_\_\_\_\_ steps
- Control Bank D position: \_\_\_\_\_ steps
- Median/Hi  $T_{ave}$ : \_\_\_\_\_  $^{\circ}\text{F}$
- Intermediate Range N35: \_\_\_\_\_ amps
- Intermediate Range N36: \_\_\_\_\_ amps
- RCS Boron Concentration: \_\_\_\_\_ ppm

5.49.3 Record the Critical Rod height and **RCS** Boron Concentration in the Unit I Narrative Log. (Reference **2.3.5**)

\_\_\_\_\_ 5.50 Place the highest reading Intermediate Range and Power Range Channels on NR-45.

5.51 IF Startup Physics Testing will be performed, THEN place NR-45 in slow speed.

- \_\_\_\_\_ 5.52 Select the highest reading Intermediate Range Channel on the Startup Rate Channel Selector Switch.
- \_\_\_\_\_ 5.53 IF this ~~is~~ the initial startup following refueling, THEN perform the required Startup Physics Testing.
- \_\_\_\_\_ 5.54 IF Startup Physics Testing was performed, THEN place NR-45 in fast speed.
- \_\_\_\_\_ 5.55 Prior ~~to~~ increasing Reactor power ensure hotwell blowdown is secured in accordance with 1-OP-30.1, Operation Of Condensate System, Section for Control of Hotwell Chemistry Using Bleed and Feed. (Reference **2.4.15**)
- \_\_\_\_\_ 5.56 Prior to increasing Reactor power above the point of adding heat, perform a walkdown of the Secondary System evaluating the need to ~~start~~ a second Condensate pump based on the following parameters: (Reference **2.4.15**)
- Condensate Pump discharge pressure
  - Condensate Recirculation valve position
  - Condensate Recirculation **flow**
  - Feedwater header pressure
  - Feedwater Recirculation valve position
  - Feedwater flow

**NOTE:** Control Bank D height should be below about 120 steps at 10% power. This will reduce the potential of the Intermediate Range Rod Stop actuating before placing the Intermediate Range Block Switches in BLOCK. Consideration should be given, at this time, to insert Control Rods and dilute while maintaining Reactor Power Constant. **(Reference 2.3.13)**

**NOTE:** Startup rate should be low during approach to **POAH** (approximately  $2 \times 10^{-6}$  amps on the Intermediate Range detectors) ideally 0.1 to 0.2 dpm.

- 5.57 Increase Reactor Power to 5 percent or less as indicated on the highest reading Power Range Channel, then stabilize Reactor Power.
- 5.58 Place the power (toggle) switch on the Source Range NI Scaler / Timer drawer to the **OFF** (down) position.
- 5.59 Place NR-45 in slow speed.
- 5.60 Observe the Steam Dump System for proper response.
- 5.61 Open the following MSR I-inch Warm-up Valves: **(Reference 2.4.4)**
- 1-MS-473, A MSR
  - 1-MS-474, B MSR
  - 1-MS-475, C MSR
  - 1-MS-496, D MSR

\_\_\_\_\_ 5.62 IF Attachment 1 was initiated, THEN verify Attachment 1, Secondary Drains Level Control Valve Operability Checklist, has been complete or **is** complete to the extent necessary to support continued plant operation. IF Attachment 1 was not required, THEN mark this step N/A.

5.63 Close ~~the~~ following valves to ensure **an** adequate Bearing Cooling System pressure is maintained to secondary components:

\_\_\_\_\_ • 1-BC-268, Inlet Isolation Valve to Flash Evaporator **bypass**, 1-BC-TV-103

\_\_\_\_\_ • 1-BC-269, Outlet Isolation Valve to Flash Evaporator **bypass**, 1-BC-TV-103

\_\_\_\_\_ OMOC

5.64 Have the Operations Manager On Call (OMOC), activated in Step 5.42, evaluate relaxing ICCE controls established in Step 5.42.

\_\_\_\_\_ 5.65 **GO** TO 1-OP-2.1, Unit **Startup** from Mode 2 to Mode 1, or 1-OP-3.1, Unit Shutdown from Mode **2 to** Mode **3**.

Completed by: \_\_\_\_\_ Date: \_\_\_\_\_

(Page 1 of 5)  
**Attachment 1**

**Secondary Drains Level Control Valve Operability Checklist**

**NOTE:** This Attachment may be N/A for short duration shutdowns. See Step 5.11 of procedure text.

1. Verify the Secondary Drain System LCVs listed below are properly aligned and indicate supply air pressure. IF air pressure is NOT indicated, THEN determine the cause and align air supply.
2. Have an Instrument Technician verify valve movement.

Init	Verif		Init	Verif		
		<b>1-SD-LCV-100A</b>			<b>1-SD-LCV-100B</b>	
_____		<b>1-SD-245</b> Inlet	"CLOSED	_____	<b>1-SD-309</b> Inlet	<b>*CLOSED</b>
_____		<b>1-SD-246</b> Outlet	<b>OPEN</b>	_____	<b>1-SD-310</b> Outlet	<b>OPEN</b>
_____		Supply Air	<b>INDICATED</b>	_____	Supply Air	<b>INDICATED</b>
_____		HLD Controlling	YES	_____	HLD Controlling	<b>YES</b>
_____		Valve Movement	<b>YES</b>	_____	Valve Movement	<b>YES</b>
INST			INST			
		<b>1-SD-LCV-101A</b>				<b>1-SD-LCV-101B</b>
_____		<b>1-SD-248</b> Inlet	<b>OPEN</b>	_____	<b>1-SD-312</b> Inlet	<b>OPEN</b>
_____		<b>1-SD-249</b> Outlet	<b>OPEN</b>	_____	<b>1-SD-313</b> Outlet	<b>OPEN</b>
_____		Supply Air	<b>INDICATED</b>	_____	Supply Air	<b>INDICATED</b>
_____		Valve Movement	<b>YES</b>	_____	Valve Movement	<b>YES</b>
INST			INST			
		<b>1-SD-LCV-100C</b>				<b>1-SD-LCV-100D</b>
_____		<b>1-SD-278</b> Inlet	<b>*CLOSED</b>	_____	<b>E-SD-342</b> Inlet	<b>OPEN</b>
_____		<b>1-SD-279</b> Outlet	<b>OPEN</b>	_____	<b>1-SD-343</b> Outlet	<b>*CLOSED</b>
_____		Supply Air	<b>INDICATED</b>	_____	Supply Air	<b>INDICATED</b>
_____		HLD Controlling	<b>YES</b>	_____	HLD Controlling	<b>YES</b>
_____		Valve Movement	<b>YES</b>	_____	Valve Movement	<b>YES</b>
INST			INST			
		<b>1-SD-LCV-101C</b>				<b>1-SD-LCV-101D</b>
_____		<b>1-SD-282</b> Inlet	<b>OPEN</b>	_____	<b>1-SD-346</b> Inlet	<b>OPEN</b>
_____		<b>1-SD-283</b> Outlet	<b>OPEN</b>	_____	<b>1-SD-347</b> Outlet	<b>OPEN</b>
_____		Supply Air	<b>INDICATED</b>	_____	Supply Air	<b>INDICATED</b>
_____		Valve Movement	<b>YES</b>	_____	Valve Movement	<b>YES</b>
INST			INST			

**NOTE:** \* Valve position established in 1-OP-28.3, Startup of the Moisture Separator Reheaters.

(Page 2 of 5)  
Attachment 1

**Secondary Drains Level Control Valve Operability Checklist**

Init	Verif		Init	Verif	
		<b>1-SD-LCV-106A</b>			<b>1-SD-LCV-106B</b>
_____		1-SD-13 Inlet OPEN	_____		1-SD-30 Inlet OPEN
_____		1-SD-14 Outlet OPEN	_____		1-SD-31 Outlet OPEN
_____		Supply Air INDICATED	_____		Supply Air INDICATED
_____		Valve Movement YES	_____		Valve Movement YES
INST			INST		
		<b>1-SD-LCV-106C</b>			<b>1-SD-LCV-107C</b>
_____		1-SD-47 Met OPEN	_____		1-SD-114 Inlet OPEN
_____		1-SD-48 Outlet OPEN	_____		1-SD-115 Outlet OPEN
_____		Supply Air INDICATED	_____		Supply Air INDICATED
_____		Valve Movement YES	_____		Valve Movement YES
INST			INST		
		<b>1-SD-LCV-107A</b>			<b>1-SD-LCV-107B</b>
_____		1-SD-72 Inlet OPEN	_____		1-SD-94 Inlet OPEN
_____		1-SD-73 Outlet OPEN	_____		1-SD-95 Outlet OPEN
_____		Supply Air INDICATED	_____		Supply Air INDICATED
_____		Valve Movement YES	_____		Valve Movement YES
INST			INST		
		<b>1-SD-LCV-103A</b>			<b>1-SD-LCV-103B</b>
_____		1-SD-138 Inlet *CLOSED	_____		1-SD-168 Inlet *CLOSED
_____		1-SD-139 Outlet OPEN	_____		1-SD-169 Outlet OPEN
_____		Supply Air INDICATED	_____		Supply Air INDICATED
_____		MLD Controlling YES	_____		HLI Controlling YES
_____		Valve Movement YES	_____		Valve Movement YES
INST			INST		

NOTE: \* Valve position established in 1-OP-2.1, Unit Startup from Mode 2 to Mode 1.

(Page 3 of 5)

**Attachment 1**

**Secondary Drains bevel Control Valve Operability Checklist**

<b>Init</b>	<b>Verif</b>		<b>Init</b>	<b>Verif</b>	
		<b>1-SD-LCV-142A</b>			<b>1-SD-LCV-142B</b>
_____		1-SD-140 Inlet OPEN	_____		1-SD-170 Inlet OPEN
_____		1-SD-141 Outlet OPEN	_____		1-SD-171 Outlet OPEN
_____		Supply Air INDICATED	_____		Supply Air INDICATED
_____		Valve Movement YES	_____		Valve Movement YES
INST			INST		
		<b>1-SD-LCV-143A</b>			<b>1-SD-LCV-143B</b>
_____		1-SD-192 Inlet OPEN	_____		1-SD-215 Inlet OPEN
_____		1-SD-193 Outlet OPEN	_____		1-SD-216 Outlet OPEN
_____		Supply Air INDICATED	_____		Supply Air INDICATED
_____		Valve Movement YES	_____		Valve Movement YES
INST			INST		
		<b>1-SD-LCV-128A</b>			<b>1-SD-LCV-128B</b>
_____		1-SD-407 Inlet OPEN	_____		1-SD-409 Inlet OPEN
_____		1-SD-408 Outlet OPEN	_____		1-SD-410 Outlet OPEN
_____		Supply Air INDICATED	_____		Supply Air INDICATED
_____		Valve Movement YES	_____		Valve Movement YES
INST			INST		
		<b>1-SD-LCV-124A</b>			<b>1-SD-LCV-124B</b>
_____		1-SD-458 Inlet OPEN	_____		1-SD-549 Inlet OPEN
_____		1-SD-459 Outlet OPEN	_____		1-SD-580 Outlet OPEN
_____		Supply Air INDICATED	_____		Supply Air INDICATED
_____		Value Movement YES	_____		Value Movement YES
INST			INST		
		<b>1-SD-LCV-123A</b>			<b>1-SD-LCV-123B</b>
_____		1-SD-397 Inlet OPEN	_____		1-SD-403 Inlet OPEN
_____		1-SD-398 Outlet OPEN	_____		1-SD-404 Outlet OPEN
_____		Supply Air INDICATED	_____		Supply Air INDICATED
_____		Valve Movement YES	_____		Valve Movement YES
INST			INST		



(Page 4 of 5)

Attachment 1

Secondary Drains Level Control Valve Operability Checklist

Init	Verif		Init	Verif	
		<b>1-SD-LCV-121A</b>			<b>1-SD-LCV-121B</b>
_____		1-SD-395 Inlet OPEN	_____		1-SD-401 Inlet OPEN
_____		1-SD-396 Outlet OPEN	_____		1-SD-402 Outlet OPEN
_____		Supply Air INDICATED	_____		Supply Air INDICATED
_____	INST	Valve Movement YES	_____	INST	Valve Movement YES
		<b>1-SD-LCV-120A</b>			<b>1-SD-LCV-120B</b>
_____		1-SD-393 Inlet OPEN	_____		1-SD-399 Met OPEN
_____		1-SD-394 Outlet OPEN	_____		1-SD-400 Outlet OPEN
_____		Supply Air INDICATED	_____		Supply Air INDICATED
_____	INST	Valve Movement YES	_____	INST	Valve Movement YES
		<b>1-SD-LCV-122A</b>			<b>1-SD-LCV-122B</b>
_____		1-SD-355 Inlet OPEN	_____		1-SD-373 Inlet OPEN
_____		1-SD-356 Outlet *CLOSED	_____		1-SD-374 Outlet *CLOSED
_____		Supply Air INDICATED	_____		Supply Air INDICATED
_____		HLD Controlling YES	_____		HLD Controlling YES
_____	INST	Valve Movement YES	_____	INST	Valve Movement YES

NOTE: Valve position established in ~~1-OP-34.1.1~~ Low Pressure Heater Drain System Startup.

(Page 5 of 5)

**Attachment 1**

**Secondary Drains Level Control Valve Operability Checklist**

This list of **mark** numbers and **noun** names is provided for reference.

MARK NUMBER	NOUN NAME
1-SD-LCV-100A/B/C/D	Reheater Drain Receiver Normal Level Control
1-SD-LCV-101 A/B/C/D	Reheater <del>Drain</del> Receiver High Level Divert
1-SD-LCV-103 A/B	1A/B FW Htr Normal Level Control
1-SD-LCV-142 A/B	1A/B FW Htr High Level Divert
1-SD-LCV-143 A/B	2A/B FW Htr High Level Divert
1-SD-LCV-106 A/B	2A/B FW Htr Drain Receiver Normal Level Control (HP Drain Pump Disch)
1-SD-LCV-106 C	MSR Drain Receiver Normal Level Control (HP Drain Pump Disch)
1-SD-LCV-107A/B	2A/B FW Htr Drain Receiver High Level <b>Divert</b>
1-SD-LCV-107 C	MSR Drain Receiver High Level Divert
-SD-LCV-120 A/B	3A/B FW Htr Normal Level Control
1-SD-LCV-121A/B	3A/B FW Htr High Level Divert
1-SD-LCV-122 A/B	4A/B FW Htr Normal Level Control
1-SD-LCV-123 A/B	4A/B FW Htr High Level Divert
1-SD-LCV-124 A/B	5A/B FW Htr Normal Level Control
1-SD-LCV-128 A/B	5A/B FW <del>Htr</del> High Level Divert

(Page 1 of 1)  
Attachment 2

Criticality Imminent Below The ECP Lower Limit

**IF criticality is imminent below the ECP Lower Limit, THEN do the following:**

1. Insert all Control Banks to **Zero** steps.
2. Continue to **record** temperature and Shutdown Bank data on Attachment 5.
3. Perform 1-FT-10, Shutdown Margin Determination.
4. Before continuing, **notify the** Superintendent of Operations or the Operations Manager On Call.
5. Notify Reactor Engineering.
6. Review **or** verify data used to calculate 1-OP-1C.
7. Evaluate the cause. **IF the cause is NOT readily apparent, THEN** contact Nuclear Analysis and Fuel for resolution.
8. Record the reason for imminent criticality **below** the ECP Lower Administrative Limits:  
\_\_\_\_\_  
\_\_\_\_\_
9. Have SNSOC review the reason **for** imminent criticality outside the ECP Window.
10. **IF required, THEN perform 1-OP-1C using** new data.

(Page 1 of 1)  
Attachment 3

**Criticality Not Achieved Below The ECP Upper Limit**

**IF the Reactor is NOT critical at the ECP Upper Limit, THEN do the following:**

I. Insert **all** Control Banks **to** Zero steps.

2. Continue to record temperature and Shutdown Bank data on Attachment 5.

3. Notify Reactor Engineering.

4. Review **or** verify data used to calculate 1-OP-1C.

5. Evaluate the cause. IF the cause is NOT readily apparent, THEN contact Nuclear Analysis and Fuel for resolution.

6. Record the reason why criticality was missed:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

7. Have SNSOC review the reason for the missed Reactor Criticality.

8. IF required, “perform 1-OP-1C using new data.

(Page 1 of 2)

**Attachment 4**

**Deenergizing Source Range NI Detectors**

**WHEN**  $1 \times 10^{-10}$  amps is indicated on both Intermediate Range Channels,  
**THEN** do the following:

1. Verify the following:

- Panel L F-1, NIS IR  $> 10^{-10}$  TRIP PERM P-6 CHNL I, is LIT.
- Panel L F-2, NIS IR  $> 10^{-10}$  ~~TRIP~~ PERM P-6 CHNL II, is LIT.
- Panel P D-1, P-6 PERM IR  $> 10^{-10}$  BLK SR TRIP, is LIT.

2. Ensure 1 decade ~~of~~ overlap exists between both pair of NI channels by verifying the following:

- Both IR Channels indicate  $\geq 1 \times 10^{-10}$  amps
- Both SR Channels indicate on scale

3. Place both SOURCERANGE BLOCK AND RESET switches **in** BLOCK.

4. Verify the **loss** of Source Range Detector Voltage.

5. Place both Intermediate Range Channels on NR-45 at fast speed.

6. Using the STARTUP RATE CHANNEL SELECTOR switch at the COMPARATOR AND RATE drawer, select the highest reading Intermediate Range Detector. Mark the remaining channel N/A.

- N-35

- N-36

(Page 2 of 2)  
**Attachment 4**  
**Deenergizing Source Range N! Detectors**



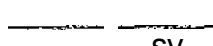






7. **Do one of the** following:

- \_\_\_\_\_ • **IF the Reactor is NOT Critical, THEN RETURN TO Step 5.42.**
  
- \_\_\_\_\_ • **IF the Reactor is Critical, THEN GO TO Step 5.45.**

**Every 15 minutes until criticality is achieved, log Shutdown Bank rod position and lowest operating loop RCS T<sub>ave</sub>.**

[illegible]

(Page 1 of 1)  
**Attachment 6**  
**Setting K0839 To 400 On Unit 1 PCS**

-  1. Select Points, by Point ID.
-  2. Type in K0839, then press OK.
-  3. Left click on the K0839 value.
-  4. Right click on the K0839 value.
-  5. Select Update Constant.
-  6. Backspace to erase the old value.
-  7. Type in 400.
-  8. Fill out the changed by and reason boxes at the bottom.
-  9. Select Execute



Criticality is projected to occur at the point that an extrapolated line drawn between the last two 1/M points crosses the 0.0 axis.

Time	Rod Height	N-31	N-32	N-35	N-36	$\frac{P_{INITIAL}}{P_{LAST}} = 1/M$
0						1.0
20						0.75
40						0.55
60						0.40
80						0.28
100						0.20
120						0.15
140						0.11
160						0.08
180						0.06
200						0.04
220						0.03
228						0.02

"B" Bank "C" Bank "D" Bank  
4 Steps/Increment  
Graphics No: BP531C

**NORTH ANNA POWER STATION  
INITIAL LICENSE EXAMINATION  
ADMINISTRATIVE  
JOB PERFORMANCE MEASURE**

**ADMIN JPM**

Perform A Reactor Coolant System  
Leakrate Hand Calculation

CANDIDATE

---

EXAMINER

---

NORTH ANNA POWER STATION  
INITIAL LICENSE EXAMINATION  
ADMINISTRATIVE  
JOB PERFORMANCE MEASURE

**Task**

Perform a RCS leakrate hand calculation in accordance with attachment 2 and 4 of 1-PT-52.2, "Reactor Coolant System Hand Leak Rate." Validation time 30 mins.

**References:**

1-PT-52.2, "Reactor Coolant System Leak Rate (Hand Calculation)," Rev. 33,  
Plant Curve Book

-----  
**Candidate:** \_\_\_\_\_  
NAME

**Performance Rating:** SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

**Examiner:** \_\_\_\_\_  
NAME SIGNATURE DATE

-----  
**COMMENTS**

-----  
-----  
-----

**Tools/Equipment/Procedures Needed:**

1-PT-52.2, "Reactor Coolant System Leak Rate (Hand Calculation)," Rev. 33,  
Calculator

**READ TO OPERATOR**

**DIRECTION PO TRAINEE:**

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

**INITIAL CONDITIONS:**

Unit-1 is stable at 100% power.

The following data was taken at 0700 on 6/14/2004

Accumulator Levels:	"A" Accumulator	LI-1920 56.4%	LI-1922 56.7%
	"B" Accumulator	LI-1924 60.1%	LI-1926 60.1%
	"C" Accumulator	LI-1928 62.3%	LI-1930 62.2%

PRT Level 1-RC-LI-1470 77%

The data was taken again at 1900 on 6/14/2004

Accumulator Levels:	"A" Accumulator	LI-1920 56.2%	LI-1922 56.6%
	"B" Accumulator	LI-1924 60.1%	LI-1926 60.0%
	"C" Accumulator	LI-1928 62.3%	LI-1930 62.2%

PRT level 1-RC-LI-1470 78%

The following plant data has been taken at 1900 on 6/14/2004:

PZR Level	1-RC-LI-1459A 52.5%
VCT Level	1-CH-LI-1112-1 46.2%
PDTT Level	1-DG-LI-101 17.5%
RCS T ave	1-RC-TI-412D 580.8 degrees

The following data was taken again at 2300 on 6/14/2004

PZR level	1-RC-LI-1459A 53.0%
VCT Level	1-CH-LI-1112-138.1%
PDTT Level	1-DG-LI-101 18%
RCS T ave	1-RC-TI-412D 580.7 degrees

1-PT-52.2 has been completed to the point of performing the leak rate calculations. Other leakage per attachment 5 is 0 gpm.

**INITIATING CUES:**

You are requested to perform a hand calculation of *the* Reactor Coolant System leak rate by completing attachments 2 and 4 of 1-PT-52.2, "Reactor Coolant System Leak Rate (Hand Calculation)."

<p><b><u>STEP 1:</u></b> Obtain a copy of the appropriate procedure.</p> <p><b><u>STANDARD:</u></b> Operator obtains a partially-completed copy of 1-PT-52.2.</p> <p><b><u>COMMENTS:</u></b> <b>Steps 7 and 8 to complete attachment 4 may be performed first.</b></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><b><u>STEP 2:</u></b> Calculate the change in PRZR volume. (attach. 2)</p> <p><b><u>STANDARD:</u></b> Operator subtracts the initial PRZR level (52.5%) from the final PRZR level (53%), multiplies the result times 45.9 gal/%, then enters the product in blank (22.95) (a).</p> <p><b><u>COMMENTS:</u></b> This product has a tolerance of (22.9-23.0.) Obtaining this number is a critical step.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><b><u>STEP 3:</u></b> Calculate the change in VCT volume. (attach. 2)</p> <p><b><u>STANDARD:</u></b> Operator subtracts the initial VCT level (46.2%) from the final VCT level (38.1%), multiplies the result times 14.1 gal/%, then enters the product in blank (-114.21) (b).</p> <p><b><u>COMMENTS:</u></b> This product has a tolerance of (-112 to -116.) Obtaining this number is a critical step.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><b><u>STEP 4:</u></b> Calculate the change in PDTT volume. (attach. 2)</p> <p><b><u>STANDARD:</u></b> Operator enters the initial and final PDTT volumes (in gallons) from 1-SC-5.9, subtracts the initial PDTT volume (88.42 gal) from the final PDTT volume (81.75gal), then enters the result in blank (3.33 gal) (c).</p> <p><b><u>COMMENTS:</u></b> This product has a tolerance of (3.3-3.4.)</p>	<p>___ SAT</p> <p>___ UNSAT</p>

***\*\*Italicized Cues Are To Be Used Only If JPM Performance Is Being Simulated.***

<p><b><u>STEP 5:</u></b> Calculate the change in RCS volume due to RCS temperature change. (attach. 2)</p> <p><b><u>STANDARD:</u></b> Operator subtracts the initial RCS temperature (580.8) from the final RCS temperature (580.7), multiplies by the correction factor from attachment 3 (78.25), then enters the product in blank (-7.874) (d).</p> <p><b><u>COMMENTS:</u></b> This product has a tolerance of (-7.825 to -7.874)</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><b><u>STEP 6:</u></b> Calculate the total leak rate. (attach. 2)</p> <p><b><u>STANDARD:</u></b> Operator subtracts the change in PRZR volume and VCT volume from the change in RCS volume, divides the result by 60 and enters the result in the "Total Leak Rate" blank. (.3474)</p> <p><b><u>COMMENTS:</u></b> This product has a tolerance of (.3386-.3553.) Obtaining this number is a critical step.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><b><u>STEP 7:</u></b> Calculate Accumulator Leakage. (attach. 4)</p> <p><b><u>STANDARD:</u></b> Operator averages the six level indicators for both the beginning (59.63%) and the final readings (59.57%). The initial (59.63%) is subtracted from the final (59.57%) and divided by 720 minutes to yield (-.0019 gpm) (e).</p> <p><b><u>COMMENTS:</u></b> This product has a tolerance of (-.0010 to -.0020.) Obtaining this number is a critical step. This step may be performed as step one if the candidate chooses.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><b><u>STEP 8:</u></b> Calculate PRT Leakage. (attach. 2)</p> <p><b><u>STANDARD:</u></b> Operator obtains initial and final PRT levels using plant curve book (initial 7894.25 gals, final 9998.15 gals). Operator then subtracts initial from final level and divides by 720 minutes to obtain leakage (.1334 gpm) (f)</p> <p><b><u>COMMENTS:</u></b> This product has a tolerance of (.1330 - .1335.) Obtaining this number is a critical step. This step may be performed as step two if the candidate chooses.</p>	<p>___ SAT</p> <p>___ UNSAT</p>

***\*\*Italicized Cues Are To Be Used Only If JPM Performance Is Being Simulated.***

<p><b>STEP 9:</b> Calculate the identified leak rate. (attach. 2)</p> <p><b>STANDARD:</b> Operator <b>divides</b> the change in PDDT volume by 60 and adds the result to accumulator leakage, PRT leakage, and "other leakage," and enters the sum in the "Identified Leak Rate" blank (<b>.1453 gpm</b>).</p> <p><b>COMMENTS:</b> This product has a tolerance of (.1450-.1460.) Obtaining this number is a critical step.</p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><b>STEP 10:</b> Calculate the unidentified leak rate. (attach. 3)</p> <p><b>STANDARD:</b> Operator subtracts the identified leak rate from the total leak rate and enters the result in the "Unidentified Leak Rate" (<b>.2021 gpm</b>).</p> <p><b>COMMENTS:</b> This product has a tolerance of (.1936-.2093.) Obtaining this number is a critical step.</p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><b>STEP 11:</b> Sign-off the completed procedure attachment. (attach. 2)</p> <p><b>STANDARD:</b> Operator signs attachment 2 and states that he/she has completed the task.</p> <p><b>COMMENTS:</b></p> <p style="text-align: center;"><b>END OF TASK</b></p>	<p>___ SAT</p> <p>___ UNSAT</p>

***\*\*Italicized Cues Are To Be Used Only If JPM Performance Is Being Simulated.***



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

**INITIAL CONDITIONS:**

Unit-1 is stable at 100% power.

The following data was taken at 0700 on 6/14/2004

Accumulator bevels: "A" Accumulator	LI-1920 56.4%	LI-1922 56.7%
"B" Accumulator	LI-1924 68.1%	LI-1926 60.1%
"C" Accumulator	LI-1928 62.3%	LI-1930 62.2%

PRT Level 1-RC-LI-1470 77%

The data was taken again at 1900 on 6/14/2004

Accumulator Levels: "A" Accumulator	LI-1920 56.2%	LI-1922 56.6%
"B" Accumulator	LI-1924 60.1 %	LI-1926 60.0%
"C" Accumulator	LI-1928 62.3%	LI-1930 62.2%

PRT Level 1-RC-LI-1470 78%

The following plant data has been taken at 1900 on 6/14/2004:

PZR bevel	1-RC-LI-1459A 52.5%
VCT Level	1-CH-LI-1112-1 46.2%
PDIT Level	1-DG-LI-101 17.5%
RCS T ave	1-RC-TI-412D 580.8 degrees

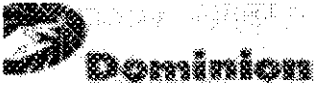
The following data was taken again at 2300 on 6/14/2004

PZR Level	1-RC-LI-1459A 53.0%
VCT Level	1-CH-LI-1112-1 38.1%
PDIT Level	1-DG-LI-101 18%
RCS T ave	1-RC-TI-412D 580.7 degrees

1-PT-52.2 has been completed to the point of performing the leak rate calculations. Other leakage per attachment 5 is 0 gpm.

**INITIATING CUES:**

**You are requested to perform a hand calculation of the Reactor Coolant System leak rate by completing attachments 2 and 4 of 1-PT-52.2, "Reactor Coolant System Leak Rate (Hand Calculation)."**

 <b>NORTH ANNA POWER STATION</b>		PROCEDURE NO:	
		<b>1-PT-52.2</b>	
		REVISION NO:	
		<b>33</b>	
PROCEDURE TYPE		UNIT NO:	
<b>OPERATIONS PERIODIC TEST</b>		<b>1</b>	
PROCEDURE TITLE:			
<b>REACTOR COOLANT SYSTEM LEAK RATE (HAND CALCULATION)</b>			
TEST FREQUENCY:		UNIT CONDITIONS REQUIRING TEST:	
18 months or as determined by 1-PT-52.2A		Modes 1, 2, 3, and 4	
SPECIAL CONDITIONS: None			
<b>SURV REQ</b>		<b>EOP AP</b>	
REVISION SUMMARY: <ul style="list-style-type: none"> <li>FrameMaker Template Rev. 030.</li> <li>Incorporated Plant Issue N-2003-3686 by changing Steps 7.2.1.a.6 and 7.2.1.h.5 <b>to</b> include notification of System Engineer to evaluate the potential of hydrogen accumulation in Containment when RCS Unidentified <b>Leak</b> Rate exceeds 0.2 gpm. Added Plant Issue N-2003-3686 and ET-N-04-0002 to References.</li> <li>Added Step 7.2.1.b.1 to notify OMOC and added Steps 7.2.1.a.5 and <b>7.2.1.b.3</b> for OMOC to evaluate conducting an Operations Decision Making review in accordance with Q-GOP-9.6 when RCS Unidentified <b>Leak</b> Rate exceeds 0.2 gpm. Changed "OR exceeds 0.2 gpm" to "AND is greater than 0.05 gpm" in Step 7.2.4 to be consistent <b>with</b> 1-PT-52.2A. Changed Steps 7.2.1.a.7, 7.2.1.b.7, and 7.2.2.a by adding what is to be recorded on cover sheet.</li> <li>Made the following changes to reflect removal of Unit 1 P-250: deleted old P&amp;L Steps 4.10, 4.12, 4.13, and 4.14; deleted P-250 conditional statement <b>from</b> Step 4.17; deleted P-250 <b>from</b> first bullet of Step <b>6.1</b>; deleted old Step 6.2.1; deleted old Step <b>6.11</b> and associated substeps; deleted P-250 conditional statement from Step 6.12; deleted old Attachment 1; deleted P-250 from title of Attachment 2; and deleted P-250 information <b>from</b> Attachment 6.</li> <li>Changed "Shift Supervisor" to "SRO" throughout procedure to comply with Operations Management title changes.</li> </ul>			
REASON FOR TEST (CHECK APPROPRIATE BOX): <input type="checkbox"/> Surveillance <input type="checkbox"/> Post-Maintenance      Work Order Number (Post-Maintenance Only): _____			
TEST PERFORMED BY (SIGNATURE):		DATE STARTED:	DATE COMPLETED:
TEST RESULT (CHECK APPROPRIATE BOX):		WORK REQUEST NUMBERS AND DATE:	
<input type="checkbox"/> Satisfactory <input type="checkbox"/> Unsatisfactory <input type="checkbox"/> Partial			
THE FOLLOWING PROBLEM(S) WERE ENCOUNTERED AND CORRECTIVE ACTIONS TAKEN: _____ _____ _____ _____ _____ _____ (Use back for additional remarks.)			
COGNIZANT SUPERVISOR or DESIGNEE:			DATE:
ADDITIONAL REVIEWS:			DATE:

## TABLE OF CONTENTS

Section	Page
1.0 PURPOSE	3
2.0 REFERENCES	4
3.0 INITIAL CONDITIONS	5
4.0 PRECAUTIONS AND LIMITATIONS	6
5.0 SPECIAL TOOLS AND EQUIPMENT	9
6.0 INSTRUCTIONS	10
7.0 FOLLOW-ON	15
ATTACHMENTS	
1 Unit 1 PCS Leak Rate Data Sheet	20
2 Leak Rate Data Sheet Without Using <b>The</b> Unit 1 PCS Computer	21
3 RCS Volume/Temperature Correction Factors (Gal/°F)	22
4 SI Accumulators And PRT Leakage	24
5 Other Identified <b>Leakage</b>	25
6 Useful Computer Points <b>And</b> Control Room <b>Indications</b>	26

## 1.0 PURPOSE

To provide instructions for performing a Reactor Coolant System leakage determination in accordance with Tech Spec SR 3.4.13.1.

The following synopsis ~~is~~ designed as an aid ~~to~~ understanding the procedure, ~~and is~~ not intended to alter or take the place of the actual purpose, instructions, or text of the procedure itself.

Industry operating experience has noted an increase in the frequency of leakage involving leakage from the reactor coolant system (RCS) piping, penetrations, or components. Events reported include leakage from control rod drive housings, and penetrations, hot leg nozzles, reactor coolant pump and reactor vessel flanges. The majority of the leaks were caused by stress corrosion cracking. In most cases, the leakage was only identified during containment inspections for boric acid residue. Few, if any, of the leaks were detected by the installed RCS leak detection equipment because the amount of leakage was far below the minimum detectable values. Corrosion of carbon steel components can occur rapidly when exposed to boric acid. An early detection and prompt response is deemed necessary to mitigate adverse trends in RCS leakage. Rigorous monitoring of RCS leakage trends and prompt notification to management is necessary even if leakage rates remain well below the Tech Spec thresholds for action. (Reference 2.4.6)

In this procedure's Follow-On Tasks, two trigger points have been established that initiate actions and notifications: (References 2.3.10 and 2.4.6)

- When Unidentified Leak Rate increases by more than 0.2 gpm since the last performance of 1-PT-46.21. The 0.2 gpm increase is an absolute value: if the leakrate increases from -0.1 gpm to +0.1 gpm, leakrate has increased by 0.2 gpm.
- When the Unidentified Leak Rate is greater than 0.2 gpm.

Notifications will occur when any symptom of RCS leakage exists such as even a slight change to the leakrate baseline or an adverse trend, or when Unidentified Leak Rate doubles since the last performance of 1-pT46.21.

## 2.0 REFERENCES

### 2.1 Source Documents

2.1.1 Generic Letter 88-05, Boric Acid Corrosion of Carbon Steel Reactor Pressure **Boundary** Components in PWR Plants

2.1.2 ~~standing~~ Order No. 179 Rev I, Primary-to-Secondary **Leakage** Limitations

### 2.2 Technical Specifications

2.2.1 Tech Spec 3.4.13

2.2.2 Tech Spec SR 3.4.13.1

2.2.3 TRM TR 3.4.4

2.2.4 TRM TR 3.4.5

### 2.3 Technical References

2.3.1 Calculational Basis approved, 05-13-88 (Rev. 15)

2.3.2 1-PT-52.2A, Reactor Coolant System Leak Rate (Computer Calculation)

2.3.3 1-AP-42, Loss of ~~Prodac~~-250 Computer

2.3.4 1-PT-46.21, RCS Pressure Boundary Components Affected by Boric Acid Accumulation

2.3.5 DCP 96-005, P-250 Upgrade

2.3.6 VPAP-0815, Maintenance Rule Program

2.3.7 Maintenance Rule Function RC002 (Engineering Transmittal CEP 97-0018, **Rev. 1**, 09-24-97)

2.3.8 DCP 01-005, ERF Computer System Replacement

- 2.3.9 ET NAF ~~2002-0092~~, Rev. 0, Evaluation of Negative Leak Rates Observed During Performance of RCS Leak Rate. PT
- 2.3.10 ET N 02-127, Rev. 0, RCS Unidentified Leak Rate ~~Threshold~~ Value
- 2.3.11 DCP 01-~~007~~, Phase 2 PCS Installation and P-~~250~~ Removal- Unit 1
- 2.3.12 ~~ET-N-04-0002~~, Evaluation of Hydrogen Accumulation in Containment During Plant Operation

#### 2.4 Commitment Documents

- 2.4.1 CTS 02-93-1000, Item 001, ~~IN 88-023-51~~, Potential for **Gas** Binding of High Pressure Safety Injection Pumps During a Loss of Coolant Accident
- 2.4.2 LER 91-11-0 (LER Commitments closed out)
- 2.4.3 CTS Assignment 02-94-1202, Commitment 001, Revise procedures such that when RCS leakage is observable, but its source cannot be positively confirmed, a formal evaluation must be completed before characterizing the leakage as “identified” as defined by Tech Specs.
- 2.4.4 DR N-96-2495, Non-conservative leak rate calculation
- 2.4.5 ~~CTS~~ Assignment 02-97-225 1, Commitment 002, Condition Monitoring for the Maintenance Rule
- 2.4.6 Standing Order No. 235, Rev 0, Monitoring Plan for Increased RCS Leakage
- 2.4.7 Plant Issue N-2003-3686, A Nonconservative Assumption Regarding Containment Vacuum Pump Flow

Init      Verif

### 3.0 INITIAL CONDITIONS

- 3.1 Notify the SRO of this test.

3.2 Verify the Reactor Coolant System is in steady ~~state~~ operation.

#### 4.0 PRECAUTIONS AND LIMITATIONS

4.1 Comply with the following guidelines when marking steps N/A:

- ~~IF~~ the conditional requirements of a step do not require the action to be performed, THEN mark the step N/A.
- ~~IF~~ this test is **being performed** as a Post-Maintenance Test, THEN mark inappropriate steps N/A.
- ~~IF~~ any other step is marked N/A, THEN have the SRO approve the N/A and submit a Procedure Action Request (PAW).

4.2 Closely monitor the VCT level during this test to ensure ~~an~~ automatic Lo-Lo Level Charging Pump suction transfer to the RWST does not occur.

4.3 ~~IF~~ any VCT makeup or PDTT pump occurs during this test, THEN the test is void and must be started again.

4.4 Allow at least 1 hour between initial and final data readings unless conditions require a shorter period.

\_\_\_\_\_ 4.5 Maintain the Reactor Coolant System at steady state operation throughout this test. Steady state operation is defined as:

- Power changes less than 1 percent of rated thermal power.
- RCS pressure changes less than 5 psi when RCS pressure is greater than 1000 psig. At low temperatures and pressures, water compression is insignificant. However, at 580°F and 2235 psig, a 10-psi change in RCS pressure would result in a 0.14-gpm error in a 60-minute leak rate test.
- RCS temperature changes less than 2°F.
- No changes in letdown or makeup systems occur (for example, no Blender makeups, Charging Pump starts, ion exchangers placed in or removed from service).
- No changes in RHR System operation occur.
- Pressurizer level changes less than 2 percent.
- No RCP starts or stops occur.
- No RCP Standpipe fills occur.
- No H<sub>2</sub> addition to the VCT occurs.
- Boron Recovery System Gas Stripper pressure is stable between 0 and 3 psig.
- VCT Pressure is maintained at greater than or equal to 23 psig to prevent potential RWST isolation valve leakage.

\_\_\_\_\_ 4.6 IF Unit 1 and Unit 2 are sharing a gas stripper, THEN Unit 2 may be isolated from the gas stripper until this procedure is completed.



4.7 Usually, PRT and Accumulator leakage is based on 8 to 24 hours as defined below:

- The beginning of the leakage monitoring period should be within 25 hours of this test.
- ~~IE~~ plant conditions require a leak rate to be calculated on short notice, THEN the PRT and Accumulator leakage may be based on a shorter time period.
- PRT and Accumulator leakage ~~from~~ the previous performances of this test may be used if appropriate and available.
- No makeup or sampling of the PRT or Accumulators may be performed during this period. Sluicing the Accumulators is allowed.

4.8 Tech Spec 3.4.13, RCS Operational Leakage, applies.

4.9 IF primary-to-secondary leakage is suspected, THEN 1-AP-24, Steam Generator Tube Leak, or ~~1-AP-24.1~~ Shutdown Steam Generator Tube Leak, and TRM TR 3.4.4 must be referred to.

4.10 IF using the Unit 1 PCS and any leak-rate point ~~is~~ deleted-from-processing or ~~is~~ unreliable, THEN contact the System Engineer (or designee) to supply ~~an~~ alternate Unit 1 PCS point or Control Room gauge.

4.11 IF using the Unit 1 PCS AND performing this procedure concurrently with 1-PT-52.2A, THEN, to obtain the best consistency of data between ~~I-FT-52.2~~ and 1-PT-52.2A and to allow for the initialization period of the RCS Leak Rate Program, the Hand Leak Rate Initial data should be taken from the initial leak-rate calculation of the RCS Leak Rate Program. Hand Leak Rate Final data should be taken from the final leak-rate calculation of the RCS Leak Rate Program.

4.12 IF using the Unit 1 PCS AND alternate Unit 1 PCS point!, or Control Room gauges are used, THEN indicate what alternate points are used in Attachment 1 and Attachment 4 and record on the Cover Sheet. A Procedure Action Request does not need to be generated if alternate points are used because of inoperable equipment.

- 4.13 Whenever **MCS** leakage ~~is~~ observable, but its source cannot be positively confirmed, formal evaluation and documentation (including documentation that the leakage is ~~NOT~~ pressure boundary leakage) **MUST** be completed prior to characterizing the leakage as “identified” as defined in Tech Specs. (Reference **2.4.3**)
- 3.14 To prevent the Unit 1 VCT from diverting to the Gas Stripper while the Gas Stripper ~~is~~ isolated, the setpoint of **1-CH-LCV-1112C**, VCT Level Control VCT Divert, will be set at 71 percent, while the VCT level will be at approximately 50 Percent. This will prevent overpressurization of the piping between **1-CK-LCV-1115**, VCT Level Control Valve and the Gas Stripper.
- 4.15 If the “A” Gas Stripper is aligned to Unit 2, the setpoint of **2-CH-LCV-2112C**, VCT Level Control VCT Divert, will be adjusted to 71 percent (potentiometer setting ~~of~~ 7.1) to prevent the Unit 2 VCT from diverting to the isolated Gas Stripper. This will prevent overpressurization ~~of~~ the piping between **2-CH-LCV-2115**, VCT Level Control Valve and the Gas Stripper.
- 4.16 Since PG may be the source of PRT Inleakage, a conservative value of zero (0) should be used unless the PRT Inleakage has been identified as **CONFIRMED** leakage from the RCS to the PRT. Alternate indications should be used to confirm ~~the~~ source of leakage such ~~as~~ increasing PRZR Safety Valve or PORV tailpipe temperatures, or increasing PRT pressure or temperature.
- 4.17 ~~IF~~ the Unit 1 PCS ~~is~~ inoperable, **THEN** Control Room gauges may be used to obtain the needed data. Contact the System Engineer, or designee, **to ensure** that the most accurate and precise methods are used.
- 4.18 Negative unidentified RCS ~~leak~~ rates with magnitude as large as -0.1 gpm are to be considered “essentially zero gpm.” (Reference **2.3.9**)

## 5.0 SPECIAL TOOLS AND EQUIPMENT

None

## 6.0 INSTRUCTIONS

6.1 IF all the following conditions are met, THEN perform 1-PT-52.2A concurrently ~~with~~ this procedure.

- The Unit 1 PCS is operable.
- RHR System is secured.
- RCS temperature is at least 195°F.

### CAUTION

Whenever RCS leakage is observable, but its source cannot be positively confirmed, formal evaluation and documentation MUST be completed prior to characterizing the leakage as "identified" as defined in Tech Specs. (Reference 2.4.3)

6.2 Do the following: (Reference 2.4.4)

- 6.2.1 IF the Unit 1 PCS will be used, THEN ensure the computer point to be used in Attachment 4, SI Accumulators And PRT Leakage, is GOOD (green).
- 6.2.2 Complete Attachment 4 and Attachment 5, Other Identified Leakage.
- 6.2.3 IF Accumulator leakage is greater ~~than~~ or equal to 1 gpm absolute value, THEN do the following: (Reference 2.4.4)
- a. Immediately contact Engineering to evaluate Accumulator Leakage.
  - b. Do NOT continue with this procedure until notified by Engineering.

6.3 Notify Chemistry that the RCS cannot be sampled during this test.

6.4 Ensure the following Sample System trip valves are closed

- 1-SS-TV-103A, RHR SAMPLE ISOL.
- 1-SS-TV-103B, RHR SAMPLE ISOL
- 1-SS-TV-106A, PRIMARY COOLANT HOT LEG INSIDE ISOL
- 1-SS-TV-106B, PRIMARY COOLANT HOT LEG OUTSIDE ISOL
- 1-SS-TV-102A, PRIMARY COOLANT COLD LEG INSIDE ISOL
- 1-SS-TV-102B, PRIMARY COOLANT COLD LEG OUTSIDE ISOL
- 1-SS-TV-100A, PRZR LIQUID SPACE INSIDE ISOL
- 1-SS-TV-100B, PRZR LIQUID SPACE OUTSIDE ISOL
- 1-SS-TV-101A, PRZR VAPOR SPACE INSIDE ISOL
- 1-SS-TV-101B, PRZR VAPOR SPACE OUTSIDE ISOL.

6.5 Pump the PDTT to the lowest attainable level.

6.6 Ensure 1-RC-HCV-1523, PRZR RELIEF TANK DRAIN ISOL., is closed.

**CAUTION**

To prevent the Unit 1 VCT from diverting to the Gas Stripper while the ~~Gas~~ Stripper is isolated, the setpoint of 1-CH-LCV-1112C, VCT Level Control VCT Divert, will be set at 71 percent.

6.7 Adjust the setpoint of 1-CH-LCV-1112C, VCT Level Control VCT Divert, to 71 percent (potentiometer setting of 7.1).

6.8 Raise VCT level to approximately 50 percent

**CAUTION**

IF the "A" Gas Stripper is aligned to Unit 2, THEN to prevent the Unit 2 VCT from diverting to the Gas Stripper while the Gas Stripper is isolated, the setpoint of 2-CH-LCV-2112C, VCT Level Control VCT Divert, will be set at 71 percent.

6.9 IF leakage past 1-CH-LCV-1115A, VCT LEVEL CONTROL VALVE, is suspected AND it is desired to isolate Unit 1 from the Gas Stripper, THEN do the following:

6.9.1 IF the "A" Gas Stripper is aligned to Unit 2, THEN notify the Unit 2 CRO that Unit 2 will also be isolated from the Gas Stripper.

6.9.2 IF the "A" Gas Stripper is aligned to Unit 2, THEN have the Unit 2 CRO adjust the setpoint of 2-CH-LCV-2112C, VCT Level Control VCT Divert, to 71 percent (potentiometer setting of 7.1) to prevent the Unit 2 VCT from diverting to the isolated Gas Stripper.

6.9.3 IF the "A" Gas Stripper is aligned to Unit 1, THEN close 1-BR-TV-111A, "A" GAS STRIPPER INLET.

6.9.4 IF the "B" Gas Stripper is aligned to Unit 1, THEN close 1-BR-TV-123, GAS STRIPPER X-CONNECT.

6.9.5 Ensure a current Work Request or Work Order is active on  
1-CH-LCV-1115A, that identifies the valve as having internal leak-by.

6.10 IF leakage past the trip valve seats is suspected, THEN close 1-BR-33, ~~Prim~~ Coolant  
Letdown to 6A Stripper Feed HX Isol, and 1-BR-34, Prim Cool Letdown Unit 1 to  
Unit 2 XConn Valve.

6.11 IF using the Unit 1 PCS, THEN do the following:

6.11.1 Ensure the computer points to be used in Attachment 1, Unit 1 PCS Leak  
Rate Data Sheet, are GOOD (green).

6.11.2 IF performing this procedure concurrently with 1-PT-52.2A, Reactor  
Coolant System Leak Rate (Computer Calculation), THEN coordinate the  
procedures as specified in Precautions and Limitations Step 4.11.

6.11.3 IF NOT performing this procedure concurrently with 1-PT-52.2A, THEN  
wait at least 5 minutes before beginning Step 6.11.4.

**NOTE:** IF performing this procedure concurrently with 1-PT-52.2A, THEN the time  
period before the initial data is available will be dependent upon the Time  
Basis setting of the RCS ~~Leak~~ Rate Program.

6.11.4 Obtain the initial data and record on Attachment 1 in the Initial column.

**NOTE:** At least 1 hour **must** elapse between initial and final readings unless a VCT  
makeup or **PDTT** level change must be performed.

6.11.5 Wait at least 1 hour before continuing with this test.

6.11.6 Obtain the final data and record on Attachment in the Final column.

6.11.7 Perform the calculations shown on Attachment

6.11.8 Obtain an Independent Review of the Calculations on Attachment 1.

6.12 IF the Unit 1 PCS are NOT available, THEN do the following:

6.12.1 While referring to P&L Step 4.17, select the appropriate instrumentation that will be **used** to collect data on Attachment 2, Leak Rate Data Sheet Without Using The Unit 1 PCS Computer.

6.12.2 Obtain the Initial Data and record on Attachment 2 in the Initial column.

**NOTE:** At least 1 hour must elapse between initial and final readings unless a VCT makeup or PDTT level change **must** be performed.

6.12.3 Wait at least one hour before continuing with this test.

6.12.4 Obtain the Final Data and record on Attachment 2 in the Final column.

6.12.5 Perform the calculations shown on Attachment 2

6.12.6 Obtain an Independent Review **of the** Calculations on Attachment 2.

6.13 Open the stripper inlet valves closed in Step 6.9 unless otherwise directed by the SRO.

6.14 IF closed in Step 6.10, THEN open the following valves:

- I-BR-33, Prim Coolant Letdown to **6A** Stripper Feed HX Iso]
- 1-BK-34, ~~Prim~~ Cool Letdown Unit 1 to **Unit 2** XConn Valve

## 7.0 FOLLOW-ON

### 7.1 Acceptance Criteria

7.1.1 RCS identified leakage is less than 9,000 gpm. (Reference 2.4.4)

7.1.2 The limit of 1 gpm Unidentified **Leak** Rate from the RCS has not been exceeded.

### 7.2 Follow-On Tasks

7.2.1 **IF** the Unidentified **Leak** Rate is greater than 0.2 gpm, **THEN** do Substep 7.2.1.a **OR** Substep 7.2.2.b below. (References 2.1.1 and 2.3.10)

a. Do the following:

1. Initiate a walkdown of the Containment and the Auxiliary Building.
2. Perform the applicable portions of 1-PT-46.21, RCS Pressure Boundary Components Affected by Boric Acid Accumulation, to determine and quantify the source of any RCS leakage and any components that may be affected by potential boric acid accumulation.
3. Notify the STA to monitor RWST level to determine if there is any leakage. **IF** there **is** leakage, **THEN** notify System Engineering of the leakage so that the **LHSI** lines can be evaluated for gas accumulation. (Reference 2.4.1)
4. Notify the Operations Manager On-Call.
5. Request the OMOC evaluate conducting an Operations Decision Making review in accordance with O-GOP-9.6, Operational Decision Making and Emergent Issue Procedure and Checklist.



6. Notify System Engineering to evaluate the potential for hydrogen accumulation in Containment. (References **2.4.7** and **2.3.12**)

7. Record Unidentified Leak-Rate on the Cover Sheet.

b. Do the following:

1. Notify the Operations Manager On-Call.

2. Obtain permission from the Operations Manager On Call to not perform Containment and the Auxiliary Building walkdowns and 1-PT-46.21.

3. Request the OMOC evaluate conducting an Operations Decision Making review in accordance with 0-GOP-9.6, Operational Decision Making and Emergent Issue Procedure and Checklist.

4. Notify the STA to monitor RWST level to determine if there is any inleakage. ~~IF~~ there is inleakage, **THEN** notify System Engineering of the inleakage so that the LHSI lines can be evaluated for gas accumulation. (Reference **2.4.1**)

5. Notify System Engineering to evaluate the potential for hydrogen accumulation in Containment. (References **2.4.7** and **2.3.12**)

6. Document the reason for not **performing** the walkdowns and 1-PT-46.21 in the Narrative Log.

7. Record Unidentified Leak-Rate on the Cover Sheet.

NOTE: The 0.2 gpm increase is an absolute value. IF the leakrate increases from -0.1 gpm to +0.1 gpm, THEN the leakrate has increased by 0.2 gpm. (Reference 2.3.10)

7.2.2 IF the Unidentified Leak Rate increased by more than 0.2 gpm since the last performance of 1-PT-46.21, THEN do the following:  
(References 2.1.1 and 2.4.6)

- a. Record the Unidentified Leak-Rate and the amount of increase since the last performance of 1-PT-46.21 on the Cover Sheet.
- b. Initiate a walkdown of Auxiliary Building or Containment, if required.
- c. Perform the applicable portions of 1-PT-46.21 to determine and quantify the source of any RCS leakage and any components that may be affected by potential boric acid accumulation.
- d. Notify the STA to monitor RWST level to determine if there is any inleakage. IF there is inleakage, THEN notify System Engineering of the inleakage so that the LHSI lines can be evaluated for gas accumulation. (Reference 2.4.1)
- e. Notify System Engineering.
- f. Notify the Operations Manager On-Call.

7.2.3 IF any symptom of RCS leakage exists such as even a slight change to the leakrate baseline or an adverse trend, THEN do the following:  
(Reference 2.4.6)

- Promptly report the increased leakage to the Operations Manager On-Call and System Engineering.
- Promptly investigate the symptoms of increased RCS leakage.

7.2.4 IF the Unidentified **Leak** Rate doubles since the last performance of 1-PT-46.21 AND is greater than 0.05 gpm, THEN do the following:  
(Reference 2.4.6)

- Promptly report the increased leakage to the Operations Manager On-Call and System Engineering.
- Request the OMOC evaluate conducting an Operations Decision Making review in accordance with 0-GOP-9.6, Operational Decision Making and Emergent Issue Procedure and Checklist.

7.2.5 IF the Identified Leak Rate recorded is greater than 10 gpm, THEN refer to the Action Statement of Tech Spec 3.4.13.

7.2.6 IF the Unidentified **Leak** Rate is greater than 1 gpm, THEN refer to the Action Statement of Tech Spec 3.4.13.

7.2.7 IF the Identified **Leak** Rate recorded is greater than 5.0 gpm, THEN submit a Plant Issue. (References 2.3.7 and 2.4.5)

7.2.8 IF the Unidentified **Leak** Rate is greater than 0.5 gpm, THEN submit a Plant Issue. (References 2.3.7 and 2.4.5)

7.2.9 IF the Unidentified Leak Rate is more negative than -0.1 gpm, THEN submit a Plant Issue. (Reference 2.3.9)

7.2.10 IF the Acceptance Criteria was satisfied and 1-E-52.2.4 was not required by Step 6.1, THEN coversheet 1-PT-52.2A, Reactor Coolant System Leakrate (Computer Calculation)

7.2.11 Record the **following** information in the Unit 1 Narrative Log:

- Identified leak rate
- Unidentified leak rate
- Containment sump inleakage
- Reading on I-RM-RMS-159, Containment Particulate Radiation Monitor
- Reading on 1-Rh4-RMS-160, Containment Gaseous Radiation **Monitor**

### 7.3 Completion Notification

Notify the SRO this test is complete.

Completed by: \_\_\_\_\_ Date: \_\_\_\_\_

(Page 1 of 1)  
**Attachment 1**  
**Unit 1 PCS Leak Rate Data Sheet**

Parameter	Final	Initial	Difference	Multiplier	Gallons
Date:	_____	_____			
Time:	_____	_____	_____ minutes		
PZR Level: (U0683)	_____ %	- _____ %	= _____ %	x (45.9 gal/%)	= _____ (a)
VCT Level: (L1CH001A)	_____ %	- _____ %	= _____ %	x (14.1 gal/%)	= _____ (b)
PDTT Level: (Y2015A) (Use I-SC-5.9):	_____ %	_____ %			
	_____ gal	- _____ gal	= _____		= _____ (c)
RCS Temp: (U0684, U0689*)	_____ °F	- _____ °F	= _____ °F	x _____	= _____ (d) (Attachment 3)

Total Leak Rate =  $\frac{(d) - (b) - (a)}{(\text{minutes})}$  = \_\_\_\_\_ gpm

Accumulator Leakage (Attachment 4) = \_\_\_\_\_ gpm(e)

PRT Leakage (Attachment 4) = \_\_\_\_\_ gpm(f)

Other Leakage (Attachment 5) = \_\_\_\_\_ gpm(g)

Identified Leak Rate = (e) + (f) + (g) +  $\left[ \frac{(c)}{\text{minutes}} \right]$  = \_\_\_\_\_ gpm

Unidentified Leak Rate = Total Leak Rate - Identified Leak Rate = \_\_\_\_\_ gpm

Prepared By: \_\_\_\_\_

Date: \_\_\_\_\_

Reviewed By: \_\_\_\_\_

Date: \_\_\_\_\_

\*Use U0684 when Tavg is greater than 535°F. Use U0689 when Tavg is less than or equal to 535°F.

(Page 1 of 1)  
Attachment 2

Leak Rate Data Sheet Without Using The Unit 1 PCS Computer

Parameter	Final	Initial	Difference	Multiplier	Gallons
Date:	_____	_____			
Time:	_____	_____	_____ minutes		
PZR Level:	_____ %	_____ %	= _____ %	x (45.9 gal/%)	= _____ (a)
VCT Level:	_____ %	_____ %	= _____ %	x (14.1 gal/%)	= _____ (b)
PDTT Level:	_____ %	_____ %			
(Use 1-SC-5.9):	_____ gal	_____ gal	=		_____ (c)
RCS Temp:	_____ °F	_____ °F	= _____ °F	x _____ (Attachment 3)	= _____ (d)

$$\text{Total Leak Rate} = \frac{(d) - (b) - (a)}{(\text{minutes})} = \text{_____ gpm}$$

$$\text{Accumulator Leakage (Attachment 4)} = \text{_____ gpm(e)}$$

$$\text{PRT Leakage (Attachment 4)} = \text{_____ gpm(f)}$$

$$\text{Other Leakage (Attachment 5)} = \text{_____ gpm(g)}$$

$$\text{Identified Leak Rate} = (e) + (f) + (g) + \left[ \frac{(c)}{(\text{minutes})} \right] = \text{_____ gpm}$$

$$\text{Unidentified Leak Rate} = \text{Total Leak Rate} - \text{Identified Leak Rate} = \text{_____ gpm}$$

Prepared By: \_\_\_\_\_

Date: \_\_\_\_\_

Reviewed By: \_\_\_\_\_

Date: \_\_\_\_\_

(Page 1 of 2)

**Attachment 3**

**RCS Volume/Temperature Correction Factors (Gal/°F)**

**RHR Isolated**

Temp*	Factor	Temp*	Factor	Temp*	Factor
100	13.14	250	28.94	400	42.25
110	14.64	260	29.77	410	43.25
120	16.02	270	30.61	420	44.28
130	17.31	280	31.44	430	45.36
140	18.53	290	32.28	440	46.47
150	19.67	300	33.14	450	47.63
160	20.76	310	34.00	460	48.85
170	21.79	320	34.88	470	50.12
180	22.78	330	35.79	480	51.46
190	23.73	340	36.72	490	52.86
200	24.65	350	37.67	500	54.35
210	25.54	360	38.54	510	56.33
220	26.41	370	39.43	520	58.49
230	27.26	380	40.35	530	60.88
240	28.11	390	41.28		

Temp**	Factor	Temp**	Factor	Temp**	Factor
540	63.53	557	68.84	574	75.48
541	63.82	558	69.19	575	75.92
542	64.10	559	69.54	576	76.37
543	64.39	560	69.90	577	76.83
544	64.69	561	70.26	578	77.30
545	64.98	562	70.63	579	77.77
546	65.28	563	71.00	580	78.25
547	65.58	564	71.38	581	78.74
548	65.89	565	71.76	582	79.24
549	66.20	566	72.15	583	79.74
550	66.52	567	72.55	584	80.26
551	66.84	568	72.95	585	80.78
552	67.16	569	73.36	586	81.31
553	67.49	570	73.77	587	81.85
554	67.82	571	74.19	588	82.40
555	68.15	572	74.61	589	82.96
556	68.49	573	75.04		

\* Temperature values may be rounded to the nearest multiple of 10.

\*\* Temperature values may be rounded to the nearest integer.

(Page 2 of 2)

**Attachment 3**

**RCS Volume/Temperature Correction Factors (Gal/°F)**

**RHR Operating**

Temp*	Factor	Temp*	Factor
100	13.94	240	29.81
110	15.52	250	30.70
120	16.99	260	31.58
130	18.36	270	32.46
140	19.65	280	33.35
150	20.86	290	34.24
160	22.02	300	35.14
170	23.11	310	36.06
180	24.16	320	37.00
190	25.17	330	37.96
200	26.14	340	38.94
210	27.08	350	39.96
220	28.01	360	40.88
230	28.92		

\*Temperature values may be rounded to the nearest multiple of 10.



(Page 1 of 1)

**Attachment 4**  
**SI Accumulators And PRT Leakage**

**NOTE:** When in Mode 5 only one level channel for each SI Accumulator is required to be recorded in the table below.

1. IF in Mode 5 AND only one channel for a SI Accumulator will be recorded, THEN, in both the Initial and Final Time columns, mark N/A the same channel which will NOT be recorded.

**SI ACCUMULATORS**

Initial			Final		
Date:		Time:	Date:		Time:
Accumulator	Level (percent)		Accumulator	Level (percent)	
A	LI-1920:	LI-1922:	A	LI-1920:	LI-1922:
B	LI-1924:	LI-1926:	B	LI-1924:	LI-1926:
C	LI-1928:	LI-1930:	C	LI-1928:	LI-1930:
Average	percent		Average	percent	
Time Difference = _____ minutes					
Accumulator Leakage = $\frac{(\text{Final} - \text{Initial})(21.48 \text{ gal/\%})}{(\text{minutes})} = \text{_____ gpm}$					

**PRT**

(Use 1-SC-5.11)			
Initial		Final	
Date:	Time:	Date:	Time:
PRT Level (see Attachment 6): _____ percent		PRT Level (see Attachment 6): _____ percent	
PRT Level:* _____ gallons		PRT Level:* _____ gallons	
Time Difference = * _____ minutes			
PRT Leakage = $\frac{(\text{Final} - \text{Initial})}{(\text{minutes})} = \text{_____ gpm}$			

\*IF there is no change in PRT level, THEN mark applicable blanks NA AND PRT Leakage as 0 gpm.

Prepared By: \_\_\_\_\_  
Reviewed By: \_\_\_\_\_

Date:.. \_\_\_\_\_  
Date: \_\_\_\_\_

## Attachment 5

In the spaces below, fill in the indicated data and total the leak rates for any other identified leak in the RCS. Any significant **Primary to Secondary** Leakage may be included.

Whenever **RCS leakage is** observable, but its source cannot be positively confirmed, formal evaluation **and** documentation **MUST** be completed prior to characterizing the leakage **as "identified" as** defined in Tech Specs. (Reference **2.4.3**)

[illegible]

Total of Other Identified *Leak* Rate: \_\_\_\_\_ gpm

(Page 1 of 1)

**Attachment 6**

**Useful Computer Points And Control Room indications**

<u>Unit 1 PCS points</u>	<u>Control Room Indications</u>	
RCS Temperature	RCS Temperature	
T1RC024C (Average Loop Temp)	1-RC-TI-1412D	
T1RC022C (T <sub>hot</sub> Average)	1-RC-TI-1422D	
T1RC023C (T <sub>cold</sub> Average)	1-RC-TI-1432D	
U0684 (RCS combined loops T <sub>avg</sub> )		
U0689 (RCS cold leg temps avg)		
T1RC002C (RCS Loop A Tave)		
T1RC003C (RCS Loop B Tave)		
T1RC004C (RCS Loop C Tave)		
PKT Level	PRT Level	
L1RC005A	1-RC-LI-1470	
L0485A		
VCT Level	VCT Level	
L1CH001A	1-CH-LI-1112-1	
L1CH002A	1-CH-LI-1115	
L0112A		
Pressurizer Level	Pressurizer Level	
U0683 (Average)	1-RC-LI-1459.4	
L1RC001A	1-RC-LI-1460	
L1RC002A	1-RC-LI-1461	
L1RC003A		
L0480A		
L0481A		
L0482A		
PDTT Level	PDTT Level	
Y2015A	1-DG-LI-101	
SI Accumulator Level	SI Accumulator Level	
A: L1SI001A, L1SI002A	1-SI-LI-1920, 1-SI-LI-1922	
B: L1SI003A, L1SI004A	1-SI-1-1-1924, 1-SI-1-1-1926	
C: L1SI005A, L1SI006A	1-SI-LI-1928, 1-SI-LI-1930	

**NORTH ANNA POWER STATION  
INITIAL LICENSE EXAMINATION  
ADMINISTRATIVE  
JOB PERFORMANCE MEASURE**

**ADMIN JPM**

Determine Stay Time And Dressout Requirements For A  
Given Task.

CANDIDATE

---

EXAMINER

---

**NORTH ANNA POWER STATION  
INITIAL LICENSE EXAMINATION  
ADMINISTRATIVE  
JOB PERFORMANCE MEASURE**

**Task:**

Determine Stay Time and Dressout Requirements For A Given Task. Validation time is 25 mins.

**References:**

RWP; Survey Maps, BRWT

**Candidate:**

NAME

**Performance Rating:**

SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

**Examiner:**

NAME

SIGNATURE

DATE

**COMMENTS**

**Tools/Equipment/Procedures Needed:**

Correct RWP  
Correct Survey Map

**READ TO OPERATOR**

**DIRECTION TO TRAINEE:**

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

**INITIAL CONDITIONS:**

Unit-1 Non-Regen Hx. has been tagged out for maintenance.

Maintenance requests your assistance in the northwest corner of the Non-Regen Hx cube to determine why water is still in the Hx.

**INITIATING CUES:**

You are requested to determine your maximum allowed stay time in the area allowed by RWP 04-1-0005 and to determine the dressout requirements for the job. Write your answers on the handout sheet provided.

<p><b><u>STEP 1:</u></b> Obtain a copy of WWP 04-1-0005 and survey map for Unit 1 Non-Regen &amp; Seal Water Hx. Cubes.</p> <p><b><u>STANDARD:</u></b> From the reference book provided, the operator obtains RWP 04-1-0005 and the correct survey map (Unit 1 Non-Regen &amp; Seal Water Hx. Cubes).</p> <p><b><u>COMMENTS:</u></b></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><b><u>STEP 2:</u></b> Use survey map and RWP to determine stay time.</p> <p><b><u>STANDARD:</u></b> Operator uses RWP to determine dose allowed is 10 mRem. Operator uses survey map to determine general area dose rate is 40 mr/hr. Operator then divides 10 by 40 to obtain a stay time of 15 minutes.</p> <p><b><u>COMMENTS:</u></b> This is a critical step</p> <p><b><u>NOTES:</u></b> .25 hrs/15 minutes/a quarter of an hour are all acceptable</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><b><u>STEP 3:</u></b> Determine dressout requirements to perform the job.</p> <p><b><u>STANDARD:</u></b> Operator uses survey map Operator determines area is Hot Particle Area Operator uses survey map to determine dressout requirements are: Hood, Coveralls, Outer Rubber Boots, High Top Shoe Covers, Cotton Inserts, Rubber Gloves, Disposable Hood, Gloves, Coveralls, Plastic Shoe Covers, and Tape all Outer Seams.</p> <p><b><u>COMMENTS:</u></b> This is a critical step.</p>	<p>___ SAT</p> <p>___ UNSAT</p>

**END OF TASK**

***\*\*Italicized Cues Are To Be Used Only If JPM Performance Is Being Simulated.***

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

**INITIAL CONDITIONS:**

Unit-1 Non-Regen Hx. has been tagged out for maintenance.

Maintenance requests your assistance in the northwest corner of the Non-Regen Hx cube to determine why water is still in the Hx.

**INITIATING CUES:**

You are requested to determine your maximum allowed stay time in the area allowed by RWP 04-1-0005 and to determine the dressout requirements for the job. Write your answers on the handout sheet provided.



DAD DOSE RATE ALARM : **90 mRem/Hr**

PROJECTED EXPOSURE : 1311 mRem

DAD DOSE LIMIT ALARM : **10 mRem**

ALARA EVALUATION# : 04-002

JOB LOCATION : Station Property excluding Unit 1 and Unit 2 Reactor Containments.

COPY

JOB DESCRIPTION : Routine duties by Operations personnel.

TRAINING USE ONLY

THE **MAXIMUM** POSTED AREA THAT CAN BE ENTERED ON THE RWP IS:  
High Radiation Area.

RADIOLOGICAL CONDITIONS:

GENERAL AREA RADIATION LEVELS ( mRem/Hr ) : See current RCA surveys.

CONTACT HOT SPOT RADIATION LEVELS ( mRem/Hr ) : See current RCA surveys.

CONTAMINATION LEVELS ( dpm/100cm<sup>2</sup> ) : See current RCA surveys.

AIRBORNE RADIOACTIVITY (DAC) : <.30

REQUIRED JOB COVERAGE: Routine

1.0 Continuous HP coverage, ARW with a dose rate instrument, or a DAD with worker knowledge of work area dose rates required for entry into "High Radiation Area".

DOSIMETRY REQUIREMENTS: TLD DAD/SRD

1.0 An alternate means of BAD alarm recognition is required.

PROTECTIVE CLOTHING REQUIREMENTS:

HEAD AND BODY

FEET

HANDS

Hood (1)

Outer Rubber Boots

Cotton Inserts

Coveralls (1)

High Top Shoe Covers

Rubber Gloves (1 pair)

1.0 Protective Clothing requirements may be modified by **HPSS**.

2.0 Protective Clothing requirements as stated are for entry into "Contaminated Areas" only.

3.0 babcoat, high top shoe covers, rubbers boots, cotton inserts, and rubber gloves may be worn as specified by the Health Physics Shift Supervisor.

Prepared by : Joseph Rudmann

Date : 11/19/2003

Approved By :

Date :

Revised by : ROBERT MCNUTT

Date : 03/02/2004

Approved By :

Date :

Terminated by :

Date :

Approved By :

Date :

ORIGINAL

Page 1 of 3

**RADIATION WORK PERMIT 04-1-0005**

4.0 Protective clothing requirements for Hot Particle Areas (in addition to those stated above)

4.1 HPA - disposable hood, gloves, and and coveralls, plastic shoe covers and tape all outer seams.

4.2 Workers interfacing with individuals/equipment in a HPA - Gloves and face shield.

---

**RESPIRATORY REQUIREMENTS:**

---

**A RWP PRE-JOB BRIEFING IS REQUIRED.**

---

**MINIMUM TRAINING REQUIRED TO USE THIS RWP : BRWII**

---

**POWER STATION**  
**RADIATION WORK PERMIT 04-1-0005**

C-HP-1081.010  
**ATTACHMENT 1**  
(REVISION 6)

---

**WORKER INSTRUCTIONS:**

- 1.0 Upon receiving any DAD alarm, ensure equipment is left in a safe condition and leave the area and report to the Health Physics office.
  - 2.0 Workers are responsible for notifying the HPSS prior to venting\draining systems, that may affect Radiological Conditions in an area, to ensure proper Health Physics Monitoring.
  - 3.0 HPA exit instructions:
    - 3.1 Use extreme care in removing PCs and frisking.
    - 3.2 Workers(including those interfacing with workers/equipment in HPA) are to proceed directly to the RCA exit for whole body monitoring.
    - 3.3 Workers that will remain in the RCA will be monitored by HP upon exiting the HPA.
  - 4.0 Do not remove any items from HPA until authorized by HP.
  - 5.0 Notify HP-Ops prior to entry into any area posted equivalent to "Neutron dose monitoring required for entry".
  - 6.0 Review ALARA action plan prior to initial entry under this RWP.
  - 7.0 No entry into any overhead area of the RCA will be made unless HP has evaluated the radiological conditions in the area and approved the entry.
  - 8.0 Unless continuous Health Physics coverage is provided, workers shall read their SRD/DAD at least once every 15 minutes.
- 

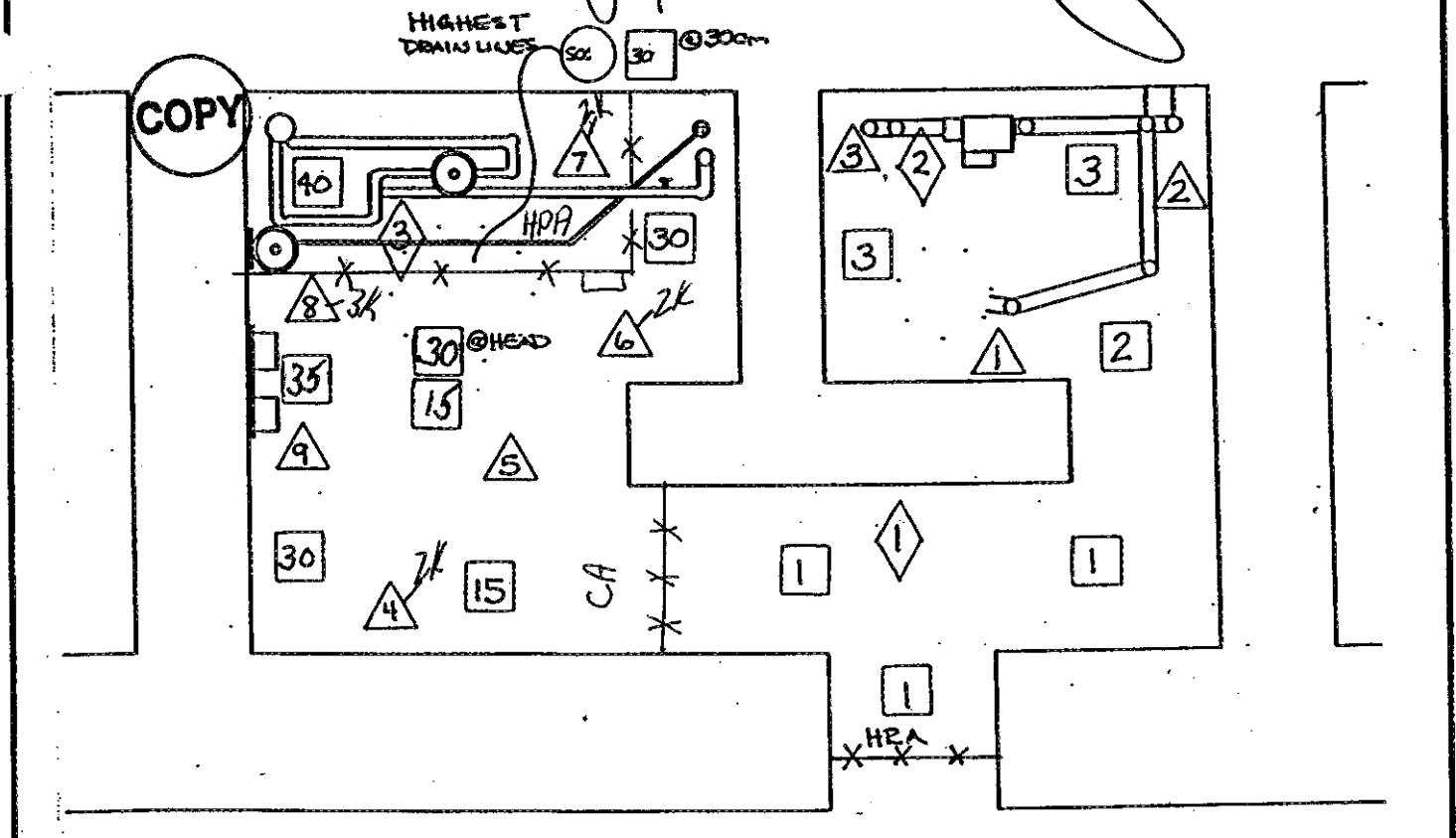
**HEALTH PHYSICS INSTRUCTIONS :**

- 1.0 HPA monitoring requirements:
  - 1.1 Workers exposed skin shall be monitored by HP every 2 hours(unless specified by the HPSS) while the worker is in the HPA.
    - 1.1.1 Workers wearing respirators shall have face monitored as soon as possible after removing the respirator.
  - 1.2 Personnel monitoring for workers exiting HPAs will consist of a whole body scan within 1/2 inch using: 1) RM-14 (with HP-210 background <10,000 cpm);or 2) RO-2 (open window background <1.0 mrem/hr).
    - 1.2.1 Individual release criteria: a net reading of 48,000 cpm or <2.0 mrem/hr.
- 2.0 Neutron Dose determination is required for all entries into areas posted equivalent to "Neutron Dose Calculation Required for Entry".
  - 2.1 Neutron Bubble Dosimeter should be used for all ISFSI activities such as loading, decontamination, transporting the loaded cask, and ISFSI inner fence entries.
  - 2.2 Neutron and Noble Gas Dose Calculation Record should be used for containment power entries, equipment hatch PTs, use of the AmBe source in HRCL, and ISFSI work if bubble dosimetry fails during use or is not available.

(Page 1 of 2)  
Attachment 1

### Radiological Survey Map And Record

Map Number <b>8E</b>	Location/Description <b>AB 244' Unit 1 NonRegen Seal Water Hx Cubes</b>	Date <b>04-02-04</b>	Time <b>2030</b>
Purpose: <input checked="" type="checkbox"/> Routine <input type="checkbox"/> Non-Routine <input type="checkbox"/> RWP Prep., for RWP No. #		Reactor Power	
Type: <input checked="" type="checkbox"/> Gamma <input type="checkbox"/> Beta <input type="checkbox"/> Neutron <input checked="" type="checkbox"/> Smear, GA <input checked="" type="checkbox"/> Smear, LA <input type="checkbox"/> Smear, HP <input type="checkbox"/> Air Sample		Unit 1 <b>100%</b>	Unit 2 <b>100%</b>
Instrument Model	Serial #	<input checked="" type="checkbox"/> All GA Smears < 1000 DPM/100 cm <sup>2</sup> Except as noted on map or smear worksheet. <input type="checkbox"/> All GA Smears < 1000 DPM/100 cm <sup>2</sup> <input checked="" type="checkbox"/> All LA smears < 1000 DPM/100 cm <sup>2</sup> <input type="checkbox"/> All HP smears < 1 HP/smear <input type="checkbox"/> Air particulate + I <sub>2</sub> < 0.1 DAC <input checked="" type="checkbox"/> <u>SMears counted on BC-4 CUD</u> <input type="checkbox"/> All GA smears in DPM/100 cm <sup>2</sup> <input checked="" type="checkbox"/> All HP smears in HPs/smear <input checked="" type="checkbox"/> All gamma readings in mrem/hr <input type="checkbox"/> All neutron readings in mrem/hr <input type="checkbox"/> All beta readings in mrad/hr	
TELE	111993		
RM-14	8647		
BC-4	1604, 1608		
Comments		Survey RWP <b>04-2-1506</b>	
Survey Team Dose, mrem (SPD/DAD or calculated) <b>1</b>	Submitted By (Printed Name, Signature) <b>KIRSTEN BRIDGES</b>	Reviewed By (Printed Name, Signature) <b>M. BRADLEY</b>	Date <b>4-2-04</b>

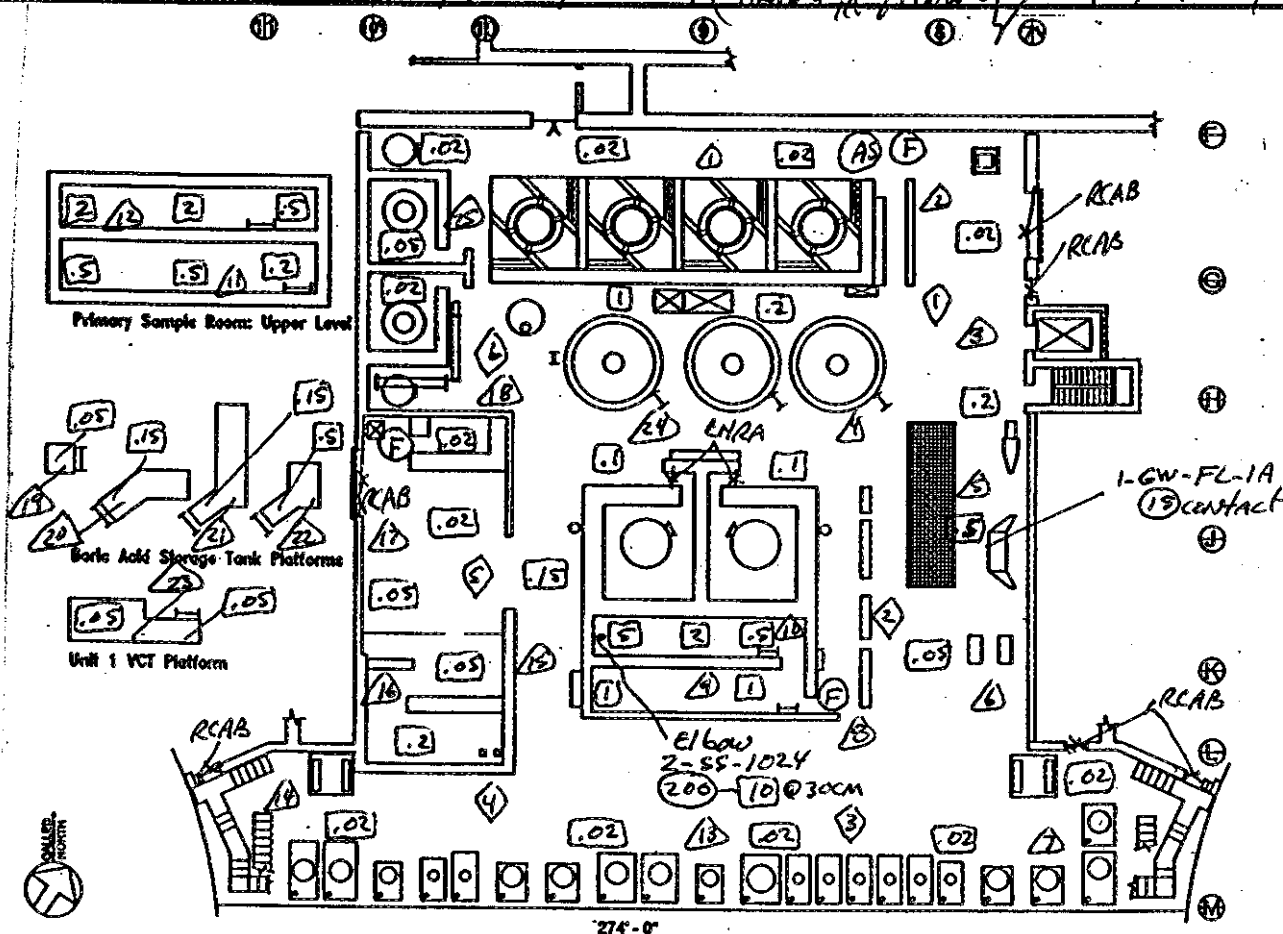


(Page 1 of 2)  
Attachment 1

# Radiological Survey Map And Record

Map Number <b>6</b>	Location/Description <b>Auxiliary Building 274'</b>	Date <b>4/19/04</b>	Time <b>0200</b>
Purpose: <input checked="" type="checkbox"/> Routine <input type="checkbox"/> Non-Routine <input type="checkbox"/> RWP Prep., for RWP No. #		Reactor Power	
Type: <input checked="" type="checkbox"/> Gamma <input type="checkbox"/> Beta <input type="checkbox"/> Neutron <input checked="" type="checkbox"/> Smear, GA <input checked="" type="checkbox"/> Smear, LA <input type="checkbox"/> Smear, HP <input checked="" type="checkbox"/> Air Sample		Unit 1 <b>100</b>	Unit 2 <b>100</b>
Instrument Model	Serial #	<input type="checkbox"/> All GA Smears < 1000 DPM/100 cm <sup>2</sup> Except as noted on map or smear worksheet. <input checked="" type="checkbox"/> All GA Smears < 1000 DPM/100 cm <sup>2</sup> <input checked="" type="checkbox"/> All LA smears < 1000 DPM/100 cm <sup>2</sup> <input type="checkbox"/> All HP smears < 1 HP/smear <input checked="" type="checkbox"/> Air particulate + I <sub>2</sub> < 0.1 DAC <input checked="" type="checkbox"/> SMRAAS ON BC-4 < LLD <input type="checkbox"/> All GA smears in DPM/100 cm <sup>2</sup> <input type="checkbox"/> All HP smears in HPs/smear <input checked="" type="checkbox"/> All gamma readings in mrem/hr <input type="checkbox"/> All neutron readings in mrem/hr <input type="checkbox"/> All beta readings in mrad/hr	
<b>E-520</b>	<b>3927</b>		
<b>RM-14</b>	<b>8647</b>		
<b>HP09V</b>	<b>7991</b>		
<b>BC-4</b>	<b>664/668</b>		
Comments		Survey RWP <b>04-1-0002</b>	
Survey Team Dose, mrem (SRD/DAD or calculated)	Submitted By (Printed Name, Signature)	Reviewed By (Printed Name, Signature)	Date
<b>1</b>	<b>T.G. Hudson</b>	<b>[Signature]</b>	<b>4-19-2004</b>

COPY



LDWA - Low Dose Waiting Areas  
LHRA - Locked High Radiation Area  
HRA - High Radiation Area  
RA - Radiation Area  
Gen. Area; ○ Contact; △ GA Smear; ◇ LA Smear; △\* HP Smear; AS Air Sample Location; LCK Locked Gate; X-X-X Barrier

HPA - Hot Particle Area  
CA - Contaminated Area  
ARA - Airborne Radioactivity Area  
RM - Radioactive Material (s)

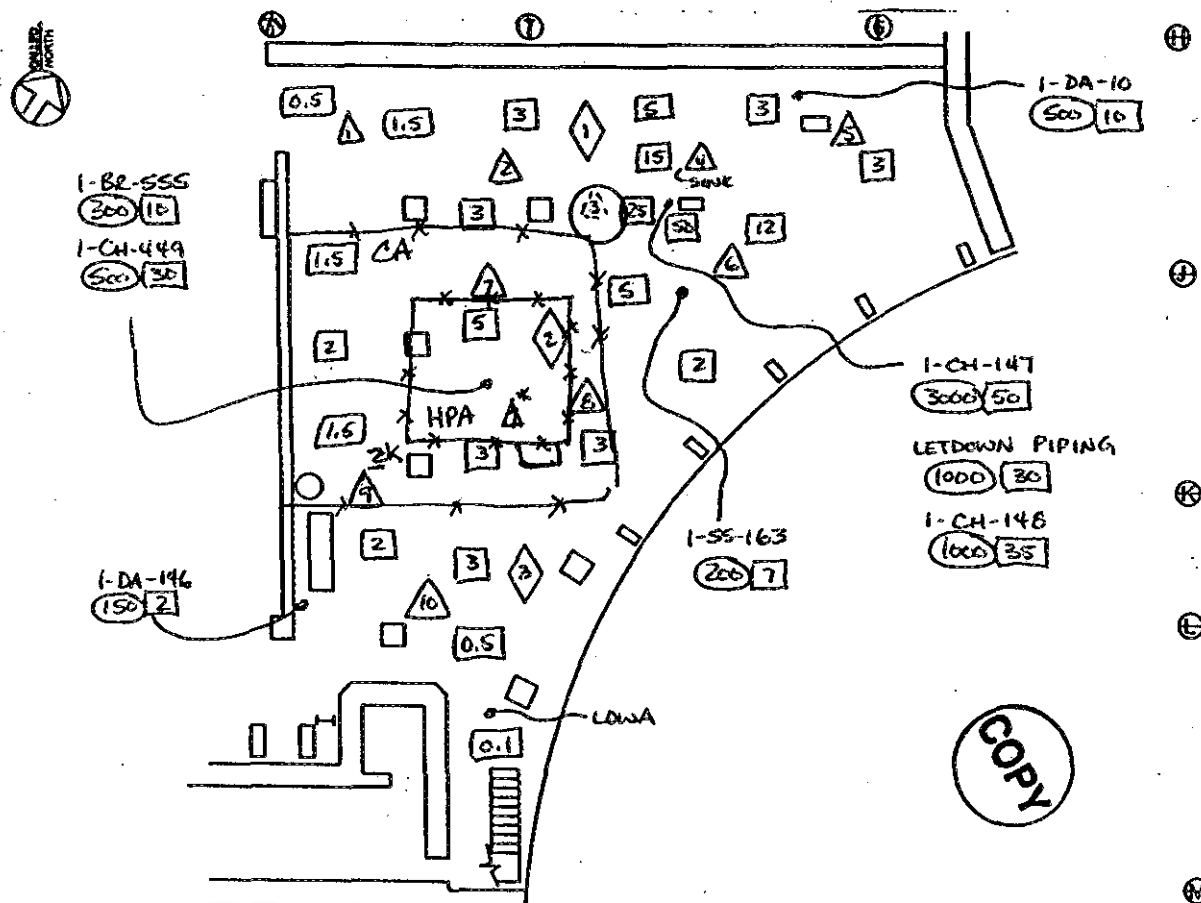
CAM - Continuous Air Monitor  
Ⓢ - Frisking Station  
RCAB - Radiological Control Area Boundary  
NDC - Neutron Dose Calculation Required

(Page 1 of 2)

Attachment 1

Radiological Survey Map And Record

Map Number <b>8B</b>	Location/Description <b>AB 244, Unit 1 Penetration Area</b>	Date <b>4-24-04</b>	Time <b>2600</b>
Purpose: <input checked="" type="checkbox"/> Routine <input type="checkbox"/> Non-Routine <input type="checkbox"/> RWP Prep., for RWP No. #		Reactor Power	
Type: <input checked="" type="checkbox"/> Gamma <input type="checkbox"/> Beta <input type="checkbox"/> Neutron <input checked="" type="checkbox"/> Smear, GA <input checked="" type="checkbox"/> Smear, LA <input type="checkbox"/> Smear, HP <input type="checkbox"/> Air Sample		Unit 1 <b>100</b>	Unit 2 <b>100</b>
Instrument Model	Serial #	<input type="checkbox"/> All GA Smears < 1000 DPM/100 cm <sup>2</sup> Except as noted on map or smear worksheet. <input checked="" type="checkbox"/> All GA Smears < 1000 DPM/100 cm <sup>2</sup> <input checked="" type="checkbox"/> All LA smears < 1000 DPM/100 cm <sup>2</sup> <input type="checkbox"/> All HP smears < 1 HP/smear <input type="checkbox"/> Air particulate + I <sub>2</sub> < 0.1 DAC <input checked="" type="checkbox"/> All GA smears < 1000 m BC-4 <input type="checkbox"/> All GA smears in DPM/100 cm <sup>2</sup> <input checked="" type="checkbox"/> All HP smears in HPs/smear <input checked="" type="checkbox"/> All gamma readings in mrem/hr <input type="checkbox"/> All neutron readings in mrem/hr <input type="checkbox"/> All beta readings in mrad/hr	
<b>TELETECTOR</b>	<b>92949</b>		
<b>RM-14</b>	<b>8647</b>		
<b>BC-4</b>	<b>664, 668</b>		
Comments		Survey RWP <b>04-2-1506</b>	
Survey Team Dose, mrem (SRD/DAD or calculated)	Submitted By (Printed Name, Signature) <b>B. Thompson, B. Thompson</b>	Reviewed By (Printed Name, Signature) <b>Sims, W. W. Sims</b>	Date <b>4-25-04</b>



LDWA - Low Dose Waiting Areas  
 LHFA - Locked High Radiation Area  
 HRA - High Radiation Area  
 RA - Radiation Area  
 Gen. Area; ○ Contact; △ GA Smear; ◇ LA Smear; ▲ HP Smear; AS Air Sample Location; LCK Locked Gate; XXX Barrier

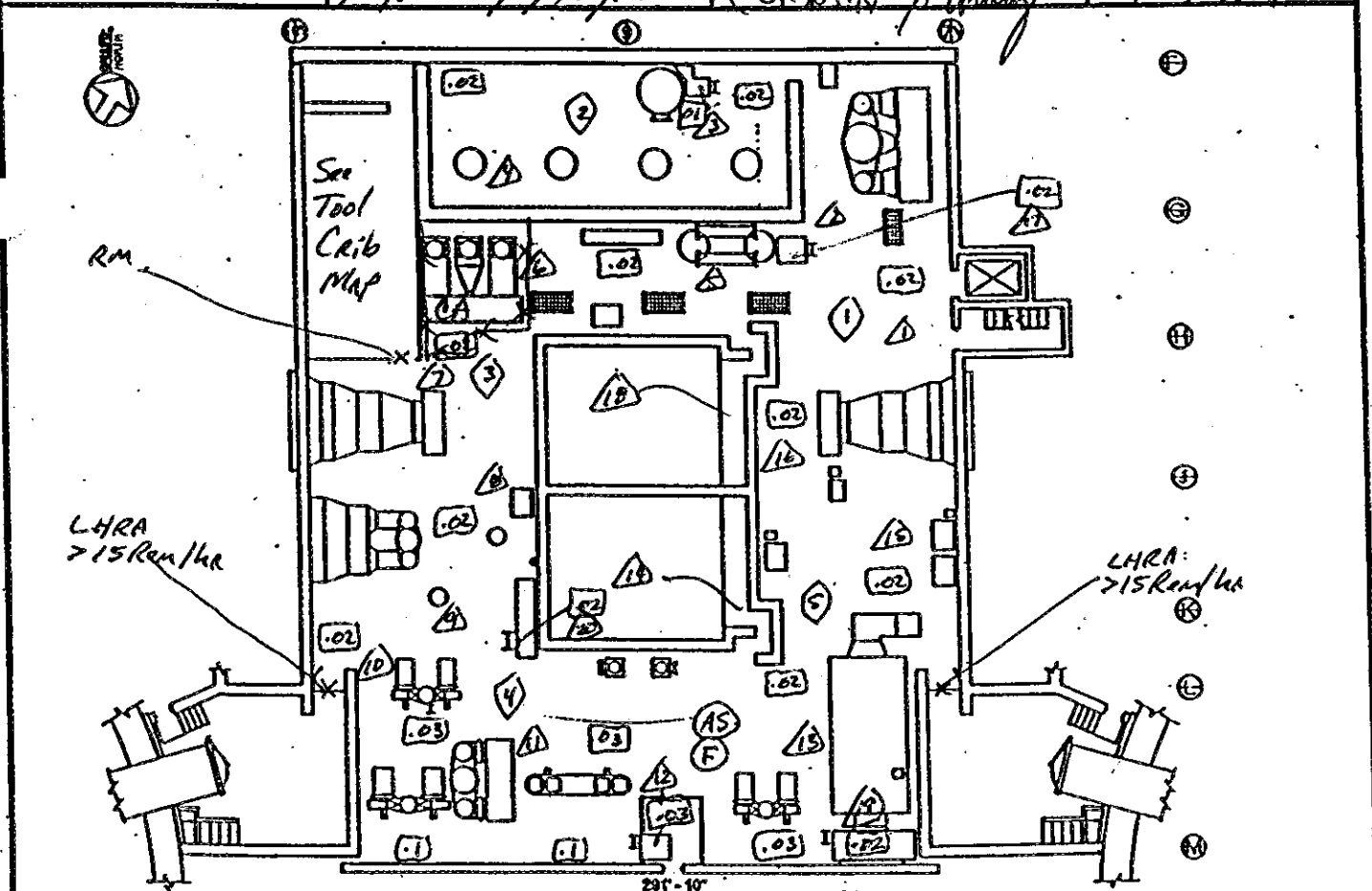
HPA - Hot Particle Area  
 CA - Contaminated Area  
 ARA - Airborne Radioactivity Area  
 RM - Radioactive Material (s)

CAM - Continuous Air Monitor  
 ⊕ - Frisking Station  
 RCAB - Radiological Control Area Boundary  
 NDC - Neutron Dose Calculation Required

(Page 1 of 2)  
Attachment 1

# Radiological Survey Map And Record

Map Number <b>5</b>	Location/Description <b>Auxiliary Building 291</b>	Date <b>4/19/04</b>	Time <b>0020</b>
Purpose: <input checked="" type="checkbox"/> Routine <input type="checkbox"/> Non-Routine <input type="checkbox"/> RWP Prep., for RWP No. #		Reactor Power	
Type: <input checked="" type="checkbox"/> Gamma <input type="checkbox"/> Beta <input type="checkbox"/> Neutron <input checked="" type="checkbox"/> Smear, GA <input checked="" type="checkbox"/> Smear, LA <input type="checkbox"/> Smear, HP <input checked="" type="checkbox"/> Air Sample		Unit 1 <b>100</b>	Unit 2 <b>100</b>
Instrument Model	Serial #	<input type="checkbox"/> All GA Smears < 1000 DPM/100 cm <sup>2</sup> Except as noted on map or smear worksheet. <input checked="" type="checkbox"/> All GA Smears < 1000 DPM/100 cm <sup>2</sup> <input checked="" type="checkbox"/> All LA smears < 1000 DPM/100 cm <sup>2</sup> <input type="checkbox"/> All HP smears < 1 HP/smear <input checked="" type="checkbox"/> Air particulate + $\frac{1}{2}$ < 0.1 DAC <input checked="" type="checkbox"/> <b>Smears on BC-4 &lt; LLD</b> <input type="checkbox"/> All GA smears in DPM/100 cm <sup>2</sup> <input type="checkbox"/> All HP smears in HPs/smear <input checked="" type="checkbox"/> All gamma readings in mrem/hr <input type="checkbox"/> All neutron readings in mrem/hr <input type="checkbox"/> All beta readings in mrad/hr <div style="border: 1px solid black; border-radius: 50%; width: 50px; height: 50px; display: flex; align-items: center; justify-content: center; margin: 10px auto;">COPY</div>	
<b>E-520</b>	<b>3927</b>		
<b>RM-14</b>	<b>8647</b>		
<b>H809V</b>	<b>7991</b>		
<b>BC-4</b>	<b>664/668</b>		
Comments		Survey RWP <b>04-1-0002</b>	
Survey Team Dose, mrem (SPD/DAD or calculated) <b>0</b>	Submitted By (Printed Name, Signature) <b>J. G. H. [Signature]</b>	Reviewed By (Printed Name, Signature) <b>OR [Signature]</b>	Date <b>4-19-2004</b>



LDWA - Low Dose Walking Areas	HPA - Hot Particle Area	CAM - Continuous Air Monitor
LHRA - Locked High Radiation Area	CA - Contaminated Area	(E) - Frisking Station
HRA - High Radiation Area	ARA - Airborne Radioactivity Area	RCAB - Radiological Control Area Boundary
RA - Radiation Area	RM - Radioactive Material (s)	NDC - Neutron Dose Calculation Required
<input type="checkbox"/> Gen. Area; <input type="circle"/> Contact; <input type="triangle"/> GA Smear; <input type="inverted-triangle"/> LA Smear; <input type="square"/> HP Smear; AS Air Sample Location; LCK Locked Gate; -X-X-X- Barrier		

(Page 1 of 2)

Attachment 1

Radiological Survey Map And Record

Map Number <b>7</b>	Location/Description <b>Auxiliary Building 259'</b>	Date <b>4/19/04</b>	Time <b>0310</b>
Purpose: <input checked="" type="checkbox"/> Routine <input type="checkbox"/> Non-Routine <input type="checkbox"/> RWP Prep., for RWP No. #		Reactor Power	
Type: <input checked="" type="checkbox"/> Gamma <input type="checkbox"/> Beta <input type="checkbox"/> Neutron <input checked="" type="checkbox"/> Smear, GA <input checked="" type="checkbox"/> Smear, LA <input type="checkbox"/> Smear, HP <input checked="" type="checkbox"/> Air Sample		Unit 1 <b>100</b>	Unit 2 <b>100</b>
Instrument Model	Serial #	<input type="checkbox"/> All GA Smears < 1000 DPM/100 cm <sup>2</sup> Except as noted on map or smear worksheet. <input checked="" type="checkbox"/> All GA Smears < 1000 DPM/100 cm <sup>2</sup> <input checked="" type="checkbox"/> All LA smears < 1000 DPM/100 cm <sup>2</sup> <input type="checkbox"/> All HP smears < 1 HP/smear <input checked="" type="checkbox"/> Air particulate + I <sub>2</sub> < 0.1 DAC <input checked="" type="checkbox"/> Smears on BL-4 < LLD <input type="checkbox"/> All GA smears in DPM/100 cm <sup>2</sup> <input type="checkbox"/> All HP smears in HPs/smear <input checked="" type="checkbox"/> All gamma readings in mrem/hr <input type="checkbox"/> All neutron readings in mrem/hr <input type="checkbox"/> All beta readings in mrad/hr	
<b>E-S20</b>	<b>3927</b>		
<b>RM-14</b>	<b>8647</b>		
<b>HE09V</b>	<b>7991</b>		
<b>BL-4</b>	<b>664/668</b>		
Comments		Survey RWP <b>04-1-0002</b>	
Survey Team Dose, mrem (SPD/DAD or calculated) <b>0</b>	Submitted By (Printed Name, Signature) <b>10/10/04/10/10/04</b>	Reviewed By (Printed Name, Signature) <b>02/02/04/10/10/04</b>	Date <b>4-19-2004</b>

259'-6"

LDWA - Low Dose Walking Areas	HPA - Hot Particle Area	CAM - Continuous Air Monitor
LHRA - Locked High Radiation Area	CA - Contaminated Area	(E) - Frisking Station
IRA - High Radiation Area	ARA - Airborne Radioactivity Area	RCAB - Radiological Control Area Boundary
RA - Radiation Area	RM - Radioactive Material (s)	NDC - Neutron Dose Calculation Required
<input type="checkbox"/> Gen. Area; <input type="checkbox"/> Contact; <input type="checkbox"/> GA Smear; <input type="checkbox"/> LA Smear; <input type="checkbox"/> HP Smear; <input type="checkbox"/> AS Air Sample Location; <input type="checkbox"/> LCK Locked Gate; <input type="checkbox"/> XXX Barrier		

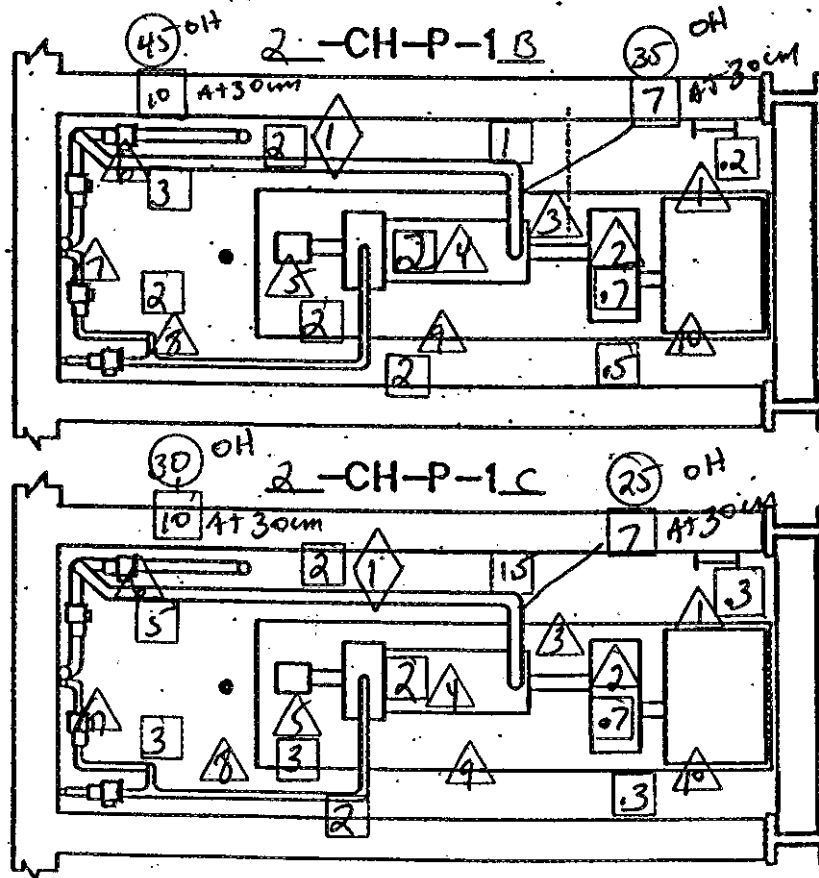


(Page 1 of 2)  
Attachment 1

# Radiological Survey Map And Record

Map Number <b>27</b>	Location/Description <b>Charging Pumps</b>	Date <b>4-5-04</b>	Time <b>2105</b>
Purpose: <input checked="" type="checkbox"/> Routine <input type="checkbox"/> Non-Routine <input type="checkbox"/> RWP Prep., for RWP No. #		Reactor Power	
Type: <input checked="" type="checkbox"/> Gamma <input type="checkbox"/> Beta <input type="checkbox"/> Neutron <input checked="" type="checkbox"/> Smear, GA <input checked="" type="checkbox"/> Smear, LA <input type="checkbox"/> Smear, HP <input type="checkbox"/> Air Sample		Unit 1 <b>100</b>	Unit 2 <b>100</b>
Instrument Model	Serial #	<input type="checkbox"/> All GA Smears < 1000 DPM/100 cm <sup>2</sup> Except as noted on map or smear worksheet. <input checked="" type="checkbox"/> All GA Smears < 1000 DPM/100 cm <sup>2</sup> <input checked="" type="checkbox"/> All LA smears < 1000 DPM/100 cm <sup>2</sup> <input type="checkbox"/> All HP smears < 1 HP/smear <input type="checkbox"/> Air particulate + t <sub>2</sub> < 0.1 DAC <input checked="" type="checkbox"/> All smears < LLD on Bc4 <input type="checkbox"/> All GA smears in DPM/100 cm <sup>2</sup> <input type="checkbox"/> All HP smears in HPs/smear <input checked="" type="checkbox"/> All gamma readings in mrem/hr <input type="checkbox"/> All neutron readings in mrem/hr <input type="checkbox"/> All beta readings in mrad/hr	
<b>Rm-14</b>	<b>8647</b>		
<b>Tele</b>	<b>111992</b>		
<b>Bc4</b>	<b>664, 668</b>		
Comments <b>OH - DVC/HEAD</b>		Survey RWP <b>04-1-0002</b>	
Survey Team Dose, mrem (SRD/DAD or calculated) <b>&lt;1</b>	Submitted By (Printed Name, Signature) <b>Smeltz, T. / [Signature]</b>	Reviewed By (Printed Name, Signature) <b>Sims, W. / [Signature]</b>	Date <b>4-6-04</b>

COPY



LDWA - Low Dose Walking Areas  
LHRA - Locked High Radiation Area  
HRA - High Radiation Area  
RA - Radiation Area  
Gen. Area; ○ Contact; △ GA Smear; ◇ LA Smear; △\* HP Smear; AS Air Sample Location; LCK Locked Gate; -X-X- Barrier

HPA - Hot Particle Area  
CA - Contaminated Area  
ARA - Airborne Radioactivity Area  
RM - Radioactive Material (s)

CAM - Continuous Air Monitor  
ⓔ - Frisking Station  
RCAB - Radiological Control Area Boundary  
NDC - Neutron Dose Calculation Required

(Page 1 of 2)  
Attachment 1

Radiological Survey Map And Record

Map Number <b>27</b>	Location/Description <b>Charging Pumps</b>	Date <b>4-5-04</b>	Time <b>2130</b>
Purpose: <input checked="" type="checkbox"/> Routine <input type="checkbox"/> Non-Routine <input type="checkbox"/> RWP Prep., for RWP No. #		Reactor Power	
Type: <input checked="" type="checkbox"/> Gamma <input type="checkbox"/> Beta <input type="checkbox"/> Neutron <input checked="" type="checkbox"/> Smear, GA <input checked="" type="checkbox"/> Smear, LA <input type="checkbox"/> Smear, HP <input type="checkbox"/> Air Sample		Unit 1 <b>100</b>	Unit 2 <b>100</b>
Instrument Model	Serial #	<input type="checkbox"/> All GA Smears < 1000 DPM/100 cm <sup>2</sup> Except as noted on map or smear worksheet. <input checked="" type="checkbox"/> All GA Smears < 1000 DPM/100 cm <sup>2</sup> <input checked="" type="checkbox"/> All LA smears < 1000 DPM/100 cm <sup>2</sup> <input type="checkbox"/> All HP smears < 1 HP/smear <input type="checkbox"/> Air particulate + I <sub>2</sub> < 0.1 DAC <input checked="" type="checkbox"/> Smears counted on BC-4 LLD. <input type="checkbox"/> All GA smears in DPM/100 cm <sup>2</sup> <input type="checkbox"/> All HP smears in HPs/smear <input checked="" type="checkbox"/> All gamma readings in mrem/hr <input type="checkbox"/> All neutron readings in mrem/hr <input type="checkbox"/> All beta readings in mrad/hr	
<b>Tele 61128</b>	<b>111993/111992</b>		
<b>RM-14</b>	<b>8647</b>		
<b>BC-4</b>	<b>664; 668</b>		

COPY

Comments **OH = Overhead**

Survey RWP

**04-1-0002**

Survey Team Dose, mrem  
(SRD/DAD or calculated)

**1.0**

Submitted By (Printed Name, Signature)

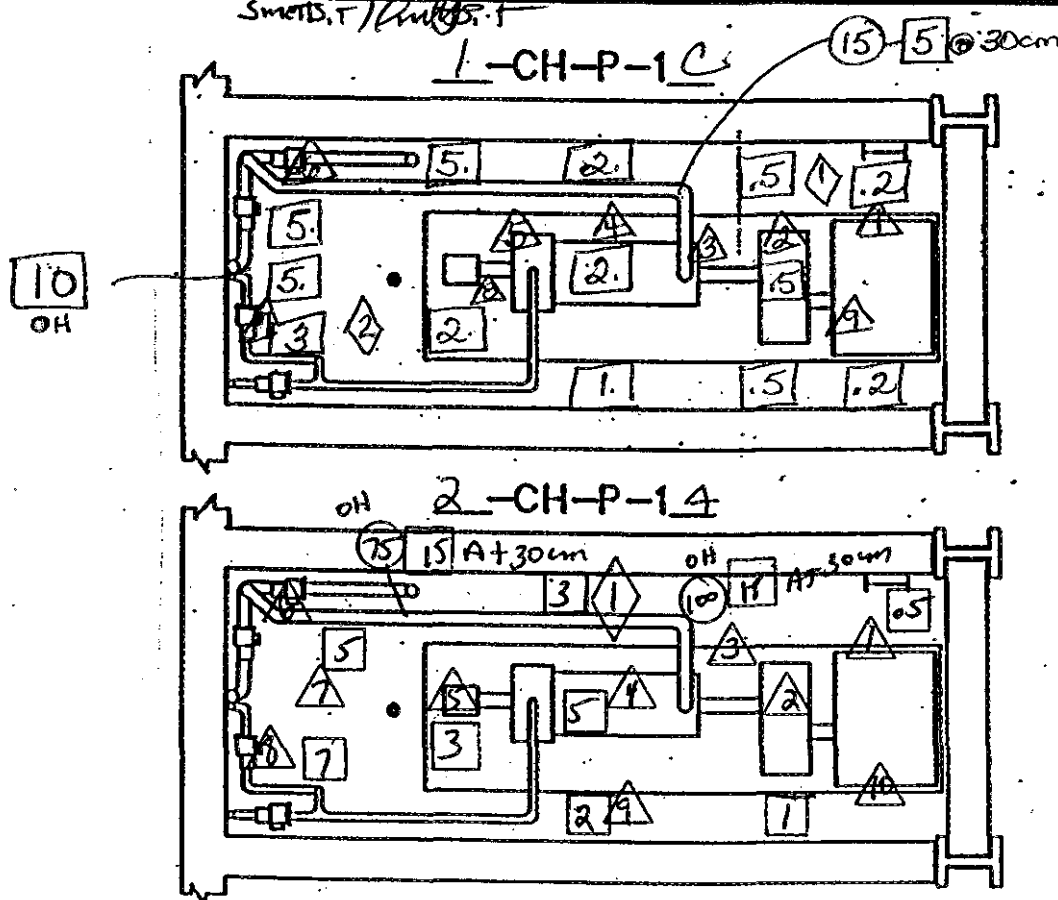
**Edmonds, J. Edmonds**

Reviewed By (Printed Name, Signature)

**Sims, W. W.C. Sims**

Date

**4-6-04**



LDWA - Low Dose Waiting Areas

LHRA - Locked High Radiation Area

HRA - High Radiation Area

RA - Radiation Area

□ Gen. Area; ○ Contact; △ GA Smear; ◇ LA Smear; △\* HP Smear; AS Air Sample Location; LCK Locked Gate; -X-X-X Barrier

HPA - Hot Particle Area

CA - Contaminated Area

ARA - Airborne Radioactivity Area

RM - Radioactive Material (s)

CAM - Continuous Air Monitor

(E) - Frisking Station

RCAB - Radiological Control Area Boundary

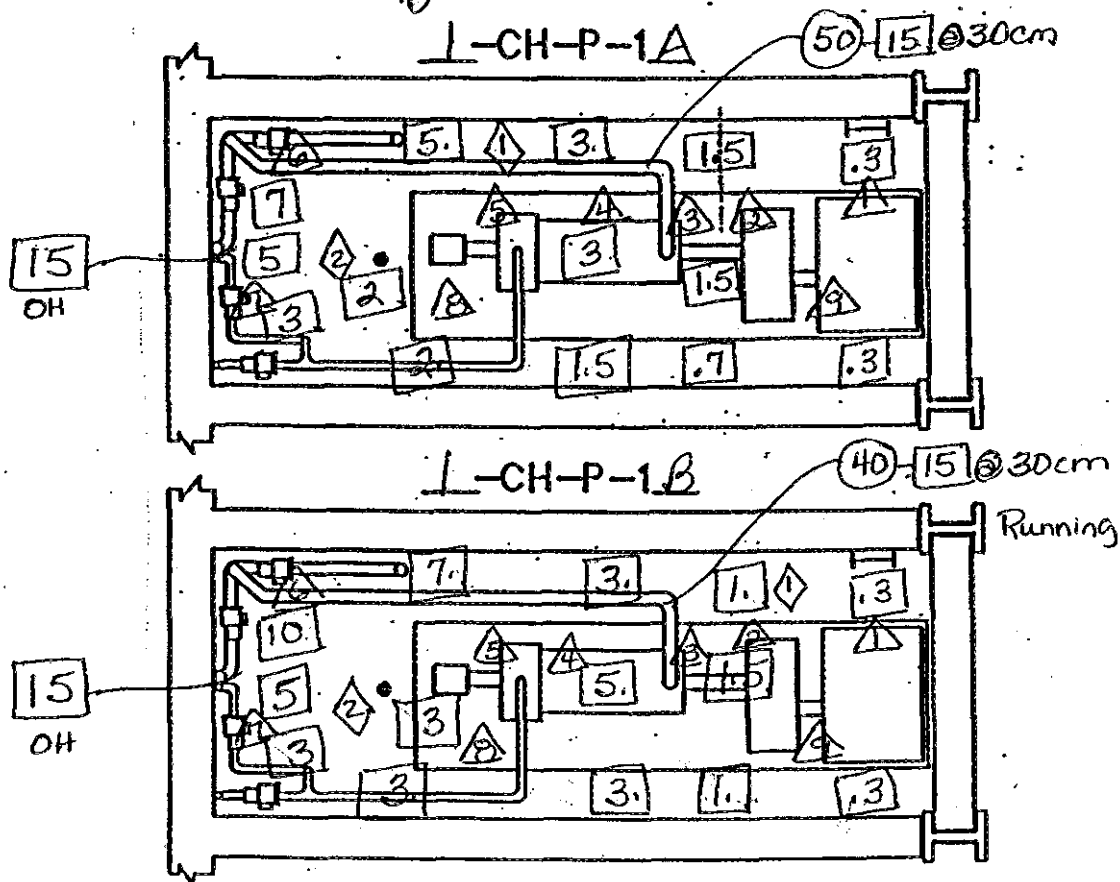
NDC - Neutron Dose Calculation Required

(Page 1 of 2)  
Attachment 1

Radiological Survey Map And Record

Map Number <b>27</b>	Location/Description <b>Charging Pumps</b>	Date <b>4-5-04</b>	Time <b>2130</b>
Purpose: <input checked="" type="checkbox"/> Routine <input type="checkbox"/> Non-Routine <input type="checkbox"/> RWP Prep., for RWP No. #		Reactor Power	
Type: <input checked="" type="checkbox"/> Gamma <input type="checkbox"/> Beta <input type="checkbox"/> Neutron <input checked="" type="checkbox"/> Smear, GA <input checked="" type="checkbox"/> Smear, LA <input type="checkbox"/> Smear, HP <input type="checkbox"/> Air Sample		Unit 1 <b>100</b>	Unit 2 <b>100</b>
Instrument Model	Serial #	<input type="checkbox"/> All GA Smears < 1000 DPM/100 cm <sup>2</sup> Except as noted on map or smear worksheet. <input checked="" type="checkbox"/> All GA Smears < 1000 DPM/100 cm <sup>2</sup> <input checked="" type="checkbox"/> All LA smears < 1000 DPM/100 cm <sup>2</sup> <input type="checkbox"/> All HP smears < 1 HP/smear <input type="checkbox"/> Air particulate + I <sub>2</sub> < 0.1 DAC <input checked="" type="checkbox"/> Smears counted on BC-4 LLD. <input type="checkbox"/> All GA smears in DPM/100 cm <sup>2</sup> <input type="checkbox"/> All HP smears in HPs/smear <input checked="" type="checkbox"/> All gamma readings in mrem/hr <input type="checkbox"/> All neutron readings in mrem/hr <input type="checkbox"/> All beta readings in mrad/hr	
<b>Tele 6112B</b>	<b>111993</b>		
<b>RM-14</b>	<b>8647</b>		
<b>BC-4</b>	<b>664; 668</b>		
Comments <b>OH = Overhead</b>		Survey RWP <b>04-1-0002</b>	
Survey Team Dose, mrem (SRD/DAD or calculated)	Submitted By (Printed Name, Signature) <b>Edmonds, J. Edmonds</b>	Reviewed By (Printed Name, Signature) <b>Sims, W W.C. Sims</b>	Date <b>4-6-04</b>

COPY



LDWA - Low Dose Working Areas  
LHRA - Locked High Radiation Area  
HRA - High Radiation Area  
A - Radiation Area  
□ Gen. Area; ○ Contact; Δ GA Smear; ◇ LA Smear; Δ\* HP Smear; AS Air Sample Location; LCK Locked Gate; -X-X-X Barrier

HPA - Hot Particle Area  
CA - Contaminated Area  
ARA - Airborne Radioactivity Area  
RM - Radioactive Material (s)

CAM - Continuous Air Monitor  
Ⓔ - Flushing Station  
RCAB - Radiological Control Area Boundary  
NDC - Neutron Dose Calculation Required

**NORTH ANNA POWER STATION  
INITIAL LICENSE EXAMINATION  
ADMINISTRATIVE  
JOB PERFORMANCE MEASURE**

**ADMIN JPM**

Review And Approve A Work Request For Work Under An  
Existing Tagout

CANDIDATE

---

EXAMINER

---

NORTH ANNA POWER STATION  
INITIAL LICENSE EXAMINATION  
ADMINISTRATIVE  
JOB PERFORMANCE MEASURE

**Task:**

Review an existing tagout to determine if it is adequate for work package provided.

**References:**

DNA\$-2000, "Dominion Work Management Process"  
VPAP-1402 "Control of Equipment, Tag-outs, and Tags"  
Work Package for 1-SCRV-18458  
Tag-out for Low Head S Pump  
11715FM 096A SHT 1 and 2

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**Candidate:** \_\_\_\_\_  
NAME

**Performance Rating:** SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

**Examiner:** \_\_\_\_\_  
NAME SIGNATURE DATE

---

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COMMENTS

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**Tools/Equipment/Procedures Needed:**

Copy of work order for 1-SI-RV-1845B  
11715FM 096A Sht1&2  
DNAP 2000, "Dominion Work Management Process"

**READ TO OPERATOR**

**DIRECTION TO TRAINEE:**

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

**INITIAL CONDITIONS:**

The unit is defueled.  
A tag-out is hanging on 1-SI-P-15, "B" Low Head Safety Injection Pump.  
A copy of the tag-out and prints are on your desk.  
The computerized tagging system is not available

**INITIATING CUES:**

A mechanic comes to your desk requesting approval of a work order on 1-SI-RV-1845B. The mechanic requests to work this package under the tagout for the 1B Low Head SI Pump. You are to review the work order in accordance with DNAP 2000 to determine if the tag-out boundary is adequate for the work requested.

<p><b><u>STEP 1:</u></b> Take a copy of the tag-out and use a print to establish existing boundary.</p> <p><b><u>STANDARD:</u></b> Operator obtains a print and identifies current boundary.</p> <p><b><u>COMMENTS:</u></b></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><b><u>STEP 2:</u></b> Operator locates <b>1-SI-RV-1845B</b> and determines if an adequate boundary exists.</p> <p><b><u>STANDARD:</u></b> Operator locates valve on the print and determines it cannot be worked under the existing tag-out.</p> <p><b><u>COMMENTS:</u></b> <b>This is a critical step.</b></p> <p><b><u>Cue</u></b> Once candidate determines boundary is not adequate, ask them what tags would need to be added to make the existing clearance adequate for the work?</p> <p><b><u>NOTES:</u></b></p>	<p>___ SAT</p> <p>___ UNSAT</p>

***\*\*Italicized Cues Are To Be Used Only If JPM Performance Is Being Simulated.***

**STEP 3:** Add tags necessary to make existing tag out adequate for the new work package.

**TANDARD:** Minimum tags required. 1-SI-MOV-1890C handwheel tagged closed  
1-SI-MOV-1890D handwheel tagged closed  
1-SI-MOV-1864A handwheel tagged closed  
1-SI-MOV-1890C breaker 1-EE-BKR-1H1-2N J3  
1-SI-MOV-1890D breaker 1-EE-BKR-1J1-2N K3  
1-SI-MOV-1864A breaker 1-EE-BKR-1H1-2N H3  
1-SI-214 tagged open

**COMMENTS:** This is a critical task. Student may have additional tags including stickers for the control switches. This is OK but not critical. They are not needed for personnel or equipment safety. It is acceptable for the MOV's used as isolation to express that they need tagged mechanically and electrically. They don't need to give specific breaker numbers.

**END TASK**

\_\_\_ SAT

\_\_\_ UNSAT

***\*\*Italicized Cues Are To Be Used Only If JPM Performance Is Being Simulated.***



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

**INITIAL CONDITIONS:**

The unit is defueled.

A tag-out is hanging on 1-SI-P-1B, "B" Low Head Safety Injection Pump.

A copy of the tag-out and prints are on your desk.

The computerized tagging system is not available

**INITIATING CUES:**

A mechanic comes to your desk requesting approval of a work order on 1-SI-RV-1845B. The mechanic requests to work this package under the tagout for the 1B Low Head SI Pump. You are to review the work order in accordance with DNAP 2000 to determine if the tag-out boundary is adequate for the work requested.

Tagging is not a production process. Tagging is a safety process.

TAGGING RECORD  
NORTH ANNA POWER STATION

PAGE: 1 OF 3

TAGGING RECORD NO. : (N)1-04-SI -0002

COMPONENT TO BE WORKED ON: 1-SI -P -1B - LOWHEAD SAFETY INJECTION PUMP "1B" U-1 SAFEGUARDS BLDG 255'			
ISSUED TO: SHIFT SUPERVISOR	DEPARTMENT: OPS	DATE: 06/01/04	WORK ORDER/DCP NO. : MASTER
TAGS PREPARED BY: LEE BARON	POD: ON REQUEST	DATE: 06/01/04	MOP NO.: MOP-7.02 R22 PO
WORK DESCRIPTION: Replace seal package			REQUEST?: NO

TAGGING NOTE :

CHECK WHICH DRAINS NEED TAGGED AND WHICH RECIRC MOV NEEDS TAGGED

TAGS REVIEWED FOR ACCURACY AND COMPLETENESS:	DATE:	TIME:
APPROVAL TO HANG TAGS:	DATE:	TIME:
TAGS PLACED BY:	DATE:	TIME:
TAGS VERIFIED BY:	DATE:	TIME:
REQUEST TO REMOVE TAGS:	DATE:	TIME:
REMOVED BY:	DATE:	TIME:
TAG REMOVAL VERIFIED BY:	DATE:	TIME:

Tagging is not a production process. Tagging is a safety process.

**TAGGING RECORD  
NORTH ANNA POWER STATION**

PAGE: 2 OF 3

WORKING RECORD NO.: (N)1-04-SI -0002

COMPONENT TO BE WORKED ON: 1-SI-P-1B - LOWHEAD SAFETY INJECTION PUMP "1B" U-1 SAFEGUARDS BLDG 255

ISSUED TO: SHIFT SUPERVISOR				DEPARTMENT: OPS			DATE: 06/01/04		WORK ORDER/DCP NO.: MASTER			
TAGS PREPARED BY: LEE BARON				POD:ON REQUEST			DATE: 06/01/04		MOP NO.: MOP-7.02 R22 PO			
WORK DESCRIPTION: Replace seal package										REQUEST?: NO		
TAG NUM.	TAG TYP	MARK NO.	COMPONENT DESCRIPTION/LOCATION	POSITION TAGGED	ORDER	TAG PLACED DATE	INT/VER	POSITION RETURNED	ORDER	TAG REMOVED DATE	INT/VER	
1	L	-----	SECTION 1: BOUNDARIES									
2	S	STICKER	C/S FOR 1-SI-P-1B U-1 MCR	PLACED	1			REMOVED				
3	S	STICKER	C/S FOR 1-SI-HOV-1890B U-1 MCR	PLACED	1			REMOVED				
4	S	STICKER	C/S FOR 1-SI-MOV-1864B U-1 MCR	PLACED	1			REMOVED				
5	S	STICKER	C/S FOR 1-SI-MOV-1885B U-1 MCR					REMOVED				
6	S	STICKER	C/S FOR 1-SI-MOV-1863B U-1 MCR	PLACED	1			REMOVED				
7	S	STICKER	C/S FOR 1-SI-MOV-1860B U-1 KCR	PLACED	1			REMOVED				
	S	STICKER	C/S FOR 1-SI-MOV-1862B U-1 HCR	PLACED	1			REMOVED				
9	R	1-EE -BKR -15J9	POWER SUPPLY FOR 1-SI-P-1B U-1 EMERGENCY SWITCHGEAR	DISCONN	2			CONNECT				
10	Y	1-SI -MOV -1885B	1-SI-P-1B RECIRC U-1 SFGDS	CLOSED	3			REMOVED				
11	Y	1-SI -MOV -1863B	LHS1 DISCH. TO NORMAL SUCTION HDR AB 244' U-1 PENT AREA WEST WALL	CLOSED	4			REMOVED				
12	Y	1-SI -MOV -1864B	1-SI-P-1B DISCH TO COLD LEGS U-1 SFGDS	CLOSED	4			REMOVED				
13	Y	1-SI -MOV -1890B	1-SI-P-1B DISCH TO HOT LEGS U-1 SFGDS	CLOSED	4			REMOVED				
14	Y	1-SI -MOV -10625	1-SI-P-1B SUCTION FROM RWST U-1 SFGDS	CLOSED	5			REMOVED				
15	Y	1-SI -MOV -1860B	1-SI-P-1B SUCTION FROM CONT SUMP U-1 SFGDS	CLOSED	5			REMOVED				
16	Y	1-SI - -312	SI/RS CROSS CONNECT TO 1-RS-P-2B U-1 SFGDS, OUTSIDE SFGDS BLDG	CLOSED	6			CLOSED				
17	R	1-EE -BKR -1J1-2S E2	POWER SUPPLY FOR 1-SI-MOV-1885B U-1 CABLE VAULT	OPEN	7			CLOSED				
18	R	1-EE -BKR -1J1-2N J2	POWER SUPPLY FOR 1-SI-KOV-1863B U-1 CABLE VAULT	OPEN	8			CLOSED				
19	R	1-EE -BKR -1J1-2N K1	POWER SUPPLY FOR 1-SI-UOV-1864B U-1 CABLE VAULT	OPEN	8			CLOSED				
20	R	1-EE -BKR -1J1-2N K2	POWER SUPPLY FOR 1-SI-MOV-1890B U-1 CABLE VAULT	OPEN	8			CLOSED				



Craft Supervisor's Signature  
SEAY

[illegible]

\*\*\*\*\*
\* VA POWER NCMWB036 NORTH ANNA W/O TASK : Q0480768 01
\* ORIGINAL PRINTED 05/05/2004 PAGE 02 OF 07 WR TAG: \* WR TAG LOC:
\* TASK TITLE: SAFETY/RELIEF VALVE TESTING/ISI TYPE : PREVENTIVE MAINTENANCE
\*\*\*\*\*
TASK JO8 STEPS
STEP NO STEP DESCRIPTION CRAFT REWIRED HOURS TOT HOURS
01 HOLD PRE-JOB BRIEF/STAGE PARTS MECH 2 0.5 1.0
02 REMOVE VLV. FROM SYSTEM MECH 2 1.0 2.0
03 TEST/RECORD AS FOUND CONDITION MECH 2 1.0 2.0
04 RESET/SET/TEST VALVE MECH 2 1.0 2.0
05 REINSTALL VLV. IN SYSTEM MECH 2 1.0 2.0
06 CLEAN UP AREA/REVIEW PAPERWORK MECH 2 0.5 1.0
TOTAL EST HOURS: 10.0
TASK REFERENCE DOCUMENTS
DOC TYPE SUE TYPE DOCUMENT NUMBER SHEET REV TITLE/DESCRIPTION USED(Y/N)
PROC59 000 0-MCM-0415-01 REPAIR OF CROBSY RELIEF VALVES. 1-SI-RV-1845A, B, C
PROC59 000 1-PT-147.1 VALVE INSERVICE INSPECTION (CLASS 2 AND 3 SAFETY AN
TASK TOOLS
QC TOOL # QTY PLANNED TOOL NAME TOOL RANGE
1 GAUGE PRESSURE 0-300 PSI
1 GAUGE PRESSURE 0-600 PSI
1 THERMOMETER DIGITAL -112 TO 1999 F
TORQUE WRENCH 5-80 FT LB
OTHER TOOLS

CRAFTSMAN: \_\_\_\_\_  
 PRINT SIGNATURE DATE BADGE





TASK MATERIALS									
QTY PLANNEO	QTY ALLOC	UI	ITEM NO.	ITEM DESCRIPTION	PRIMARY LOC	SECONDARY LOC	PO NUMBER	QTY USED	
1	0	EA	06050310	GASKET, SPIRAL-WOUND. 1/2" NOMINAL PIPE	SR01CA1J0103	SR02CA1J0103			
1	0	EA	06050320	GASKET, SPIRAL-WOUND, 3/4" NOMINAL PIPE	SR01CA1I0407				
1	0	EA	06050340	GASKET, SPIRAL-WOUND. 1" NOMINAL PIPE	SR01CA1I0407				
1	0	EA	06144510	LUBRICANT, ANTI-SEIZE, 16 OZ. CAN,	SR01M1SH1E02				
1	0	EA	06262360	NUT, HEAVY HEX. 1/2", CS ASTM A194 GR.7.	W501SHJJ0603	SR01CA1K0605			
1	0	EA	06479546	GUIDE, WITH RING, FOR JRAK-BS RELIEF					
1	0	EA	06479547	RING, DISC, FOR MODEL NO. JRAK-BS RELIEF	W501CA2A0106	W5021D0302			
1	0	EA	20800600	ASSEMBLY, BELLOW, W/HOLDER, SS, FOR	SR01CA1E0506				
1	0	EA	20004440	DISC, INSERT. SS A479-316, FOR 3/4" X 1"	SR01CA1G0310				
1	0	EA	20805900	GASKET, SET. STAINLESS STEEL. FOR NOZZLE	SR01CA1G0301				
1	0	EA	20008090	NOZZLE, RELIEF VALVE, VALVE SIZE 3/4",	SR01CA1G0309				
1	0	EA	20809810	PIN, DISC INSERT, RELIEF VALVE, SS 316,	SR01CA1G0404				
0	0	EA	37215210	LUBRICANT, ANTI-SEIZE, 1 LB. CAN. NICKEL	SR01M31A0206				
0	0	EA	37574090	STUD, STRUCTURAL. 1/2" DIAMETER. 3 1/2"	SR01CA1B0206				
1	0	EA	41045559	SPRING, W/WASHERS, SPRING SET PRESSURE	W501CAFF1102				
1	0	EA	42000508	GUIDE, VALVE, WITH RING, SS	SR01M1CA1C10				
1	0	EA	42000510	SPRING, WITH WASHER. CS, FOR CROSBY	SR01CA1F0406				

```
*****
* VA POWER NCMWB036 NORTH ANNA W/O TASK : 00480768 01
* O R I G I N A L PRINTED 05/05/2004 PAGE 06 OF 07 WR TAG: * WR TAG LOC: *
* TASK TITLE: SAFETY/RELIEF VALVE TESTING/ISI TYPE : PREVENTIVE MAINTENANCE
*****
* V A R I A N C E R E A S O N * S U P E R V I S O R ' S I N P U T O N R E W O R K
* ( O P T I O N A L ) * ( O P T I O N A L )
*
* POOR ESTIMATE: _____ MANLOADING: _____ PERSONNEL - OTHER -
* DELAYS : _____ REWORK : _____ PLANNED : _____ MATERIAL : _____
* SCOPE CHANGE : _____ OTHER : _____ TECHNIQUE : _____ TOOL/EQUIP: _____
* COMMENTS : _____ INADVERTENT: _____ DESIGN : _____
* _____ CONTRACTOR : _____ PROCEDURES: _____
* _____ COHMENTS _____
*
* DELAY REASON : _____ MANHRS : _____
* _____
* _____
*****
```

## WORK ORDER PACKAGE FEEDBACK

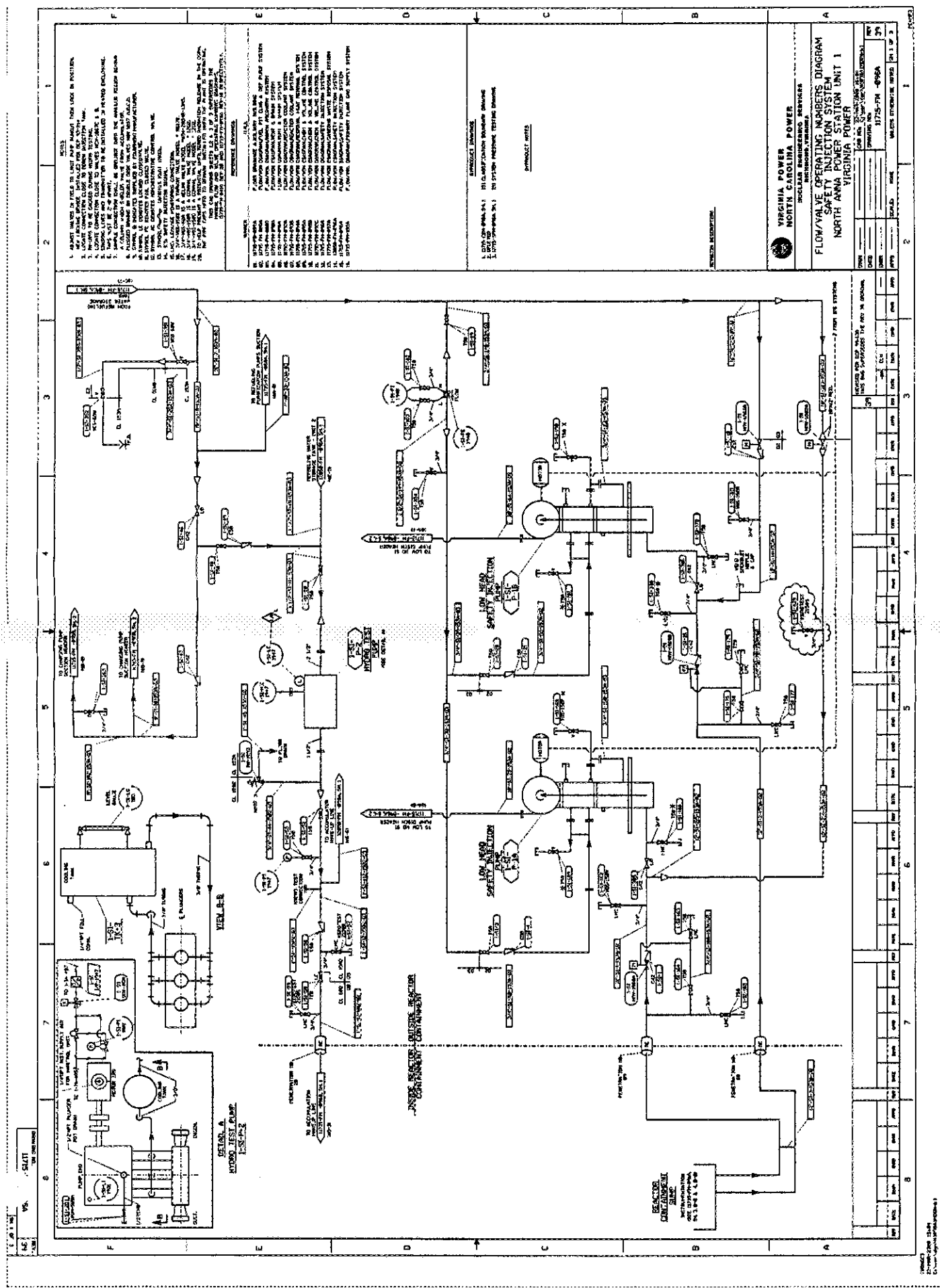
CIRCLE ONE OF THE FOLLOWING. COMMENTS REQUIRED EXCEPT FOR "MET EXPECTATIONS"

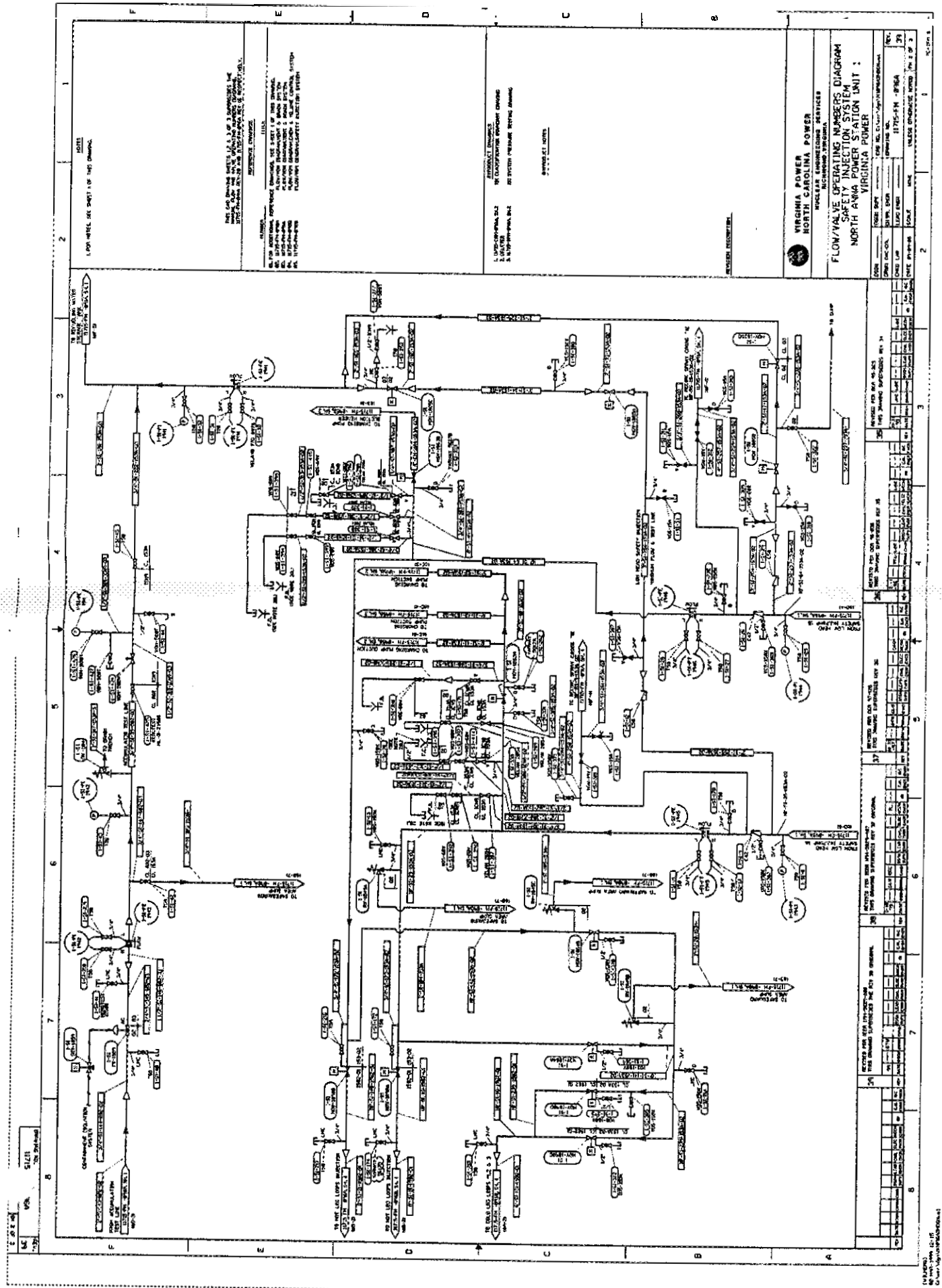
- 1 EXCEEDED EXPECTATIONS  
2 MET EXPECTATIONS  
3 ENHANCEMENTS REQUIRED

\* C O M M E N T S:

CRAFT INFORMATION

\* RESPONSIBLE CREW/SHIFT: \_\_\_\_/\_\_\_\_ SUPERVISOR NAME: \_\_\_\_\_ SCHEDULED DATE: \_\_\_\_/\_\_\_\_/\_\_\_\_ \*





**NORTH ANNA POWER STATION  
INITIAL LICENSE EXAMINATION  
ADMINISTRATIVE  
JOB PERFORMANCE MEASURE**

**ADM JPM**

**Make State And Local Notifications In Accordance With  
EPIP-2.01.**

**CANDIDATE**

---

**EXAMINER**

---

**NORTH ANNA POWER STATION  
INITIAL LICENSE EXAMINATION  
ADMINISTRATIVE  
JOB PERFORMANCE MEASURE**

**Task:**

Make state and local notifications in accordance with EPIP-2.01.

**Time Critical:** Completion of the state notification form is required in 15 mins.

**References:**

EPIP-2.01, " NotificationOf State And Local Governments. "

**Candidate:** \_\_\_\_\_  
NAME

**Performance Rating:** SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

**Examiner:** \_\_\_\_\_  
NAME SIGNATURE DATE

**COMMENTS**



**Tools/Equipment/Procedures Needed:**

EPIP-2.01, " Notification of State And Local Governments. "

**READ TO OPERATOR**

**DIRECTION TO TRAINEE:**

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

**INITIAL CONDITIONS:**

Unit 1 has experienced a large break LOCA.  
A General Emergency has been declared at the time the task is commenced.  
Release of radioactive material is presently occurring.  
Wind is from the NNE at 10 mph.  
Recommended offsite protective actions are standard.  
We will transmit a Report of Radiological Conditions to the State EOC.

All approvals needed by the Shift Managers will be provided by the examiner when requested.

**INITIATING CUES:**

**You are requested to make initial state and focal notifications in accordance with EPIP 2.01, " Notification of State and Local Governments. "**

<p><b>STEP 1:</b> Fill out attachment 2 using the initial conditions provided and get Shift Managers approval to transmit.</p> <p><b>STANDARD:</b> Operator records time on Attachment 2</p> <p><b>COMMENTS:</b> Obtaining Shift Manager approval is a critical task. Filling out the form is not because Shift Manager would correct before approving.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>....___ Start Time</p>
<p><b>STEP 1:</b> Record time notification started on Attachment 2.</p> <p><b>STANDARD:</b> Operator records time on Attachment 2</p> <p><b>COMMENTS:</b></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><b>STEP 2:</b> Use instaphone to contact state and local EOC's. Check boxes on Attachment 2 as contact is made with each EOC. EOCs include Louisa County, Spotsylvania County, State EOC, Hanover County, Orange County, and Caroline County.</p> <p><b>STANDARD:</b> Operator makes contact and checks off each box except Hanover County. They will not answer call. Hanover will get a separate notification later in the JPM.</p> <p><b>COMMENTS:</b></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><b>STEP 3:</b> Read item one: General Emergency and then date and time it was declared.</p> <p><b>STANDARD:</b> Operator reads them General Emergency and gives them a time and date that JPM started.</p> <p><b>COMMENTS:</b></p>	<p>___ SAT</p> <p>___ UNSAT</p>

***\*\*Italicized Cues Are To Be Used Only If JPM Performance Is Being Simulated.***

<p><u>STEP 4:</u> Read item 2: Release of radioactive material is presently occurring.</p> <p><u>STANDARD:</u> Operator tells EOC's a release is presently occurring.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 5:</u> Read item 3: Description of the event, large break <b>loss</b> of coolant accident.</p> <p><u>STANDARD:</u> Operator tells EOCs there is a large break loss of coolant accident.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 6:</u> Read items 4-8: state these items are excluded from this message.</p> <p><u>STANDARD:</u> Operator may deliver these items to the EOC's in a step by step fashion <b>similiar</b> to the other steps or it <b>is</b> permissible to group these steps together since they are ail excluded from this message.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 7:</u> Read item 8: state wind direction is from the <b>NNE</b> at 10 mph.</p> <p><u>STANDARD:</u> Operator tells the EOC's that wind direction is from NNE at <b>10</b> mph.</p> <p><u>COMMENTS:</u> This <b>step is not</b> required. <b>Since this information is provided in</b> the initial <b>conditions</b> the <b>candidate may provide it to the state.</b></p>	<p>___ SAT</p> <p>___ UNSAT</p>

***\*\*Italicized Cues Are To Be Used Only If JPM Performance Is Being Simulated***

<p><b><u>STEP 8:</u></b> Read item 9: state your name and then take roll call. Hanover County will again not answer. Checks should be put in boxes when EOC's acknowledge. Control Room box then needs to be checked and time and date written on item 9.</p> <p><b><u>STANDARD:</u></b> Operator states name and checks all EOC boxes except Hanover County. Control room box is checked and time and date written in.</p> <p><b><u>COMMENTS:</u></b></p>	<p>___ SAT</p> <p>___ WNSAT</p>
<p><b><u>STEP 9:</u></b> Operator now contacts State using DEM ARD. State they are from North Anna Control Room.</p> <p><b><u>STANDARD:</u></b> Operator contacts State using DEM ARD. Operator identifies they are calling from North Anna Control Room.</p> <p><b><u>COMMENTS:</u></b></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><b><u>STEP 10:</u></b> Operator reads item 10: Recommended offsite protective actions are standard.</p> <p><b><u>STANDARD:</u></b> Operator tells EOC PARS are standard.</p> <p><b><u>COMMENTS:</u></b></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><b><u>STEP 11:</u></b> Operator reads item 11: We will issue a report on radiological conditions.</p> <p><b><u>STANDARD:</u></b> Operator tells EOC a report on radiological conditions will be issued.</p> <p><b><u>COMMENTS:</u></b></p>	<p>___ SAT</p> <p>___ WNSAT</p>

***\*\*Italicized Cues Are To Be Used Only If JPM Performance Is Being Simulated.***

<p><b>STEP 13:</b> Operator sets update schedule in item 12 and records name of EOC Duty Officer. Operator signs out and records time and date.</p> <p><b>STANDARD:</b> Operator tells State and records name of Duty Officer. Operator signs out and records time and date.</p> <p><b>COMMENTS:</b></p>	<p><b>CRITICAL STEP</b></p> <p>Stop Time _____</p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><b>STEP 13:</b> Operator verifies all EOCs answered roll call. Recognizes Hanover County did <b>not</b>. Candidate recognizes need to call them by phone.</p> <p><b>STANDARD:</b> Operator recognizes need to contact Hanover by phone.</p> <p><b>COMMENTS:</b> Candidate doesn't need to make phone call. They just need to recognize the need. At this point the JPM is complete.</p> <p style="text-align: center;"><b>END OF TASK</b></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>

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

**INITIAL CONDITIONS:**

Unit 1 has experienced a large break **LOCA**.  
A General Emergency has been declared.  
Release of radioactive material is presently occurring.  
Wind is from the **NNE** at **10 mph**.  
Recommended offsite protective actions are standard.  
We will transmit a Report of Radiological Conditions to the State EOC.

All approvals needed by the Shift Manager will be provided by the examiner when requested.

**INITIATING CUES:**

**You are requested to make initial state and local notifications in accordance with EPIP 2.01, " Notification of State and Local Governments. "**

~~VIRGINIA POWER~~  
NORTH ANNA PWER STATION  
EMERGENCY PLAN IMPLEMENTING PROCEDURE

NUMBER EPIP-2.01	PROCEDURE TITLE NOTIFICATION OF STATE AND LOCAL GOVERNMENTS (With 3 Attachments)	REVISION 25
		PAGE 1 of 18

**PURPOSE**

To initially notify State and local governments of the declaration of an emergency and to provide status updates related to the event.

**ENTRY CONBITIONS**

Any of the following:

1. An emergency has been declared.
2. Entry directed by Station Emergency Manager.

Approvals on File

Effective Date 8/28/02

NUMBER EPIP-2.01	PROCEDURE TITLE NOTIFICATION OF STATE AND LOCAL GOVERNMENTS	REVISION 25 PAGE 2 of 18
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
1	INITIATE PROCEDURE: • By: _____ Date: _____ Time: _____ Location: _____	
2	CHECK FIRST REPORT OF EMERGENCY FOR EVENT - REQUIRED	IF procedure previously initiated, <u>THEN</u> continue from step in effect identified during relief/turnover.
	<b>NOTE:</b> <ul style="list-style-type: none"> <li>• The initial notification of any emergency classification must be completed within 15 minutes of declaring the emergency class.</li> <li>• Items 4 through 8 on Attachment 2 may be excluded from the first report of any emergency classification (including termination).</li> <li>• Attachment 1. Instructions for Completing Report of Emergency to State and Local Governments. may be referenced as needed.</li> </ul>	
3	RECORD INFORMATION ON ATTACHMENT 2 (REPORT OF EMERGENCY TO STATE AND LOCAL GOVERNMENTS)	
4	CHECK EMERGENCY - REMAINS IN EFFECT	IF emergency terminated before message sent. <u>THEN</u> do the following:  a) Record reason event terminated in Item 3.  b) Record "State EOC-only portion of message not applicable" on bottom of Attachment 2 Page 2.
5	HAVE SEM/RM APPROVE REPORT (initial at top of Attachment 2)	



<b>NUMBER</b> EPIP-2.01	<b>PROCEDURE TITLE</b> NOTIFICATION OF STATE AND LOCAL GOVERNMENTS	<b>REVISION</b> 25 <hr/> <b>PAGE</b> 3 of 18
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**STEP**
**ACTION/EXPECTED RESPONSE**
**RESPONSE NOT OBTAINED**

# 6 RECORD TIM% NOTIFICATION STARTED

- NOTE:**
- Multiple items excluded from a message may be read as a single statement. e.g., "Items 4 through 8 excluded from this message."
  - Outbound calls through the PBX system are made by dialing E-1-(area code)-###-####. Direct outbound calls may be made using unrestricted telephones by dialing 9-1-(area code)-###-#### (area code not required for direct outbound calls within local calling area). No prefix is required when using a commercial telephone.

# 7 SEND REPORT OF EMERGENCY TO STATE AND LOCAL GOVERNMENTS:

- |   |  |
|---|--|
| <p>a) Check Instaphone - CLEAR OF<br/>CONFLICTING MESSAGE TRAFFIC</p>   | <p>a) IF Instaphone <u>NOT</u> available.<br/><u>THEN</u> do the following:</p> <ol style="list-style-type: none"> <li>1) Call State EOC on DEM ARD<br/>(Alternate: (804) 674-2400).</li> <li>2) Notify State EOC Duty<br/>Officer of need to transmit<br/>message.</li> <li>3) <u>WHEN</u> Instaphone available<br/>for message transmittal,<br/><u>THEN</u> GO TO Step 9.b.</li> </ol> |
| <p>b) Use instaphone to contact State<br/>and local Emergency Operations<br/>Centers (EOCs)</p>                 | <p>b) IF Instaphone <u>NOT</u> operable.<br/><u>THEN</u> GO TO Step 11.</p>  |
| <p>c) Perform initial roll-call<br/>(check boxes as EOC(s) answer<br/>or circle if no response)</p>             |  |
| <p>d) Read Items 1 through 9</p>  |  |
| <p>e) Perform acknowledgement<br/>roll-call (check boxes as<br/>EOC(s) answer or circle if no<br/>response)</p> |  |

(STEP 7 CONTINUED ON NEXT PAGE)

NUMBER	PROCEDURE TITLE	REVISION
EPIP-2.01	NOTIFICATION OF STATE AND LOCAL GOVERNMENTS	25
		PAGE
		4 of 18

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
7	<p>SEND REPORT OF EMERGENCY TO STATE AND LOCAL GOVERNMENTS: (Continued)</p> <p>f) Repeat any items upon request</p> <p>g) Record date and time transmittal of Items 1 through 9 completed</p> <p>h) Check message reports emergency - REMAINS IN EFFECT</p>	<p>h) <u>IF</u> State EOC acknowledged message. <u>THEN</u> GO TO Step 9.</p> <p><u>IF</u> State EOC did <u>NOT</u> acknowledge message. <u>THEN</u> do the following:</p> <p>1) Use DEM ARD phone to contact State EOC (Alternate: (804) 674-2400 (ask for Duty Officer)).</p> <p><u>IF</u> all means of communications with State EOC are inoperable, <u>THEN</u> do the following:</p> <p>a) Notify SEM/RM.</p> <p>b) GO TO Step 9.</p> <p>2) Read Items 1 through 9.</p> <p>3) GO TO Step 9.</p>

(STEP 7 CONTINUED ON NEXT PAGE)

NUMBER	PROCEDURE TITLE	REVISION
EPIP-2.01	NOTIFICATION OF STATE AND LOCAL GOVERNMENTS	25
		PAGE
		5 of 18

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
7	SEND REPORT OF EMERGENCY TO STATE AND LOCAL GOVERNMENTS: (Continued)	
	i) Use DEM ARD phone to contact State EOC (Alternate: (804) 674-2400 (ask for Duty Officer))	i) <u>IF</u> all means of communications with State EOC are inoperable. <u>THEN</u> do the following: <ol style="list-style-type: none"> <li>1) Use Instaphone to transmit Item 10 to local EOCs.</li> <li>2) Record the following on <b>second</b> page of Attachment 2:               <ul style="list-style-type: none"> <li>• "Transmitted Item 10 to local EOCs."</li> <li>• Date and time transmitted to each local EOC.</li> </ul> </li> <li>3) GO TO Step 9.</li> </ol>
	j) Check State EOC acknowledged message	j) Read Items 1 through 9.
	k) Read Items 10 and 11	
	l) Consult with State EOC Duty Officer to determine desired update message schedule	
	m) Record the following at Item 12: <ul style="list-style-type: none"> <li>• Update message schedule</li> <li>• State EOC Duty Officer's name</li> </ul>	
8	RECORD DATE AND TIME TRANSMITTAL OF ITEMS TO STATE EOC COMPLETE	

NUMBER	PROCEDURE TITLE	REVISION
EPIP-2.01	NOTIFICATION OF STATE AND LOCAL GOVERNMENTS	25
		PAGE
		6 of 18

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED										
9	<p>VERIFY ALL LOCAL EOCs ANSWERED ACKNOWLEDGEMENT ROLL CALL</p>	<p>IF any EOC(s) did <u>NOT</u> answer acknowledgement roll-call. <u>THEN</u> do the following:</p> <p>a) Use telephone to call EOC(s) that did not answer.</p> <p>b) Refer to the table below for order of priority and list of local EOC phone numbers:</p> <table border="1"> <tbody> <tr> <td>Louisa:</td> <td>(540) 967-1234 (local)</td> </tr> <tr> <td>Spotsylvania:</td> <td>(540) 582-7115</td> </tr> <tr> <td>Caroline:</td> <td>(804) 633-5555</td> </tr> <tr> <td>Orange:</td> <td>(540) 672-1234</td> </tr> <tr> <td>Hanover:</td> <td>(804) 547-6140</td> </tr> </tbody> </table> <p>c) IF State EOC notified. <u>THEN</u> read Items 1 through 9.</p> <p>IF NO communications with State EOC. <u>THEN</u> read Items 1 through 10.</p> <p>d) Record the following on Attachment 2:</p> <ul style="list-style-type: none"> <li>• Method of contact.</li> <li>• Reason Instaphone failed (if known).</li> <li>• Date and time of contact.</li> </ul>	Louisa:	(540) 967-1234 (local)	Spotsylvania:	(540) 582-7115	Caroline:	(804) 633-5555	Orange:	(540) 672-1234	Hanover:	(804) 547-6140
Louisa:	(540) 967-1234 (local)											
Spotsylvania:	(540) 582-7115											
Caroline:	(804) 633-5555											
Orange:	(540) 672-1234											
Hanover:	(804) 547-6140											
10	GO TO STEP 12											

NUMBER EPIP-2.01	PROCEDURE TITLE NOTIFICATION OF STATE AND LOCAL GOVERNMENTS	REVISION 25
		PAGE 7 of 18

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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**NOTE:** Other personnel may assist by making notifications simultaneously using other telephones.

\_\_\_\_ 11 SEND ATTACHMENT 2 USING  
ALTERNATIVE MEANS:

a) Call State EOC:

- 1) Use DEM ARD (Alternate:  
(804) 674-2400. ask for EOC  
Duty Officer)

- 2) Read entire Attachment 2

- 3) Record date/time transmittal  
to State EOC complete

b) Call each local EOC and read  
Items 1 through 9:

Louisa:	(540) 967-1234 (local)
Spotsylvania:	(540) 582-7115
Caroline:	(804) 633-5555
Orange:	(540) 672-1234
Hanover:	(804) 537-6140

- c) Record date/time transmittal of  
Items 1 through 9 complete

\_\_\_\_ 12 NOTIFY SEM/RM TRANSMITTAL WAS SENT

\_\_\_\_ 13 KEEP ATTACHMENT 2 WITH THIS  
PROCEDURE

<b>NUMBER</b> EPIP-2.01	<b>PROCEDURE TITLE</b> NOTIFICATION OF STATE AND LOCAL GOVERNMENTS	<b>REVISION</b> 25 <b>PAGE</b> 8 of 18
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
14	CHECK IF ITEM 11 ON REPORT OF EMERGENCY TO STATE AND LOCAL GOVERNMENTS INDICATES REPORT OF RADIOLOGICAL CONDITIONS - REQUIRED	GO TO Step 17.

NUMBER EPIP-2.01	PROCEDURE TITLE NOTIFICATION OF STATE AND LOCAL GOVERNMENTS	REVISION 25 PAGE 9 of 18
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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- NOTE:**
- The initial Report of Radiological Conditions must be transmitted to the State EOC (or State representatives in the LEOF/CEOF) as soon as possible following the release of radioactive material.
  - Follow-up reports should be issued approximately every 60 minutes or when there are changes in radiological conditions. Time should be measured from time of **delivery**, time facsimile sent, or time verbal transmittal completed.
  - The numbering sequence for Reports of Radiological Conditions (Attachment 3) starts at **#1** for the first report issued and is separate from the numbering sequence for Reports of Emergency to State and Local Governments (Attachment 2).

15 GET REPORT OF RADIOLOGICAL CONDITIONS FOR THE STATE:

a) Check **if** either of the following Radiological Status reports available:

- MIOAS Radiological Status report

OR

- EPIP-4.03, DDSE ASSESSMENT TEAM CONTROLLING PROCEDURE. Attachment 1, Radiological Status

b) Get Radiological Status report from radiological assessment organization

c) Check report - COMPLETE

a) Do the following:

1) **Determine** from radiological assessment organization when report will be available.

2) Notify SEM/RM about delay.

3) **WHEN** Radiological Status report becomes available. **THEN** continue in this procedure.

c) **IF** blank items remain on Radiological Status report. **THEN** return report to radiological assessment organization for completion.

NUMBER	PROCEDURE TITLE	REVISION
EPIP-2.01	NOTIFICATION OF STATE AND LOCAL GOVERNMENTS	25
		PAGE 10 of 18

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
16	<p>SEND REPORT OF RADIOLOGICAL CONDITIONS TO THE STATE TO EOC:</p> <p>a) Attach Radiological Status report to Attachment 3</p> <p>b) Follow Attachment 3 Part I. Instructions for Worth Anna Emergency Communicator</p> <p>c) Check Report of Radiological Conditions to the State - SENT VIA FACSIMILE MACHINE</p> <p>d) Allow 5 minutes for State EOC Duty Officer to verify receipt of message</p> <p>e) Check receipt of message - VERIFIED BY STATE EOC DUTY OFFICER</p> <p>f) Record Date/Time verified on Attachment 3 Part III Item 1</p> <p>g) Notify SEM/RM transmittal - SENT</p> <p>h) Keep Attachment 3 with this procedure</p>	<p>c) <u>IF</u> Radiological Status report communicated verbally or delivered. <u>THEN</u> GO TO Step 16.g.</p> <p>e) <u>IF</u> receipt of message <u>NOT</u> verified. <u>THEN</u> do the following:</p> <p>1) Call State EOC on OEM ARD (Alternate: (804) 674-2400).</p> <p>2) Ask State EOC Duty Officer if message received.</p> <p>3) <u>IF</u> receipt of message verified. <u>THEN</u> GO TO Step 16.f.</p> <p><u>IF</u> message <u>NOT</u> received. <u>THEN</u> do the following:</p> <p>a) Follow Attachment 3 Part I Item 6 instructions.</p> <p>b) GO TO Step 16.g.</p>



<b>NUMBER</b> EPIP-2.01	<b>PROCEDURE TITLE</b> NOTIFICATION OF STATE AND LOCAL GOVERNMENTS	<b>REVISION</b> 25  <b>PAGE</b> 11 of 18
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED				
<p><b>NOTE:</b> Follow-up reports of emergency conditions must be provided to State and local governments approximately every 60 minutes (from previous message notification <b>start</b> time) or when there are changes in emergency conditions. unless otherwise agreed upon with the State.</p>						
<p>_____ 17 CHECK ANY OF THE FOLLOWING MESSAGE UPDATE CONDITIONS - EXISTS:</p> <ul style="list-style-type: none"> <li>• Status of any of the following Report of Emergency items - CHANGED:               <ul style="list-style-type: none"> <li>• Emergency class (including event <b>termination</b>)</li> <li>• Offsite Assistance Required</li> <li>• Site Evacuation</li> <li>• Prognosis Worsening</li> </ul> </li> <li>• Radioactive Release</li> <li>• Protective Action Recommendation</li> </ul> <p style="text-align: center; margin: 10px 0;"><u>OR</u></p> <ul style="list-style-type: none"> <li>• Updated Radiological Status report provided by radiological assessment organization</li> </ul> <p style="text-align: center; margin: 10px 0;"><u>OR</u></p> <ul style="list-style-type: none"> <li>■ Follow-up report <b>due</b> IAW schedule established with State EOC Duty Officer</li> </ul>	<p><u>WHEN</u> Report of Emergency message update conditions satisfied. <u>THEN</u> RETURN TO Step 3.</p> <p><u>WHEN</u> Report of Radiological Conditions message update conditions satisfied. <u>THEN</u> RETURN TO Step 15.</p> <p><u>IF</u> termination message has been sent. <u>THEN</u> GO TO Step 27.</p>					
<p>_____ 18 RETURN TO APPLICABLE STEP AS INDICATED BELOW:</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 70%; padding: 5px;">Report of Emergency to State and Local Governments</td> <td style="width: 30%; padding: 5px;">RETURN TO Step 3</td> </tr> <tr> <td style="padding: 5px;">Report of Radiological Conditions to the State</td> <td style="padding: 5px;">RETURN TO Step 15</td> </tr> </table>		Report of Emergency to State and Local Governments	RETURN TO Step 3	Report of Radiological Conditions to the State	RETURN TO Step 15
Report of Emergency to State and Local Governments	RETURN TO Step 3					
Report of Radiological Conditions to the State	RETURN TO Step 15					

NUMBER	PROCEDURE TITLE	REVISION
EPIP-2.01	NOTIFICATION OF STATE AND LOCAL GOVERNMENTS	25
		PAGE
		12 of 18

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
	<p><b>NOTE:</b></p> <ul style="list-style-type: none"> <li>• Data may be obtained from meteorological panel charts (via TSC staff communicating with Control Room when PCS not available) or PCS (by selecting WEATHER from Group Display Menu).</li> <li>• Both the PCS WEATHER Group Display and the PCS ERDS RAD / MET Group Display contain meteorological information averaged over the previous 15 minutes.</li> </ul>	
19	CHECK ON-SITE METEOROLOGICAL INFORMATION - AVAILABLE	<p><u>IF</u> on-site data <u>NOT</u> available. <u>THEN</u> do the following:</p> <p>a) Get regional information from one of the following:</p> <ul style="list-style-type: none"> <li>• Company Weather Center: (804) 273-3025.</li> <li>• National Weather Service (NWS): (800) 737-8624.</li> <li>• Have HP initiate EPIP-4.10. BETERMINATION OF X/Q.</li> </ul> <p>b) Give meteorological information to requestor.</p> <p>c) RETURN TO procedure step in effect.</p>

<b>NUMBER</b> EPIP-2.01	<b>PROCEDURE TITLE</b> NOTIFICATION OF STATE AND LOCAL GOVERNMENTS	<b>REVISION</b> 25 <b>PAGE</b> 13 of 18
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED										
<p>20</p>	<p>GET ON-SITE METEOROLOGICAL INFORMATION AS REQUESTED:</p> <p>a) Refer to specified <b>step(s)</b> to acquire requested information:</p> <table border="1" style="margin: 10px auto; border-collapse: collapse;"> <tr> <td style="padding: 5px;">Temperature</td> <td style="padding: 5px;">Step 21</td> </tr> <tr> <td style="padding: 5px;">Wind Speed</td> <td style="padding: 5px;">Step 22</td> </tr> <tr> <td style="padding: 5px;">Wind Direction</td> <td style="padding: 5px;">Step 23</td> </tr> <tr> <td style="padding: 5px;">Affected Sectors</td> <td style="padding: 5px;">Steps 23 and 24</td> </tr> <tr> <td style="padding: 5px;">Stability Class</td> <td style="padding: 5px;">Step 25</td> </tr> </table> <p>b) Give meteorological information to requestor</p> <p>c) RETURN TO procedure step in effect</p>	Temperature	Step 21	Wind Speed	Step 22	Wind Direction	Step 23	Affected Sectors	Steps 23 and 24	Stability Class	Step 25	
Temperature	Step 21											
Wind Speed	Step 22											
Wind Direction	Step 23											
Affected Sectors	Steps 23 and 24											
Stability Class	Step 25											
<p>21</p>	<p>GET TEMPERATURE FROM MAIN TOWER TEMPERATURE INDICATOR</p> <p><b>NOTE:</b> Primary source of wind speed is the Main Tower Lower Level indicator. Alternates sources are (1) Backup Tower, and (2) Main Tower Upper Level.</p>											
<p>22</p>	<p>GET WIND SPEED</p>											

NUMBER EPIP-2.01	PROCEDURE TITLE NOTIFICATION OF STATE AND LOCAL GOVERNMENTS	REVISION 25
		PAGE 14 of 18

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

- NOTE:**
- An approximate average wind direction for previous 15 minutes should be determined.
  - Primary source of wind direction is the Main Tower **Lower** indicator. Alternates **sources** are (1) Backup Tower. and (2) Main Tower Upper bevel.
  - Wind direction is **always** given as the compass point the wind blows from. Example: Wind direction is from East North East (ENE).

23 GET WIND DIRECTION IN TERMS OF  
COMPASS POINT WIND BLOWING FROM:

DEGREES	COMPASS POINT	DEGREES	COMPASS POINT	DEGREES	COMPASS POINT
0-11	N	192-214	SSW	350-371	N
12-34	NNE	215-236	SW	372-394	NNE
35-56	NE	237-259	WSW	395-416	NE
57-79	ENE	260-281	W	417-439	ENE
80-101	E	282-304	WNW	440-461	E
102-124	ESE	305-326	NW	461-484	ESE
125-146	SE	327-349	NNW	485-506	SE
147-169	SSE			507-529	SSE
170-191	S			530-540	S

<b>NUMBER</b> EPIP-2.01	<b>PROCEDURE TITLE</b> NOTIFICATION OF STATE AND LOCAL GOVERNMENTS	<b>REVISION</b> 25 <b>PAGE</b> 15 of 18
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**STEP**
**ACTION/EXPECTED RESPONSE**
**RESPONSE NOT OBTAINED**

**NOTE:** Downwind sectors are recorded using alphabetic designations.

**24 DETERMINE DOWNWIND SECTORS:**

COMPASS POINT	DOWNWIND SECTORS	COMPASS POINT	DOWNWIND SECTORS
N	H - J - K	S	R - A - B
NNE	J - K - L	SSW	A - B - C
NE	K - L - M	SW	B - C - D
ENE	L - M - N	WSW	C - D - E
E	M - N - P	W	O - E - F
ESE	N - P - Q	WNW	E - F - G
SE	P - Q - R	NW	F - G - H
SSE	Q - R - A	NNW	G - H - J

<b>NUMBER</b> EPIP-2.01	<b>PROCEDURE TITLE</b> NOTIFICATION OF STATE AND LOCAL GOVERNMENTS	<b>REVISION</b> 25 <b>PAGE</b> 16 of 18
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<b>STEP</b>	<b>ACTION/EXPECTED RESPONSE</b>	<b>RESPONSE NOT OBTAINED</b>
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- NOTE.**
- Main Tower Delta T is the preferred source of stability class. Sigma Theta (Backup Tower) is the secondary source.
  - The value closer to "G" should be used if unable to distinguish Delta T or Sigma Theta value.
  - Numerical ranges presented below for Delta T and Sigma Theta are less than the range of the chart recorder and indicator in the Control Room. Indications are not expected to read outside the ranges found on these tables.

25 DETERMINE STABILITY CLASS:

MAIN TOWER DELTA T		BACKUP TOWER SIGMA THETA	
DELTA T (°F)	STABILITY CLASS	SIGMA THETA (°)	STABILITY CLASS
≤ -1.31	= A	≥ 22.5	= A
-1.30 to -1.18	= B	22.4 to 17.5	= B
-1.19 to -1.04	= C	19.4 to 12.5	= C
-1.03 to -0.35	= D	12.4 to 7.5	= D
-0.34 to +1.04	= E	7.4 to 3.8	= E
+1.05 to +2.77	= F	3.9 to 2.1	= F
> +2.77	= G	< 2.1	= G

NUMBER	PROCEDURE TITLE	REVISION
EPIP-2.01	NOTIFICATION OF STATE AND LOCAL GOVERNMENTS	25
		PAGE 17 of 18

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

**NOTE:** Responsibilities may be transferred to relief within a facility or to another facility. e.g., Control Room to TSC, Control Room to LEOF or CEOF, or TSC to LEOF or CEOF.

26 TRANSFER RESPONSIBILITY FOR  
STATE/LOCAL NOTIFICATIONS:

- a) Notify SEM (or RM if in LEOF/CEOFF)
- b) Tell relief Emergency Communicator about current event status
- c) Review most recently completed Attachments 2 and 3 with relief
- d) Tell relief Emergency Communicator when next notification is due
- e) Provide this procedure and all attachments or send copies of attachments to relief
- f) Have relief/turnover recorded in event log
- g) Check - INTERFACILITY TURNOVER HAS BEEN COMPLETED
- g) RETURN TO step in effect prior to relief.

<b>NUMBER</b> EPIP-2.01	<b>PROCEDURE TITLE</b> NOTIFICATION OF STATE AND LOCAL GOVERNMENTS	<b>REVISION</b> 25 <b>PAGE</b> 18 of 18
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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\_\_\_\_ 27 TERMINATE PROCEDURE:

- Give EPIP-2.01, forms and other applicable records to the Control Room STA (TSC Emergency Procedures Coordinator or EOF Services Coordinator)

• Completed by: \_\_\_\_\_

Date: \_\_\_\_\_

Time: \_\_\_\_\_

-END-



NUMBER	ATTACHMENT TITLE	REVISION
EPIP-2.01	INSTRUCTIONS FOR COMPLETING REPORT OF EMERGENCY TO STATE AND LOCAL GOVERNMENTS	25
ATTACHMENT		PAGE
1		1 of 7

Form Field      Instructions for Preparing For:

Approval  
(SEM or RM)      Leave blank. (The Station Emergency Manager (SEM) or Recovery Manager (RM) signs/initials this space after message is drafted.)

Message #      Record sequential message number on pages 1 and 2.

A single numbering sequence is used for Reports of Emergency to State and Local Governments (Attachment 2) from the initial classification until the Emergency Plan is exited. The numbering sequence for Reports of Radiological Conditions to the State (Attachment 3) is separate.

Notification  
Start Time      Leave blank. (Enter notification start time when beginning transmittal of the approved message.)

Location      Check off facility from which notification will be made.

Roll Call      Leave blank. (Check off recipients of the emergency message when they answer the roll call.)

**NOTE:** • **Information** to complete Items 1-2 and 4-7 obtained from SEM/RM.

- Items 4, 5, 6, 7 and/or 8 are optional for a message reporting initial entry into the Emergency Plan or an emergency class change. including emergency termination and may be checked 'Excluded from this message.'

- Inclusion of optional items. e.g., Item 6. Evacuation of onsite personnel. should be considered when it can result in avoiding an **immediate follow-up** message.

Item 1      Emergency Class.

IF message initial or follow-up report. THEN do the following:

- Check block for highest applicable emergency class.
- Enter time (0001-2400) and date of declaration.

IF initial message is also a termination report, THEN record time of termination Item 3.

IF message emergency termination report. THEN do the following:

- Check Emergency Terminated block.
- Complete Items 2, 3 and 9.

NUMBER	ATTACHMENT TITLE	REVISION
EPIP-2.01	INSTRUCTIONS FOR COMPLETING REPORT OF EMERGENCY TO STATE AND LOCAL GOVERNMENTS	25
ATTACHMENT		PAGE
1		2 of 7

Form Field      Instructions for Preparing Form:

Item 2      Release of **radioactive** material.

The SEM/RM determines whether a release of radioactive material is occurring, has occurred, has occurred and has been terminated, or ~~is~~ projected to occur based on plant indications **and/or** consultation with the RAD/RAC. For the purposes of emergency messages, release refers to a radiological release attributable to the emergency event.

Item 3      Remarks / Description of event.

Write Remarks / Description of event in plain language. Avoid technical jargon, abbreviations and acronyms.

**Explain** any change in the prognosis of situation (Item 7) reported in the previous message.

IF Item 2 indicated a radiological release is occurring or has occurred, THEN remarks should be entered placing the release in context. e.g., release is estimated to be confined to the site, release estimated to be within normal plant limits, site boundary dose rates are below offsite protective action levels.

Avoid repeating Remarks / Description of event from the previous message.

The description should describe current conditions at the time the report approved by the SEM/RM.

Item 4      Assistance requested.

[ 1 Excluded from this message may be checked for the initial report of any emergency class only (including termination).

This item documents requests that have been made for on-site assistance from off-site Organizations such as from fire departments, rescue squads or law enforcement agencies, including local law enforcement, Virginia State Police, Federal Bureau of investigation, etc.). This item is NOT for requesting assistance. A check block for other off-site organizations and space to record a description of the off-site organization is provided. e.g., U.S. Department of Energy.

Continue to record requests for assistance until the request has been canceled **or** off-site assistance **has** been released. For an ambulance, continue to record request for assistance until the ambulance has been released **from** the hospital.

NUMBER	ATTACHMENT TITLE	REVISION
EPIP-2.01	INSTRUCTIONS FOR COMPLETING REPORT OF EMERGENCY TO STATE AND LOCAL GOVERNMENTS	25
ATTACHMENT		PAGE
1		3 of 7

Form Field      Instructions for Preparing Form:

Item 5      Emergency Response Actions Underway.

[ 3 Excluded from this message may be checked for the initial report of any emergency class only (including termination).

Check blocks are provided for the following:

[ ] Station monitoring teams dispatched offsite (teams may be dispatched for any emergency classification. but dispatch is generally required at the Site Area Emergency and General Emergency classifications)

[ ] Station emergency personnel called in (unless special circumstances are involved. station emergency personnel are called-in at an Alert or higher emergency class. but may be called-in for a Notification of Unusual Event)

[ 1 Other (examples of other emergency response actions include dispatch of damage control teams, relocation of personnel from selected areas. etc.)

Item 6      Evacuation of onsite personnel.

■ I Excluded from this message may be checked for the initial report of any emergency class only (including termination).

The Remote Assembly Area is selected in accordance with EPIP-5.05. SITE EVACUATION.

An 'Other' check block is provided in case personnel are evacuated to different location. e.g., local evacuation assembly center.

Early release of personnel. i.e., non-essential personnel are sent home early, is reported in Item 3, Remarks / Description of event.

Continue to record evacuation of onsite personnel until evacuated personnel released from the applicable Remote Assembly Area.

NUMBER	ATTACHMENT TITLE	REVISION
EPIP-2.01	INSTRUCTIONS FOR COMPLETING REPORT OF EMERGENCY TO STATE AND LOCAL GOVERNMENTS	25
ATTACHMENT		PAGE
1		4 of 7

Form Field

Instructions for Preparing Form:

**NOTE:** Changes in the prognosis of situation should be explained in Item 3. Remarks / Description of event.

**Item 7**

**Prognosis of situation.**

[ ] Excluded from this message may be checked for the initial report of any emergency class only (including termination).

The "Other" check block can be **used** to provide an indication of anticipated event termination. e.g., emergency will be terminated when unit reaches cold shutdown at or about 1700 hours.

**Item 8**

**Meteorological data.**

[ 1 Excluded from this message may be checked for the initial report of any emergency class only (including termination).

[ ] Not available may be checked when waiting for meteorological information will delay transmission of a message. Efforts to obtain meteorological data from alternative sources should not delay sending emergency messages.

Check [ I Eased on onsite measurements when meteorological information is acquired from onsite instruments.

Onsite measurements may be acquired from any of the following:

- PCS WEATHER Group Display (15-minute average)
- PCS ERDS RAD / MET Group Display (15-minute average)
- Control Room meteorological panel charts (approximate average for previous 15 minutes) (communicate with Control Room staff when PCS not available in other facilities)

[Instructions for Item 8, Meteorological data. continued on following page.]

NUMBER	ATTACHMENT TITLE	REVISION
EPIP-2.01	INSTRUCTIONS FOR COMPLETING REPORT OF EMERGENCY TO STATE AND LOCAL GOVERNMENTS	25
ATTACHMENT		PAGE
1		5 of 7

**Form Field**

**Instructions for Preparing Form:**

**Item 8**

[continued]

**Meteorological data.**

Multiple indications of wind direction and wind speed are available. The priority for using these indications is:

- 1 Main Tower Lower Level
- 2 Backup Tower
- 3 Main Tower Upper Level

Check [ ] Eased on offsite regional data when onsite measurements are NOT available. Regional wind speed and wind direction data may be obtained from the following in the order indicated:

- 1 Company Weather Center. (804) 273-3025
- 2 National Weather Service (NWS), (800) 737-8624

Use the following table to convert indicated degree reading to compass point wind blowing from.

OFGREES	COMPASS POINT
0-11 or 350-371	N (NORTH)
12-34 or 372-394	NNE (NORTH NORTHEAST)
35-56 or 395-416	NE (NORTHEAST)
57-79 or 417-439	ENE (EAST NORTHEAST)
80-101 or 440-461	E (EAST)
102-124 or 462-484	ESE (EAST SOUTHEAST)
125-146 or 485-506	SE (SOUTHEAST)
147-169 or 507-529	SSE (SOUTH SOUTHEAST)
170-191 or 530-540	S (SOUTH)
192-214	SSW (SOUTH SOUTHWEST)
215-236	SW (SOUTHWEST)
237-259	WSW (WEST SOUTHWEST)
260-281	W (WEST)
282-304	WWW (WEST NORTHWEST)
305-326	NW (NORTHWEST)
327-349	NNW (NORTH NORTHWEST)

Record wind direction in compass point wind is blowing from,

Record wind speed.

NUMBER	ATTACHMENT TITLE	REVISION
EPIP-2.01	INSTRUCTIONS FOR COMPLETING REPORT OF EMERGENCY TO STATE AND LOCAL GOVERNMENTS	25
ATTACHMENT		PAGE
1		6 of 7

### Farm Field

### Instructions for Preparing Form:

#### **Item 9**

Emergency Communicator identification.

Enter name of Emergency Communicator.

#### **Roll Call**

Leave blank. (Check off recipients of the emergency message when they answer the roll call.)

#### **Message Close-Out**

Leave blank. (Check off facility from which notification was made and enter **date/time** after transmitting **items 1-9.**)

#### **Item 10**

**Recommended** offsite protective actions.

IF Item 1 indicates the emergency class is a Notification of Unusual Event, Alert or Site Area Emergency, THEN check [ 1 None.

IF Item 1 indicates the emergency class is a General Emergency. THEN copy **recommended** offsite protective action from EPIP-1.06. PROTECTIVE ACTION RECOMMENDATION. Attachment 3, in Item 10.

#### **Item 11**

Report of Radiological **Conditions**.

IF Item 2 indicates a release of radioactive material has NOT occurred and is NOT projected. THEN check [ I We will not issue a Report of Radiological Conditions.

IF a Report of Radiological Conditions is required AND all the following conditions are met:

- LEOF (or CEOF) - RESPONSIBLE FOR STATE NOTIFICATIONS
- Department of Emergency Management - PRESENT
- Department of Health (Radiological Health Programs) representative - PRESENT

THEN check [ ] We will provide the Report of Radiological Conditions to the State representatives in the LEOF (CEOFF).

IF a Report of Radiological Conditions is required AND has to be transmitted to the State EOC. THEN check [ 3 We will transmit a Report of Radiological Conditions to the State EOC.

NUMBER	ATTACHMENT TITLE	REVISION
EPIP-2.01	INSTRUCTIONS FOR COMPLETING REPORT OF EMERGENCY TO	25
ATTACHMENT	STATE AND LOCAL GOVERNMENTS	PAGE
1		7 of 7

Form Field      Instructions for Preparing Form:

**Item 12**      Update schedule and **name of** State **EOC** Duty Officer.

Leave blank. (Update schedule and Identification of State EOC Duty Officer is determined in consultation with the State EOC Duty Offices after **message** is transmitted.)

Message  
**Close-Out**      Leave blank. (Check off facility from which notification was made and enter **date/time** after transmitting **Items 10-12.**)

NUMBER	ATTACHMENT TITLE	REVISION
EPIP-2.01	REPORT OF EMERGENCY TO	25
ATTACHMENT	STATE AND LOCAL GOVERNMENTS	PAGE
2		1 of 2

APPROVAL: (SEM or RM): \_\_\_\_\_ : MESSAGE # \_\_\_\_\_ : TIME NOTIFICATION STARTED: \_\_\_\_\_

This is north Anna Power Station ☐ Control Room ☐ TSC ☐ LEOP ☐ CEOF. Standby for a roll-call followed by an emergency message. Use a Report of Emergency form to copy this message. (Conduct a roll-call and check boxes as each party answers)

☐ Louisa County      ☐ State EOC      ☐ Orange County  
☐ Spotsylvania County      ☐ Hanover County      ☐ Caroline County

The emergency message is as follows: (READ SLOWLY)

Item 1: Emergency Class:

<input type="checkbox"/> Notification of Unusual Event	<input type="checkbox"/> Site Area Emergency	Declared at _____ on _____ (24-hr time) (date)
<input type="checkbox"/> Alert	<input type="checkbox"/> General Emergency	

☐ Emergency Terminated

Item 2: Release of radioactive material:

☐ Has NOT occurred and is NOT projected      ☐ Is presently occurring  
☐ Has occurred and is now terminated      ☐ Is projected to occur

Item 3: Remarks / Description of event: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**NOTE:** Items 4 - 8 may be excluded from initial message reporting any emergency class (including termination).

Item 4: Assistance requested: ☐ Excluded from this message

☐ none  
 \_\_\_\_\_ (#) Fire Units from \_\_\_\_\_  
 \_\_\_\_\_ (#) Police Units from \_\_\_\_\_  
 \_\_\_\_\_ (#) Rescue Units from \_\_\_\_\_  
☐ Other \_\_\_\_\_

Item 5: Emergency response actions underway: ☐ Excluded from this message

☐ None  
☐ Station monitoring teams dispatched offsite  
☐ Station emergency personnel called in  
☐ Other \_\_\_\_\_

Item 6: Evacuation of onsite personnel: ☐ Excluded from this message

☐ NO  
☐ Yes, evacuated to: ☐ Primary Remote Assembly Area  
☐ Secondary Remote Assembly Area  
☐ other \_\_\_\_\_

(ATTACHMENT 2 CONTINUED ON NEXT PAGE)



<b>NUMBER</b>	<b>ATTACHMENT TITLE</b>	<b>REVISION</b>
EPIP-2.01	REPORT OF EMERGENCY TO STATE AND LOCAL GOVERNMENTS	25
<b>ATTACHMENT</b>		<b>PAGE</b>
2		2 of 2

MESSAGE # \_\_\_\_\_

Item 7: Prognosis of situation: ☐ Excluded from this message  
☐ Improving ☐ Stable  
☐ Worsening ☐ Other \_\_\_\_\_

Item 8: Meteorological data is: ☐ Excluded from this message  
☐ Based on onsite measurements: ☐ Based on offsite regional data:  
☐ Wind direction is from the \_\_\_\_\_: ☐ Wind speed is \_\_\_\_\_ mph  
☐ Not available

Item 9: This is (name) \_\_\_\_\_/Emergency Communicator.  
Please acknowledge receipt of this message. (Conduct roll-call and check boxes)

☐ Louisa County ☐ State EOC ☐ Orange county  
☐ Spotsylvania County ☐ Hanover County ☐ Caroline county

This is north Anna Power Station ☐ Control Room ☐ TSC ☐ LEOF ☐ CEOF out at \_\_\_\_\_ on \_\_\_\_\_.  
(24-hr time) (date)

**NOTE:** The remainder of this report is not transmitted when the message reports emergency termination. When transmitted, the following information is for state use only. Transmit to State EOC using the DEM ARD.

This is North Anna Power Station ☐ Control Room ☐ TSC ☐ LEOF ☐ CEOF Continuing the emergency message.

Item 10: Recommended offsite protective actions are:

☐ none

☐ Standard: Evacuate 360° from 0 miles to 5 miles.

☐ Expanded:

☐ Evacuate 360° from 0 miles to 5 miles.

☐ Evacuate 360° from 5 miles to \_\_\_\_\_ miles.

☐ Evacuate sectors \_\_\_\_\_ from \_\_\_\_\_ miles to \_\_\_\_\_ miles.

☐ Shelter 360° from \_\_\_\_\_ miles to \_\_\_\_\_ miles.

☐ Shelter sectors \_\_\_\_\_ from \_\_\_\_\_ miles to \_\_\_\_\_ miles.

☐ Shelter unaffected sectors from \_\_\_\_\_ miles to \_\_\_\_\_ miles.

Item 11: ☐ We will transmit a Report of Radiological Conditions to the State LOC.  
☐ He will provide the Report of Radiological Conditions to the State representatives in the LEOF (CEOFF).  
☐ We will not issue a Report of Radiological Conditions.

Item 12: Update schedule: ☐ 60 minute; ☐ Other \_\_\_\_\_

Name of State EOC Duty Officer: \_\_\_\_\_

This is North Anna Power Station ☐ Control Room ☐ TSC ☐ LEOF ☐ CEOF out at \_\_\_\_\_ - on \_\_\_\_\_.  
(24-hr time) (date)

NUMBER	ATTACHMENT TITLE	REVISION
EPIP-2.01	REPORT OF RADIOLOGICAL CONDITIONS TO THE STATE	25
ATTACHMENT		PAGE
3		1 of 1

**PART I. Instructions for North Anna Emergency Communicator:**

1. Check name of facility: [ ] Control Room [ ] TSC [ ] local EOF [ ] Central EOF

2. Record Message #: \_\_\_\_\_ Communicator's name: \_\_\_\_\_ Call-back #: ( ) \_\_\_\_\_

3. check which report is attached and **record** the report number and run time (as appropriate):

\_\_\_\_\_ MIDAS Radiological Status **computer** printout (2 pages) Report # \_\_\_\_\_ Run Time \_\_\_\_\_

\_\_\_\_\_ Radiological Status attachment from EPIP-4.03 (1 page) Report # \_\_\_\_\_

4. Wave Station Emergency Manager (SEM) ■ Recovery Manager (RM) approve transmittal:

APPROVED FOR TRANSMITTAL: \_\_\_\_\_ (SEM ■ RM initials) DATE: \_\_\_\_ / \_\_\_\_ / \_\_\_\_ TIME: \_\_\_\_ : \_\_\_\_

5. IF report can be delivered to both **VDEM AND VDH** staff in EOF. THEN GO TO PART I, ITEM 6.  
IF report **will** be Sent by facsimile. THEN notify State EOC Report of Radiological Conditions will be sent by facsimile (Use DEM ARD or (804) 674-2400) and request receipt confirmation.

6. Deliver report to both **VDEM AND VDH** staff in EOF:

a. Date/Time Message Delivered to **VDEM** Representative in Local/Central EOF: \_\_\_\_ / \_\_\_\_ / \_\_\_\_ : \_\_\_\_

b. Date/Time Message Delivered to **VDH** Representative in Local/Central EOF: \_\_\_\_ / \_\_\_\_ / \_\_\_\_ : \_\_\_\_

c. Record N/A by Part II and Part III below.

IF report will be sent by facsimile. THEN ask facsimile machine operator to transmit this message.

IF transmittal of report by facsimile **NOT** achievable. THEN do the following:

a. **Notify** State EOC using DEM ARD or call (804) 674-2400

b. Identify yourself and your location

c. Ask EOC Duty Officer to use a Report of Radiological Conditions form to copy message

d. Read the attached report

e. Record when message transmittal completed: Date/Time Message Completed: \_\_\_\_ / \_\_\_\_ / \_\_\_\_ : \_\_\_\_

f. Record N/A by Part II and Part III below.

**PART II. Instructions for Facsimile Machine Operator:**

1. Record Facsimile Operator's name : \_\_\_\_\_ Date/Time Sent: \_\_\_\_ / \_\_\_\_ / \_\_\_\_ : \_\_\_\_

2. Transmit this message to State EOC facsimile machine (804) 674-2419.

IF facsimile transmission **NOT** successful. THEN RETURN message to Emergency Communicator.

3. Return original report to State and Local Emergency Communicator.

**PART III. Instructions for State EOC Duty Officer:**

1. Notify North Anna Emergency Communicator report received. Date/Time Verified: \_\_\_\_ / \_\_\_\_ / \_\_\_\_ : \_\_\_\_  
(Use DEN ARD or see PART I. Item 2 above for call-back number). Receipt Verification

2. Forward message to EOC Operations Officer for distribution to State Radiological Health Programs and Information 6 Planning representatives.

1. REPORT OF EMERGENCY **CONDITION** CHANGE CRITERIA

WHEN emergency conditions change (e.g., classification, event termination, offsite assistance, site evacuation, worsening prognosis, release of radioactive material, Protective Action Recommendation), THEN do one of the following:

- a. IF preparation of a new/revised message will prevent timely transmittal of an initial message reporting an emergency class (i.e., within 15 minutes of classification). THEN do the following:
  - 1) Complete transmittal of current message.
  - 2) RETURN TO Step 3 to prepare new emergency message.
- b. IF new/revised message can be prepared without delaying timely transmittal of an initial message reporting an emergency class, THEN do one the following:
  - Update current message to include changed condition(s).
  - RETURN TO Step 4 to prepare new emergency message.

2. REPORT OF EMERGENCY **UPDATE** CRITERIA

WHEN scheduled Report of Emergency to State and Local Governments - DUE, THEN RETURN TO Step 3 to prepare new emergency message.

NOTE: Transmittal of a Report of Emergency to State and Local Governments takes precedence over preparing a new radiological status message, responding to requests for meteorological information and turning-over duties to relief.

3. REPORT OF RADIOLOGICAL STATUS **CONDITION** CHANGE CRITERIA

WHEN updated Radiological Status report provided by radiological assessment organization. THEN RETURN TO Step 15 to prepare new radiological status message.

4. METEOROLOGICAL INFORMATION REQUEST CRITERIA

IF requested to acquire on-site meteorological information. THEN GO TO Step 19.

5. SHIFT RELIEF OR INTERFACILITY TURNOVER CRITERIA

WHEN shift relief or interfacility turnover occurs. THEN GO TO Step 26.

**'NORTH ANNA POWER STATION  
INITIAL LICENSE EXAMINATION  
ADMINISTRATIVE  
JOB PERFORMANCE MEASURE**

**ADMIN JPM**

Classify Per EPIP 1.01  
“Emergency Manager Controlling Procedure”

CANDIDATE

---

EXAMINER

---

**Dominion**  
North Anna Power Station  
**JOB PERFORMANCE MEASURE EVALUATION**

**OPERATOR PROGRAM**

**S94.5**

**TASK**

Classify the event after completing Scenario #1

**TASK STANDARDS**

Event has been classified as a site area emergency per TAB A.1 (Total loss of charging/ SI system) if loss of AC power lasts *for* 15 minutes, a SAE IAW Tab H.1 is also applicable. Either one is acceptable.

**WA REFERENCE**

GEN-2.4.41 (2.3/4.1)

**ALTERNATE PATH:**

N/A

**TASK COMPLETION TIMES**

Validation Time = 10 minutes  
Actual Time = \_\_\_\_\_ minutes

Start Time = \_\_\_\_\_  
Stop Time = \_\_\_\_\_

**PERFORMANCE EVALUATION**

Rating                      ☐ SATISFACTORY                      ☐ UNSATISFACTORY

Candidate (Print) \_\_\_\_\_

Evaluator (Print) \_\_\_\_\_

Evaluator's Signature /  
Date \_\_\_\_\_

**EVALUATOR'S COMMENTS**

\_\_\_\_\_  
\_\_\_\_\_

Dominion

North Anna Power Station  
JOB PERFORMANCE MEASURE  
(Evaluation)

OPERATOR PROGRAM

s94.5

**READ THE APPLICABLE INSTRUCTIONS TO THE CANDIDATE**

**Instructions for Simulator JPMs**

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

**Instructions for In-Plant JPMs**

I will explain the initial conditions, and state the task to be performed. All steps, including any required communications, shall be simulated for this JPM. Under no circumstances are you to operate any plant equipment. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

**`NORTH ANNA POWER STATION  
INITIAL LICENSE EXAMINATION  
ADMINISTRATIVE  
JOB PERFORMANCE MEASURE**

**ADMN JPM**

Classify Per EPIP 1.01  
“Emergency Manager Controlling **Procedure**”

CANDIDATE

---

EXAMINER

---

Dominion  
Noah Anna Power Station  
JOB PERFORMANCE MEASURE EVALUATION

OPERATOR PROGRAM

s94.5

**TASK**

Classify the event after completing Scenario #2

**TASK STANDARDS**

Event has been classified as an Alert per Tab B6 (Gross Primary to Secondary Leakage)

**K/A REFERENCE:**

GEN-2.4.41 (2.3/4.1)

**ALTERNATE PATH:**

N/A

**TASK COMPLETION TIMES**

Validation Time = 10 minutes  
Actual Time = \_\_\_\_\_ minutes

Start Time = - \_\_\_\_\_  
Stop Time = \_\_\_\_\_

**PERFORMANCE EVALUATION**

Rating                      ☐ SATISFACTORY                      ☐ UNSATISFACTORY

Candidate (Print) \_\_\_\_\_

Evaluator (Print) \_\_\_\_\_

Evaluator's Signature/  
Date \_\_\_\_\_

**EVALUATOR'S COMMENTS**

\_\_\_\_\_

\_\_\_\_\_

Dominion  
North Anna Power Station

04/28/04

Page: 2 of 3



**JOB PERFORMANCE MEASURE**  
(Evaluation)

**OPERATOR PROGRAM**

S94.5

**READ THE APPLICABLE INSTRUCTIONS TO THE CANMDATE**

**Instructions for Simulator JPMs**

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

**Instructions for In-Plant JPMs**

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**NORTH ANNA POWER STATION  
INITIAL LICENSE EXAMINATION  
ADMINISTRATIVE  
JOB PERFORMANCE MEASURE**

**ADMIN JPM**

Classify Per EPIP 1.01  
“Emergency Manager Controlling Procedure”

**CANDIDATE**

---

**EXAMINER**

---

**Dominion  
North Anna Power Station  
JOB PERFORMANCE MEASURE EVALUATION**

**OPERATOR PROGRAM**

**S94.5**

**TASK**

Classify the event after completing Scenario #3

**TASK STANDARDS**

Event *has* been classified as a Site Area Emergency IAW Tab A.2 (Failure of RPS) and/or Tab B.3 (RCS Leakrate exceeds makeup capacity)

**K/A REFERENCE:**

GEN-2.4.41 (2.3/4.1)

**ALTERNATE PATH:**

N/A

**TASK COMPLETION TIMES**

Validation Time = 10 minutes  
Actual Time = \_\_\_\_\_ minutes

Start Time = \_\_\_\_\_  
Stop Time = \_\_\_\_\_

**PERFORMANCE EVALUATION**

Rating                      ☐ SATISFACTORY                      ☐ UNSATISFACTORY

Candidate (Print) \_\_\_\_\_

Evaluator (Print) \_\_\_\_\_

Evaluator's Signature/  
Date \_\_\_\_\_

**EVALUATOR'S COMMENTS**

\_\_\_\_\_  
\_\_\_\_\_

Dominion  
North Anna Power Station

04/28/04

Page: 2 of 3

JOB PERFORMANCE MEASURE  
(Evaluation)

OPERATOR PROGRAM

s94.5

**READ THE APPLICABLE INSTRUCTIONS TO THE CANDIDATE**

**Instructions for Simulator JPMs**

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

**Instructions for In-Plant JPMs**

I will explain the initial conditions, and state the task to be performed. All steps, including any required communications, shall be simulated for this JPM. Under no circumstances are you to operate any plant equipment. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

VIRGINIA POWER  
NORTH ANNA POWER STATION  
EMERGENCY PLAN IMPLEMENTING PROCEDURE

NUMBER	PROCEDURE TITLE	REVISION
EPIP-1.01	EMERGENCY MANAGER CONTROLLING PROCEDURE  (With 3 Attachments)	39
		PAGE 1 of 7

**PURPOSE**

To assess potential emergency conditions and initiate corrective actions.

**ENTRY CONDITIONS**

Any of the following:

1. Another ~~station~~ procedure directs initiation of this procedure.
2. A potential emergency condition is reported to ~~the~~ Shift Manager.

Approvals on File

Effective Date

1/15/2004

<b>NUMBER</b> EPIP-1.01	<b>PROCEDURE TITLE</b> EMERGENCY MANAGER CONTROLLING PROCEDURE	<b>REVISION</b> 39  <b>PAGE</b> 2 of 7
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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\*\*\*\*\*

**CAUTION:** Declaration of the highest emergency class for which an Emergency Action Level is exceeded shall be made.

\*\*\*\*\*

**NOTE:** The PCS is potentially unreliable in the event of an earthquake. Therefore, PCS parameters should be evaluated for accuracy should this situation occur.

\_\_\_\_ 1 EVALUATE EMERGENCY ACTION LEVELS:

- a) Determine event category using Attachment 1, EMERGENCY ACTION LEVEL TABLE INDEX
- b) Review EAL Tab associated with event category
- c) Use Control Room monitors, PCS, and outside reports to get indications of emergency conditions listed in the EAL Table
- d) Verify EAL - CURRENTLY EXCEEDED
  - d) IF basis for EAL no longer exists when discovered AND no other reasons exist for an emergency declaration. THEN do the following:
    - RETURN TO procedure in effect.
    - GO TO VPAP-2802, NOTIFICATIONS AND REPORTS, to make one-hour, non-emergency reports for classification without declaration.

IF EAL was NOT exceeded. THEN RETURN TO procedure in effect.

(STEP 1 CONTINUED ON NEXT PAGE)

<b>NUMBER</b> EPIP-1.01	<b>PROCEDURE TITLE</b> EMERGENCY MANAGER CONTROLLING PROCEDURE	<b>REVISION</b> 39  <b>PAGE</b> 3 of 7
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
1	<p>EVALUATE EMERGENCY ACTION LEVELS: (Continued)</p> <p>e) Record procedure initiation:</p> <ul style="list-style-type: none"> <li>By: _____</li> <li>Date: _____</li> <li>Time: _____</li> </ul> <p>f) Initiate a chronological log of events</p> <p>g) Declare position of Station Emergency Manager</p> <p><b>NOTE:</b> Assembly, accountability and/or initiation of facility staffing may not be desired during certain situations (e.g., security event, severe weather, anticipated grid disturbance) or may have already been completed. These activities should be implemented as quickly as achievable given the specific situation.</p>	
2	<p>CHECK - CONDITIONS ALLOW FOR NORMAL IMPLEMENTATION OF EMERGENCY RESPONSE ACTIONS</p>	<p><u>IF</u> deviation from normal emergency response actions warranted. <u>THEN</u> do the following:</p> <p>a) Refer to Attachment 3. Considerations for Operations Response Under Abnormal Conditions.</p> <p>b) Consider applicability of 50.54(x).</p> <p>c) <u>IF</u> classification/assembly announcement deferred. <u>THEN</u> GO TO Step 4.</p>

<b>NUMBER</b> EPIP-1.01	<b>PROCEDURE TITLE</b> EMERGENCY MANAGER CONTROLRING PROCEDURE	<b>REVISION</b> 39 <hr/> <b>PAGE</b> 4 of 7
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
3	<p>NOTIFY PLANT STAFF OF ALERT OR HIGHER CLASSIFICATION:</p> <p>a) Check classification - ALERT OR HIGHER</p> <p>b) Check if emergency assembly and accountability - PREVIOUSLY CONDUCTED</p> <p>c) Have Control Room sound EMERGENCY alarm and make announcement on station Gai-Tronics system as follows:    "(Emergency classification) has been declared as the result of _____"  (event)</p> <p>d) Repeat Step 3.c</p>	<p>a) GO TO Step 4.</p> <p>b) Do the following:</p> <p>1) Have Control Room sound EMERGENCY alarm and make announcement on station Gai-Tronics system as follows:    "(Emergency classification) has been declared as the result of _____"  (event)    "All Emergency Response personnel report to your assigned stations"    "All contractor personnel not responding to the emergency and all visitors report to the Security Building"    " All other personnel report to your Emergency Assembly Areas"</p> <p>2) Repeat RNO Step 3.b.1.</p> <p>3) GO TO Step 4.</p>



<b>NUMBER</b> EPIP-1.01	<b>PROCEDURE TITLE</b> EMERGENCY MANAGER CONTROLLING PROCEDURE	<b>REVISION</b> 39 <b>PAGE</b> 5 of 7
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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\*\*\*\*\*

CAUTION: Continue through this and all further instructions unless otherwise directed to hold.

\*\*\*\*\*

\_\_\_\_ 4 INITIATE SUPPORTING PROCEDURES:

a) Direct Emergency Communicators to initiate the following procedures:

- 1) EPIP-2.01. NOTIFICATION OF STATE AND LOCAL GOVERNMENTS
- 2) EPIP-2.02. NOTIFICATION OF NRC

b) Direct HP to initiate EPIP-4.01. RADIOLOGICAL ASSESSMENT DIRECTOR CONTROLLING PROCEDURE

c) Establish communications with Security Team Leader:

- 1) Provide Security with current emergency classification
- 2) Notify Security which Operations Shift is designated for coverage
- 3) Direct Security to initiate EPIP-5.09, SECURITY TEAM LEADER CONTROLLING PROCEDURE

NUMBER	ATTACHMENT TITLE	REVISION
EPIP-1.01	EMERGENCY ACTION LEVEL TABLE	39
ATTACHMENT	INDEX	PAGE
1		1 of 42

\*\*\*\*\*

- CAUTION:
- Declaration of the highest emergency class far which an EAL is exceeded shall be made.
  - Emergency Action Levels shall be conservatively classified based on actual or anticipated plant conditfons.

\*\*\*\*\*

EVENT CATEGORY:	TAB
1. Safety. Shutdown. or Assessment System Event. ....	A
2. Reactor Coolant System Event. ....	B
3. Fuel Failure or Fuel Handling Accident ...	C
4. Containment Event. ....	D
5. Radioactivity Event.....	E
6. DELETED	
7. Loss of Secondary Coolant.. ....	G
8. Electrical Failure. ....	
9. Fire.....	I
10. Security Event.....	J
11. Hazard to Station Opesation.....	K
12. Natural Events.....	
13. Miscellaneous Abnormal Events.....	M

NUMBER	ATTACHMENT TITLE	REVISION
EPIP-1.01	EMERGENCY ACTION LEVEL TABLE	39
ATTACHMENT	(TAB A)	PAGE
1	SAFETY, SHUTDOWN, OR ASSESSMENT SYSTEM EVENT	2 of 42

CONDITION/APPLICABILITY

INDICATION

CLASSIFICATION

CAUTION: EAL C.2 is duplicated below for cross-reference/comparison to EAL A.1:

C.2. Probable large radioactivity release initiated by loss of heat sink leading to core degradation

MODES 1, 2, 3 & 4

Loss of Main Feedwater System, Condensate System and Auxiliary Feedwater System

GENERAL  
EMERGENCY

1. Loss of function needed for unit HSD condition

MODES 1, 2, 3 & 4

• Total loss of the Charging/SI System

OR

Total loss of the Main Feedwater and Auxiliary Feedwater systems

SITE AREA  
EMERGENCY

2. Failure of the Reactor Protection System to initiate and complete a required trip while at power

MODES 1 & 2

• Reactor trip setpoint and coincidences - EXCEEDED

AND

• Automatic trip from RPS - FAILED

• Manual trip from Control Room - FAILED

SITE AREA  
EMERGENCY

NUMBER	ATTACHMENT TITLE	REVISION
EP-1.01	EMERGENCY ACTION LEVEL TABLE (TAB A) SAFETY, SHUTDOWN, OR ASSESSMENT SYSTEM EVENT	39
ATTACHMENT		PAGE
1		3 of 42

<u>CONDITION/APPLICABILITY</u>	<u>INDICATION</u>	<u>CLASSIFICATION</u>
--------------------------------	-------------------	-----------------------

3. inability to monitor a significant transient in progress

MODES 1, 2, 3 & 4

- Most (>75%) or all annunciator alarms on panels "A" to "K" - NOT AVAILABLE

AND

- All computer monitoring capability (e.g., PCS) - NOT AVAILABLE

AND

- Significant transient - IN PROGRESS (e.g., reactor trip, SI actuation, turbine run ack >25% thermal reactor power, thermal power oscillations >10%)

AND

- Inability to directly monitor any one of the following using Control Room indications:
  - Subcriticality
  - Core Cooling
  - Heat Sink
  - Vessel integrity
  - Containment Integrity

SITE AREA  
EMERGENCY

4. Evacuation of Main Control Room with control not established within 15 minutes

ALL MODES

Evacuation of the Control Room with local shutdown control not established within 15 minutes

SITE AREA  
EMERGENCY

NUMBER	ATTACHMENT TITLE	REVISION
EPIP-1.01	EMERGENCY ACTION LEVEL TABLE	39
ATTACHMENT	(TAB A) SAFETY, SHUTDOWN, OR ASSESSMENT SYSTEM EVENT	PAGE
1		4 of 42

CONDITION/APPLICABILITY

INDICATION

CLASSIFICATION

5. Total loss of function needed for unit CSD condition

MODES 5 & 6

- Secondary system cooling capability - UNAVAILABLE

AND

- Loss of any of the following systems:

- Service Water
- Component Cooling
- RHR

AND

- RCS temperature GREATER THAN 140 °F

ALERT

6. Failure of the Reactor Protection System to complete a trip which takes the Reactor Subcritical

MODES 1 & 2

- Reactor trip setpoint and coincidences - EXCEEDED

AND

- Automatic trip from RPS . FAILED

AND

- Manual trip - REQUIRED

AND

- Manual trip from Control Room - SUCCESSFUL

ALERT

NUMBER	ATTACHMENT TITLE	REVISION
EPIP-1.01	EMERGENCY ACTION LEVEL TABLE	39
ATTACHMENT	(TAB A) SAFETY, SHUTDOWN, OR ASSESSMENT SYSTEM EVENT	PAGE
1		5 of 42

<u>CONDITION/APPLICABILITY</u>	<u>INDICATION</u>	<u>CLASSIFICATION</u>
<p>7. Unplanned loss of safety system annunciators with compensatory indicators unavailable or a transient in progress</p> <p>MODES 1, 2, 3 &amp; 4</p>	<ul style="list-style-type: none"> <li>Unplanned loss of most (&gt;75%) or all annunciator alarms on panels "A" to "K" for GREATER THAN 15 minutes</li> </ul> <p><u>AND</u></p> <ul style="list-style-type: none"> <li>All computer monitoring capability (e.g., PCS) - NOT AVAILABLE</li> </ul> <p><u>OR</u></p> <p>Significant transient - INITIATED OR IN PROGRESS (e.g., reactor trip, SI, turbine runback &gt; 25% thermal reactor power, thermal power oscillations &gt; 10%)</p>	ALERT
<p>8. Evacuation of Main Control Room required</p> <p>ALL MODES</p>	Evacuation of the Control Room with shutdown control established within 15 minutes	ALERT
<p>9. Inability to reach required mode within technical specification limits</p> <p>MODES 1, 2, 3 &amp; 4</p>	<ul style="list-style-type: none"> <li>Intentional reduction in power, load or temperature CAW T.S. Action Statement - HAS COMMENCED</li> </ul> <p><u>AND</u></p> <ul style="list-style-type: none"> <li>T.S. Action Statement time limit for mode change - CANNOT BE MET</li> </ul>	NOTIFICATION OF UNUSUAL EVENT

NUMBER	ATTACHMENT TITLE	REVISION
EPIP-1.01	EMERGENCY ACTION LEVEL TABLE	39
ATTACHMENT	(TAB A)	PAGE
1	SAFETY. SHUTDOWN. OR ASSESSMENT SYSTEM EVENT	6 of 42

# CONDITION/APPLICABILITY

10. Failure of a safety or relief valve to close after **pressure reduction**, which may affect the health and safety of the public

MODES 1, 2, 3, 4 & 5

# INDICATION

## ■ RCS

- RCS pressure - LESS THAN 2000 psig

OR

NOT Protection System - IN SERVICE

AND

- Any indication after **lift** or actuation that Pressurizer Safety or PORV - REMAINS OPEN

AND

- Flow - UNISOLABLE

## ■ Main Steam

- Excessive Steam Generator Safety. PORV or Decay Heat Release flow as indicated by rapid RCS **cooldown** rate

AND

- Main Steam pressure greater than 100 psi below setpoint of affected valve

# CLASSIFICATION

NOTIFICATION OF UNUSUAL EVENT

11. Unplanned **loss** of most or all safety system annunciators for greater than 15 minutes

MODES 1, 2, 3 & 4

- **Unplanned loss** of most (>75%) or all annunciators OR panels 'A' to 'K' for GREATER THAN 15 minutes

NOTIFICATION OF UNUSUAL EVENT

NUMBER	ATTACHMENT TITLE	REVISION
EPIP-1.01	EMERGENCY ACTION LEVEL TABLE	39
ATTACHMENT	(TAB A)	PAGE
1	SAFETY. SHUTDOWN. OR ASSESSMENT SYSTEM EVENT	7 of 42

CONDITION/APPLICABILITY

INDICATION

CLASSIFICATION

12. Loss of  
communications  
capability

ALL MODES

- Station PBX phone system -  
FAILED

AND

- Station Gai-tronics  
system - FAILED

AND

- Station UHF radio system -  
FAILED

NOTIFICATION  
OF UHUSUAL  
EVENT



NUMBER	ATTACHMENT TITLE	REVISION
EPIP-1.01	EMERGENCY ACTION LEVEL TABLE (TAB B) REACTOR COOLANT SYSTEM EVENT	39
ATTACHMENT		PAGE
1		8 of 42

# CONDITION/APPLICABILITY

1. **Loss** of 2 of 3 fission product barriers with potential loss of rd barrier

ALL MODES

# INDICATION

Any two of a), b) or c) exist and the third is imminent:

- a) **Fuel** clad integrity failure as indicated by any of the following:

- RCS specific activity greater than or equal to 300.0  $\mu\text{Ci/gram}$  dose equivalent I-131

OR

5 or more *core* exit thermocouples greater than 1200 °F

OR

Containment **High** Range Radiation Monitor

RM-RMS-165. -166 or RM-RMS-265. -266 GREATER THAN $1.88 \times 10^2$ R/hr
--

- b) **Loss** of RCS integrity as indicated by any of the following:

- RCS pressure greater than 2735 psig

OR

Loss of Reactor Coolant in progress

- c) **Loss** of containment integrity as indicated by any of the following:

- Containment pressure greater than 60 gsia and not decreasing

OR

Release path to environment -EXISTS

# CLASSIFICATION

GENERAL  
EMERGENCY

NUMBER	ATTACHMENT TITLE	REVISION
EPIP-1.01	EMERGENCY ACTION LEVEL TABLE	39
ATTACHMENT	(TAB B)	PAGE
1	REACTOR COOLANT SYSTEM EVENT	9 of 42

CONDITION/APPLICABILITY	INDICATION	CLASSIFICATION
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2. Fuel failure with  
steam generator  
tube rupture

ALL MODES

Any two of a), b) or c) exist and the  
third is imminent:

a) Fuel clad integrity failure as  
indicated by any of the following:

- RCS specific activity greater than  
300  $\mu\text{Ci/gram}$  dose equivalent I-131

OR

5 or more core exit thermocouples  
GREATER THAN 1200 °F

High Range Letdown radiation  
monitor

I-CH-RI-128 or 2-CH-RI-228  
GREATER THAN  $5.9 \times 10^4$  mR/hr

b) Steam Generator tube rupture as  
indicated by both of the following:

- SI coincidence - SATISFIED

AND

- Steam Generator tube rupture - IN  
PROGRESS

c) Loss of secondary integrity  
associated with ruptured steam  
generator pathway as indicated by  
any of the following:

- Steam Generator PORV - OPEN

OR

Main Steam Code Safety Valve - OPEN

OR

Loss of secondary coolant outside  
containment - IN PROGRESS

GENERAL  
EMERGENCY

NUMBER	ATTACHMENT TITLE	REVISION
EPIP-1.01	EMERGENCY ACTION LEVEL TABLE	39
ATTACHMENT	(TAB B)	PAGE
1	REACTOR COOLANT SYSTEM EVENT	10 of 42

<u>CONDITION/APPLICABILITY</u>	<u>INDICATION</u>	<u>CLASSIFICATION</u>
3. RCS leak rate exceeds makeup capacity  MODES 1, 2, 3, & 4	<ul style="list-style-type: none"> <li>Primary system leak (LOCA) - IN PROGRESS</li> </ul> <p><u>AND</u></p> <ul style="list-style-type: none"> <li>Safety Injection - REQUIRED</li> </ul> <p><u>AND</u></p> <ul style="list-style-type: none"> <li>RCS <u>subcooling</u> based on Core Exit Thermocouples - LESS THAN 30" F</li> </ul> <p><u>OR</u></p> <p>RCS inventory cannot be maintained based on <u>pressurizer</u> level <u>or</u> RVLIS indication</p>	SITE AREA EMERGENCY
4. Gross primary to secondary leakage with <u>loss</u> of offsite power  MODES 1, 2, 3, & 4	<ul style="list-style-type: none"> <li>Steam Generator Tube Rupture - IN PROGRESS</li> </ul> <p><u>AND</u></p> <ul style="list-style-type: none"> <li>Safety Injection - REQUIRED</li> </ul> <p><u>AND</u></p> <ul style="list-style-type: none"> <li>Vent Vent A MGPI Monitor</li> </ul> <div style="border: 1px solid black; padding: 2px;"> RM-VG-179 GREATER THAN  <math>1.25 \times 10^8 \mu\text{Ci/sec}</math> </div> <p><u>OR</u></p> <p>Steam Generator Blowdown monitor on affected pathway</p> <div style="border: 1px solid black; padding: 2px;"> RM-SS-122. -222  RM-SS-123. -223  RM-SS-124. -224  GREATER THAN <math>1 \times 10^6</math> cpm </div> <p><u>AND</u></p> <ul style="list-style-type: none"> <li>A subseautent loss of offsite power indicated by zero volts on voltmeters for 4160V buses D, E, &amp; F</li> </ul>	SITE AREA EMERGENCY

NUMBER	ATTACHMENT TITLE	REVISION
EPIP-1.01	EMERGENCY ACTION LEVEL TABLE	39
ATTACHMENT	(TAB B)	PAGE
1	REACTOR COOLANT SYSTEM EVENT	11 of 42

# CONDITION/APPLICABILITY

# INDICATION

# CLASSIFICATION

5. RCS leak rate limit  
- EXCEEDED

MODES 1, 2, 3, & 4

■

- Pressurizer level cannot be maintained greater than 20% with one (1) Charging/SI pump in operation

ALERT

AND

- RCS inventory balance indicates leakage - greater than 50 gpm

6. Gross primary to secondary leakage

MODES 1, 2, 3, E 4

Steam Generator Tube Rupture - IN PROGRESS

ALERT

AND

Safety Injection - REQUIRED

7. Excessive primary to secondary leakage with loss of offsite power

MODES 1, 2, 3, E 4

- Intentional reduction in power, load or temperature IAW T.S. 3.4.13s primary-to-secondary leakage LOO Action Statement

ALERT

AND

- Vent Vent A MGPI Monitor

RM-VG-179 GREATER THAN  
1.73 x 10<sup>6</sup> µCi/sec

OR

Steam Generator Blowdown monitor on affected pathway

RM-SS-122, -222  
RM-SS-123, -223  
RM-SS-124, -224  
GREATER THAN 1x10<sup>5</sup> cpm

AND

- A subsequent loss of offsite power indicated by zero volts OR voltmeters for 4160V buses D, E, & F

NUMBER	ATTACHMENT TITLE	REVISION
EPIP-1.01	EMERGENCY ACTION LEVEL TABLE	39
ATTACHMENT	(TAB B)	PAGE
1	REACTOR COOLANT SYSTEM EVENT	12 of 42

CONDITION/APPLICABILITY

INDICATION

CLASSIFICATION

8. RCS operational  
leakage requiring  
plant shutdown  
IAW T.S. 3.4.13

MODES 1. 2. 3. & 4

Intentional seduction in Dower  
load or temperature IAW T.S.  
3.4.13 leakage limit action  
statement - HAS COMMENCED

NOTIFICATION  
OF UNUSUAL  
EVENT

NUMBER	ATTACHMENT TITLE	REVISION
EPIP-1.01	EMERGENCY ACTION LEVEL TABLE	39
ATTACHMENT	(TAB C)	PAGE
1	FUEL FAILURE OR FUEL HANDLING ACCIDENT	13 of 42

CONDITION/APPLICABILITY	INDICATION	CLASSIFICATION
1. Probable large radioactivity release initiated by LOCA with ECCS failure leading to core degradation  ALL MODES	<ul style="list-style-type: none"> <li>Loss of reactor coolant in progress</li> </ul> <p style="text-align: center;"><u>AND</u></p> <ul style="list-style-type: none"> <li>RCS specific activity - greater than 300 <math>\mu\text{Ci}/\text{gram}</math> dose equivalent I-131</li> </ul> <p style="text-align: center;"><u>OR</u></p> <p>Containment High Range Radiation Monitor</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> RM-RMS-165, -166 or  RM-RMS-265, -266  GREATER THAN  <math>1.88 \times 10^2</math> R/hr </div> <p style="text-align: center;"><u>AND</u></p> <ul style="list-style-type: none"> <li>High or low head ECCS flow not being delivered to the core (if expected by plant conditions)</li> </ul>	GENERAL EMERGENCY

CAUTION: EAL A.1 is duplicated below for cross-reference/comparison to EAL C.2:

A.1. Loss of function needed for unit HSD condition  MODES 1. 2. 3 & 4	<ul style="list-style-type: none"> <li>Total loss of the Charging/SI System</li> </ul> <p style="text-align: center;"><u>OR</u></p> <p>Total loss of the Main Feedwater and Auxiliary Feedwater systems</p>	SITE AREA EMERGENCY
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2. Probable large radioactivity release initiated by loss of heat sink leading to core degradation  MODES 1, 2, 3 & 4	Loss of Main Feedwater System, Condensate System and Auxiliary Feedwater System	GENERAL EMERGENCY
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NUMBER	ATTACHMENT TITLE	REVISION
EPIP-1.01	EMERGENCY ACTION LEVEL TABLE	39
ATTACHMENT	(TAB C)	PAGE
1	FUEL FAILURE OR FUEL HANDLING ACCIDENT	14 of 42

<u>CONDITION/APPLICABILITY</u>	<u>INDICATION</u>	<u>CLASSIFICATION</u>
3. Probable large radioactivity release initiated by failure of protection system to bring Rx subcritical and causing core degradation  ALL MODES	<ul style="list-style-type: none"> <li>Rx nuclear Dower after a trip - greater than 5%</li> </ul> <p><u>AND</u></p> <ul style="list-style-type: none"> <li>RCS pressure greater than or equal to 2485 psig</li> </ul> <p><u>OR</u></p> <p>Containment pressure and temperature rapidly increasing</p>	GENERAL EMERGENCY
4. Probable large radioactivity release initiated by loss of AC power and all feedwater  ALL MODES	<ul style="list-style-type: none"> <li>Loss of all onsite and offsite AC power</li> </ul> <p><u>AND</u></p> <ul style="list-style-type: none"> <li>Turbine Driven Auxiliary Feedwater Pump not operable</li> </ul> <p><u>AND</u></p> <ul style="list-style-type: none"> <li>Restoration of either of the above not likely within 2 hours</li> </ul>	GENERAL EMERGENCY

NUMBER	ATTACHMENT TITLE	REVISION
EPIP-1.01	EMERGENCY ACTION LEVEL TABLE (TAB C)	39
ATTACHMENT	FUEL FAILURE OR FUEL HANDLING ACCIDENT	PAGE
1		15 of 42

# CONDITION/APPLICABILITY

5. Probable large radioactivity release initiated by LOCA with loss of ECCS and containment cooling

ALL MODES

# INDICATION

- Loss of reactor coolant in progress

AND

- High or low head ECCS flow not being delivered to the core (if expected by plant conditions)

AND

- Containment RS sump temperature greater than 190°F and MOP decreasing

OR

All Quench Spray and Recirculation Spray systems  
- NOT OPERABLE

# CLASSIFICATION

GENERAL  
EMERGENCY



NUMBER	ATTACHMENT TITLE	REVISION
EPIP-1.01	EMERGENCY ACTION LEVEL TABLE	39
ATTACHMENT	(TAB C)	PAGE
1	FUEL FAILURE OR FUEL HANDLING ACCIDENT	16 of 42

<u>CONDITION/APPLICABILITY</u>	<u>INDICATION</u>	<u>CLASSIFICATION</u>
6. Core damage with possible loss of coolable geometry  MOOES 1, 2, 3, & 4	<p>a) Fuel clad failure as indicated by any of the following:</p> <ul style="list-style-type: none"> <li>RCS Specific activity greater than 60 <math>\mu\text{Ci}/\text{gram}</math> dose equivalent 1-131</li> </ul> <p><u>OR</u></p> <p>High Range Letdown radiation monitor</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> 1-CH-RI-128 or  2-CH-RI-228  GREATER THAN  <math>1.2 \times 10^4</math> mR/hr </div> <p><u>AND</u></p> <p>b) Loss of cooling as indicated by any of the following:</p> <ul style="list-style-type: none"> <li>5 confirmed core exit thermocouples greater than <del>E</del>200 °F</li> </ul> <p><u>OR</u></p> <p>Core delta T - zero</p> <p><u>OR</u></p> <p>Cere delta T - rapidly diverging</p>	SITE AREA EMERGENCY

NUMBER	ATTACHMENT TITLE	REVISION
EGIP-1.01	EMERGENCY ACTION LEVEL TABLE	39
ATTACHMENT	(TAB C)	PAGE
1	FUEL FAILURE OR FUEL HANDLING ACCIDENT	17 of 42

### CONDITION/APPLICABILITY

7. Major fuel damage accident with radioactivity release to containment or fuel buildings

ALL MODES

### INDICATION

- Water level in Rx vessel during refueling below the top of core

OR

Water level in spent fuel pool below top of spent fuel

AND

- Verified damage to irradiated fuel resulting in readings on Vent Vent "B" MGPI monitor

RM-VG-180 GREATER THAN  
2.69 x 10<sup>8</sup> µCi/sec

### CLASSIFICATION

SITE AREA  
EMERGENCY

8. Severe Fuel Clad Damage

MODES 1. 2. 3. & 4

- High Range Letdown radiation monitor

1-CH-RI-128 or  
2-CH-RI-228  
Increases to GREATER THAN Hi Hi Alarm setpoint (representing 1% fuel failure) within 30 minutes and remains for at least 15 minutes

OR

- RCS specific activity - greater than 300 µCi/gram dose equivalent I-131

ALERT

NUMBER	ATTACHMENT TITLE EMERGENCY ACTION LEVEL TABLE (TAB C) FUEL FAILURE OR FUEL HANDLING ACCIDENT	REVISION
EPIP-1.01		39
ATTACHMENT 1		PAGE 18 of 42

CONDITION/APPLICABILITY

INDICATION

CLASSIFICATION

9. Fuel damage accident with release of radioactivity to containment or fuel buildings  
ALL MODES

- Verified accident involving damage to irradiated fuel
- AND**
- Health Physics confirms fission product release from fuel

ALERT

OR

Vent Vent "B" MGPI monitor

RM-VG-180 GREATER THAN  
 $1.99 \times 10^6 \mu\text{Ci/sec}$

10. Potential for fuel damage to occur during refueling  
MODE 6

Continuing uncontrolled decrease of water level in Reactor Refueling Cavity or Spent Fuel Pool

ALERT

NUMBER	ATTACHMENT TITLE	REVISION
EPIP-1.01	EMERGENCY ACTION LEVEL TABLE	39
ATTACHMENT 1	(TAB C) FUEL FAILURE OR FUEL HANDLING ACCIDENT	PAGE 19 of 42

# CONDITION/APPLICABILITY

## INDICATION

## CLASSIFICATION

11. Fuel clad damage  
Indication  
MODES 1, 2, 3. & 4

- Intentional reduction in power, load or temperature  
active to S. containment  
Statement - HAS COMMENCED

NOTIFICATION  
OF UNUSUAL  
EVENT

OR

High Range Letdown  
radiation monitor

1-CH-RI-128 or  
2-CH-RI-228  
Increases to GREATER  
THAN Hi Alarm setpoint  
(representing 0.1%  
fuel failure) within  
30 minutes and remains  
for for at least 15  
minutes

12. Independent Spent  
Fuel Storage  
(ISFSI) event

ALL MODES

- Verified Sealed Surface  
Storage Cask (SSSC) seal  
leakage

NOTIFICATION  
OF UNUSUAL  
EVENT

OR

Sealed Surface Storage  
Cask (SSSC) dropped or  
mishandled

NUMBER	ATTACHMENT TITLE	REVISION
EPIP-1.01	EMERGENCY ACTION LEVEL TABLE	39
ATTACHMENT	(TAB D)	PAGE
1	CONTAINMENT EVENT	20 of 42

### CONDITION/APPLICABILITY

### JNOICAPION

### CLASSIFICATION

1. Extremely high containment radiation, pressure and temperature  
MODES 1, 2, 3, & 4

- containment High Range radiation monitor

RM-RMS-165, -166 or  
RM-RMS-265, -266  
GREATER THAN  
 $3.76 \times 10^2$  R/hr

GENERAL  
EMERGENCY

AND

- Containment pressure greater than 45 psia and not decreasing

OR

Containment temperature greater than 280°F

2. High-high containment radiation, pressure, and temperature  
MODES 1, 2, 3, & 4

- Containment High Range radiation monitor

RM-RMS-165, -166 or  
RM-RMS-265, -266  
GREATER THAN  
 $1.88 \times 10^2$  R/hr

SITE AREA  
EMERGENCY

AND

- Containment pressure - greater than 27.75 psia and not decreasing

OR

Containment temperature - greater than 200 °F

NUMBER	ATTACHMENT TITLE	REVISION
EPIP-1.01	EMERGENCY ACTION LEVEL TABLE	39
ATTACHMENT	(TAB D)	PAGE
1	CONTAINMENT EVENT	21 of 42

CONDITION/APPLICABILITY

3. High Containment  
radiation. pressure  
and temperature

MODES 1, 2, 3, & 4

INDICATION

- Containment High Range  
radiation monitor

RM-RMS-165. -166 or RM-RMS-265. -266 GREATER THAN 81.5 R/hr
--

AND

- Containment pressure -  
greater than 17 psia

OR

Containment temperature -  
greater than 1500F

CLASSIFICATION

ALERT

NUMBER	ATTACHMENT TITLE	REVISION
EPIP-1.01	EMERGENCY ACTION LEVEL TABLE	39
ATTACHMENT	(TAB E)	PAGE
1	RADIOACTIVITY EVENT	22 of 42

# CONDITION/APPLICABILITY

# INDICATION

# CLASSIFICATION

1. Release imminent or in progress and site boundary doses projected to exceed 1.0 Rem TEDE or 5.0 Rem Thyroid CDE

ALL MODES

- WP assessment indicates actual or projected doses at or beyond site boundary greater than 1.0 Rem TEDE or 5.0 Rem Thyroid CDE

GENERAL  
EMERGENCY

2. Release imminent or in progress and site boundary doses projected to exceed 0.1 Rem TEDE or 0.5 Rem Thyroid CDE

ALL MODES

- HP assessment indicates actual or projected dose at or beyond Site Boundary exceeds 0.1 Rem TEDE or 0.5 Rem Thyroid CDE

SITE AREA  
EMERGENCY

NUMBER	ATTACHMENT TITLE	REVISION
EPIP-1.01	EMERGENCY ACTION LEVEL TABLE	39
ATTACHMENT	(TAB E)	PAGE
1	RADIOACTIVITY EVENT	23 of 42

CONDITION/APPLICABILITY

3. Effluent release greater than 10 times OOCM allowable limit  
ALL MODES

INDICATION

- a) Any of the following monitors indicate valid readings above the specified values for greater than 15 minutes

- Clarifier Effluent

RM-LW-111 GREATER THAN  
4.8 x 10<sup>5</sup> cpm

- Discharge Canal

RM-SW-130 or -230 GREATER THAN  
5 x 10<sup>4</sup> cpm

- Vent Vent A MGPI

RM-VG-179 GREATER THAN  
1.73 x 10<sup>6</sup> µCi/sec

- Vent Vent B MGPI

RM-VG-180 GREATER THAN  
1.99 x 10<sup>6</sup> µCi/sec

- Process Vent MGPI

RM-GW-178 GREATER THAN  
1.35 x 10<sup>7</sup> µCi/sec

OR

- b) HP assessment (sample results or dose projections) indicate greater than 10 times OOCM allowable limit

CLASSIFICATION

ALERT



NUMBER	ATTACHMENT TITLE  EMERGENCY ACTION LEVEL TABLE (TAB E) RADIOACTIVITY EVENT	REVISION
EPIP-1.01		39
ATTACHMENT		PAGE
1		24 of 42

<u>CONDITION/APPLICABILITY</u>	<u>INDICATION</u>	<u>CLASSIFICATION</u>
<p>4. <b>High</b> radiation or airborne contamination levels indicate a severe degradation in control of radioactive material</p> <p>ALL MODES</p>	<p><b>Valid</b> readings on any of the following monitors have increased <b>by</b> a factor <b>of</b> 1000 and remain for at least 15 minutes:</p> <ul style="list-style-type: none"> <li>• Ventilation Vent Multi-sample gaseous or particulate monitor  <div>RM-VG-106 or -105</div> </li> <li>• Control Room Area  <div>RMS-157</div> </li> <li>• Aux. Bldg. Control Area  <div>RMS-154</div> </li> <li>• Decon. Bldg. Area  <div>RMS-151</div> </li> <li>• Fuel Pool Bridge Area  <div>RMS-153</div> </li> <li>■ New fuel storage Area  <div>RMS-E52</div> </li> <li>• Laboratory Area  <div>RMS-158</div> </li> <li>■ Sample Room Area  <div>RMS-156</div> </li> </ul>	ALERT

NUMBER	ATTACHMENT TITLE	REVISION
EPIP-1.01	EMERGENCY ACTION LEVEL TABLE (TAB E)	39
ATTACHMENT	RADIOACTIVITY EVENT	PAGE
1		25 of 42

<u>CONDITION/APPLICABILITY</u>	<u>INDICATION</u>	<u>CLASSIFICATION</u>
5. Effluent release greater than ODCM allowable limit  ALL MODES	<p>a) Any of the following monitors indicate valid readings above the specified value for more than 1 hour:</p> <ul style="list-style-type: none"> <li>Clarifier Effluent  <div>RM-LW-111 GREATER THAN  <math>4.8 \times 10^4</math> cpm</div> </li> <li>Discharge Canal  <div>RM-SW-130 or -230 GREATER THAN  <math>5 \times 10^3</math> dpm</div> </li> <li>Vent Vent A MGPI  <div>RM-VG-179 GREATER THAN  <math>1.73 \times 10^5</math> <math>\mu</math>Ci/sec</div> </li> <li>Vent Vent B MGPI  <div>RM-VG-180 GREATER THAN  <math>1.99 \times 10^5</math> <math>\mu</math>Ci/sec</div> </li> <li>Process Vent MGPI  <div>RM-GW-178 GREATER THAN  <math>1.35 \times 10^6</math> <math>\mu</math>Ci/sec</div> </li> </ul> <p>OR</p> <p>b) HP assessment (sample results or dose projections) indicates greater than ODCM allowable limit</p>	NOTIFICATION OF UNUSUAL EVENT

NUMBER	ATTACHMENT TITLE	REVISION
EP-1.01	EMERGENCY ACTION LEVEL TABLE	39
ATTACHMENT	(TAB G)	PAGE
1	LOSS OF SECONDARY COOLANT	26 of 42

CONDITION/APPLICABILITY	INDICATION	CLASSIFICATION
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1. Major secondary line break with significant primary to secondary leakage and fuel damage indicated

MODES 1, 2, 3, & 4

Conditions a) and b) exist with c):

a) Uncontrolled loss of secondary coolant - IN PROGRESS

AND

b) RCS specific activity exceeds limits of T.S. Figure 3.4.16-1

OR

High Range Letdown radiation monitor

1-CH-RI-128 or 2-CH-RI-228  
GREATER THAN Hi Alarm setpoint

AND

c) Vent Vent A MGPI Monitor

RM-VG-179 GREATER THAN  
 $6.21 \times 10^7 \mu\text{Ci/sec}$

OR

Affected pathway Steam Generator Blowdown monitor

RM-SS-122, -123, -124,  
-222, -223, -224  
GREATER THAN  $1 \times 10^6$  cpm

OR

Affected pathway Main Steam bine High Range monitor

RM-MS-170, -171, -172,  
-270, -271, -272  
GREATER THAN 12.2 mR/hr

SITE AREA  
EMERGENCY

NUMBER	ATTACHMENT TITLE	REVISION
EPIP-1.01	EMERGENCY ACTION LEVEL TABLE	39
ATTACHMENT	(TAB G)	PAGE
1	LOSS OF SECONDARY COOLANT	27 of 42

CONDITION/APPLICABILITY

INDICATION

CLASSIFICATION

2. Major secondary line break with significant primary to secondary leakage

MODES 1. 2. 3. & 4

- Uncontrolled loss of secondary coolant - IN PROGRESS

AND

- Vent Vent A MGPI Monitor

RM-VG-179 GREATER THAN  
1.76 x 10<sup>6</sup> µCi/sec

OR

Steam Generator Blowdown monitor on affected pathway

RM-SS-122, -123, -124  
RM-SS-222, -223, -224  
GREATER THAN 1x10<sup>5</sup> cpm

OR

Main Steam Line High Range monitor on affected pathway

RM-MS-170, -171, -172  
RM-MS-270, -271, -272  
GREATER THAN 0.14 mR/hr

ALERT

3. Major secondary line break

MORES 1. 2. 3. & 4

Uncontrolled **loss** of secondary coolant - IN PROGRESS

NOTIFICATION  
OF UNUSUAL  
EVENT

NUMBER	ATTACHMENT TITLE	REVISION
EPIP-1.01	EMERGENCY ACTION LEVEL TABLE	39
ATTACHMENT	(TAB H)	PAGE
1	ELECTRICAL FAILURE	28 of 42

CONDITION/APPLICABILITY	INDICATION	CLASSIFICATION
<p>1. loss of offsite and onsite AC power for more than 15 minutes</p> <p>ALL MODES</p>	<p>The following conditions exist for greater than 15 minutes:</p> <ul style="list-style-type: none"> <li>Ammeters for 4160V Reserve Station Service Buses D, E, &amp; F all indicate - zero (0) amps</li> </ul> <p>AND</p> <ul style="list-style-type: none"> <li>Ammeters for 4160V Station Service Buses A, B, &amp; C all indicate - zero (0) amps</li> </ul> <p>AND</p> <ul style="list-style-type: none"> <li>Ammeters for 4160V Emergency Buses H &amp; J both indicate - zero (0) amps</li> </ul>	<p>SITE AREA EMERGENCY</p>
<p>2. loss of a71 onsite OC power for greater than 15 minutes</p> <p>ALL MODES</p>	<p>The following conditions exist for greater than 15 minutes:</p> <ul style="list-style-type: none"> <li>All station battery voltmeters indicate zero (0) volts</li> </ul> <p>AND</p> <ul style="list-style-type: none"> <li>No light indication available to Reserve Station Service breakers 15D1, 15E1 and 15F1</li> </ul>	<p>SITE AREA EMERGENCY</p>

NUMBER	ATTACHMENT TITLE	REVISION
EPIP-1.01	EMERGENCY ACTION LEVEL TABLE (TAB H)	39
ATTACHMENT	ELECTRICAL FAILURE	PAGE
1		29 of 42

# CONDITION/APPLICABILITY

# INDICATION

# CLASSIFICATION

CAUTION: EAL A.1 is duplicated below for cross-reference/comparison to EAL H.3:

A.1. Loss of function  
needed for unit  
WSD condition

MODES 1, 2, 3 & 4

- Total loss of the  
Charging/SI System

OR

Total loss of the Main  
Feedwater and Auxiliary  
Feedwater Systems

SITE AREA  
EMERGENCY

3. Loss of all offsite  
and onsite AC power  
  
ALL MODES

- Ammeters for 4160V Reserve  
Station Service Buses D, E,  
& F all indicate - zero (0)  
amps

ALERT

AND

- Ammeters for 4160V Station  
Service Buses A, E, & C all  
indicate - zero (0) amps

AND

- Ammeters for 4160V  
Emergency Buses H and J  
both indicate - zero (0)  
amps

4. Loss of all onsite  
DC power  
  
ALL MODES

- All station battery  
voltmeters indicate - zero  
(0) volts

ALERT

AND

- No light indication  
available to Reserve  
Station Service Breakers  
15D1, 15E1 and 15F1

NUMBER	ATTACHMENT TITLE	REVISION
EPIP-1.01	EMERGENCY ACTION LEVEL TABLE	39
ATTACHMENT	(TAB H)	PAGE
1	ELECTRICAL FAILURE	30 of 42

<u>CONDITION/APPLICABILITY</u>	<u>INDICATION</u>	<u>CLASSIFICATION</u>
5. Loss of offsite power or onsite AC power capability  ALL MODES	<ul style="list-style-type: none"> <li>Unit main generator and bath emergency diesel generators out of service</li> </ul> <p>OR</p> <p>Loss of all 34.5 KV reserve station service buses</p>	NOTIFICATION OF UNUSUAL EVENT

NUMBER	ATTACHMENT TITLE	REVISION
EPIP-1.01	EMERGENCY ACTION LEVEL TABLE	39
ATTACHMENT	(TAB I) FIRE	PAGE
1		31 of 42

<u>CONDITION/APPLICABILITY</u>	<u>INDICATION</u>	<u>CLASSIFICATION</u>
1. Fire resulting in degradation of safety systems MODES 1. 2. 3. & 4	<ul style="list-style-type: none"> <li>Fire which causes major degradation of a safety system function required for protection of the public</li> </ul> <p style="text-align: center;"><u>AND</u></p> <ul style="list-style-type: none"> <li>Affected systems are caused to be <u>NOT</u> operable as defined by Tech. Specs.</li> </ul>	SITE AREA EMERGENCY
2. Fire potentially affecting station safety systems MODES 1. 2. 3. & 4	Fire which has potential for causing a safety system not to be operable as defined by Tech. Specs.	ALERT
3. Fire lasting greater than 10 minutes in Protected Area or Service Water Pump/Valve House ALL MODES	Fire within the Protected Area or Service Water Pump/Valve House which is not under control within 10 minutes after Fire Brigade - DISPATCHED	NOTIFICATION OF UNUSUAL EVENT



NUMBER	ATTACHMENT TITLE	REVISION
EPIP-1.01	EMERGENCY ACTION LEVEL TABLE	39
ATTACHMENT	(TAB J)	PAGE
1	SECURITY EVENT	32 of 42

<u>CONDITION/APPLICABILITY</u>	<u>INDICATION</u>	<u>CLASSIFICATION</u>
1. Loss of physical Station control  ALL MODES	<ul style="list-style-type: none"> <li>Shift Manager/Station Emergency Manager has been informed that the security force has been neutralized by attack, resulting in loss of physical control of station</li> </ul> <p>OR</p> <p>Shift Manager/Station Emergency Manager has been Informed of intrusion into one or more Vital Areas which are occupied or controlled by an aggressor</p>	GENERAL EMERGENCY
2. Imminent loss of physical Station control  ALL MODES	Security Shift Supervisor has notified the Operations Shift Manager/Station Emergency Manager of imminent intrusion into a Vital Area	SITE AREA EMERGENCY
3. Ongoing Security compromise  ALL MODES	Security Shift Supervisor has notified the Operations Shift Manager/Station Emergency Manager of a confirmed unneutralized intrusion into the Protected Area or ISFSI	ALERT

NUMBER	ATTACHMENT TITLE	REVISION
EPIP-1.01	EMERGENCY ACTION LEVEL TABLE	39
ATTACHMENT	(TAB J)	PAGE
1	SECURITY EVENT	33 of 42

<u>CONDITION/APPLICABILITY</u>	<u>INDICATION</u>	<u>CLASSIFICATION</u>
<p>4. Security threat, unauthorized attempted entry, or attempted sabotage</p> <p>ALL MODES</p>	<p>Any of the following when determined to have potential for degrading the level of safety of the plant or ISFSI</p> <ul style="list-style-type: none"> <li>▪ Receipt of a credible site-specific threat from Security, NRC or FBI</li> <li>• Confirmed hostage situation</li> <li>• Civil disturbance</li> <li>• Discovery of a bomb device (other-than on or near a safety-related system which represents an on-going security compromise)</li> <li>• Confirmed attempted intrusion (Protected Area or ISFSI)</li> <li>• Attempted sabotage</li> </ul>	<p>NOTIFICATION OF UNUSUAL EVENT</p>

NUMBER	ATTACHMENT TITLE	REVISION
EPIP-1.01	EMERGENCY ACTION LEVEL TABLE	39
ATTACHMENT	(TAB K)	PAGE
1	HAZARD TO STATION OPERATION	34 of 42

<u>CONDITION/APPLICABILITY</u>	<u>INDICATION</u>	<u>CLASSIFICATION</u>
1. Aircraft damage to vital plant systems MODES 1, 2, 3, & 4	Aircraft crash which affects vital structures by impact or fire	SITE AREA EMERGENCY
2. Severe explosive damage MODES 1, 2, 3, & 4	Explosion which results in severe degradation of any of the following systems required for safe shutdown: <ul style="list-style-type: none"> <li>CVCS System</li> <li><u>OR</u></li> <li>ECCS System</li> <li><u>OR</u></li> <li>Main/Auxiliary Feedwater System</li> </ul>	SITE AREA EMERGENCY
3. Entry of toxic or flammable gases into plant vital areas other than the Control Room MODES 1, 2, 3, & 4	<ul style="list-style-type: none"> <li>Uncontrolled release of toxic or flammable agents greater than life threatening or explosive limits in Vital Areas</li> <li><u>AND</u></li> <li>Evacuation of Vital Area other than Control Room - REWIRED</li> <li><u>OR</u></li> <li>Significant degradation of plant safety systems resulting in <b>loss</b> of a safety system function required for protection of the public</li> </ul>	SITE AREA EMERGENCY

NUMBER	ATTACHMENT TITLE	REVISION
EPIP-1.01	EMERGENCY ACTION LEVEL TABLE	39
ATTACHMENT	(TAB K) HAZARD TO STATION OPERATION	PAGE
1		35 of 42

<u>CONDITION/APPLICABILITY</u>	<u>INDICATION</u>	<u>CLASSIFICATION</u>
4. Severe missile damage to safety systems  MODES 1, 2, 3, & 4	Missile impact causing severe degradation of safety systems required for unit shutdown	<b>SITE AREA</b> <b>EMERGENCY</b>
5. Aircraft crash on the facility  ALL MODES	Aircraft crash within the Protected Area or Switchyard	<b>ALERT</b>
6. Explosion damage to facility  ALL MODES	Unplanned explosion resulting in damage to plant structure or equipment that affects plant operations	<b>ALERT</b>
7. Entry of toxic or flammable gases or liquids into plant facility  ALL MODES	Notification of <b>uncontrolled</b> release of toxic or flammable agent which causes: <ul style="list-style-type: none"> <li>Evacuation of personnel from plant areas</li> </ul> <p style="text-align: center;"><b>AND</b></p> <ul style="list-style-type: none"> <li>Safety related equipment is rendered inoperable</li> </ul>	<b>ALERT</b>
8. Turbine failure or missile impact  MODES 1 & 2	Failure of <b>turbine/generator</b> rotating equipment resulting in casing penetration	<b>ALERT</b>

NUMBER	ATTACHMENT TITLE	REVISION
EPIP-1.01	EMERGENCY ACTION LEVEL TABLE (TAB K) HAZARD TO STATION OPERATION	39
ATTACHMENT		PAGE
1		36 of 42

CONDITION/APPLICABILITY	INDICATION	CLASSIFICATION
9. Missile damage to safety related equipment or structures  MODES 1, 2, 3, & 4	Notification of missile impact causing damage to safety related equipment or structures	ALERT
10. Aircraft crash or unusual aircraft activity  ALL MODES	<ul style="list-style-type: none"> <li>Confirmed notification of aircraft crash within the site boundary</li> </ul> <p style="text-align: center;"><u>OR</u></p> Unusual aircraft activity in the vicinity of the site as determined by the Operations Shift Manager/ Station Emergency Manager or the Security Shift Supervisor	NOTIFICATION OF UNUSUAL EVENT
11. Train derailment within Protected Area  ALL MODES	Confirmed report of train derailment within Protected Area	NOTIFICATION OF UNUSUAL EVENT
12. Explosion within Protected Area  ALL MODES	Confirmed report of unplanned explosion within Protected Area	NOTIFICATION OF UNUSUAL EVENT
13. Onsite or nearsite release of toxic or flammable liquids or gases  ALL MODES	Notification of unplanned release of toxic or flammable agents which may affect safety of station personnel or equipment	NOTIFICATION OF UNUSUAL EVENT

NUMBER	ATTACHMENT TITLE	REVISION
EPIP-1.01	EMERGENCY ACTION LEVEL TABLE	39
ATTACHMENT	(TAB K)	PAGE
1	HAZARD TO STATION OPERATION	37 of 42

CONDITION/APPLICABILITY

14. Turbine rotating  
component failure  
with no casing  
penetration

MODES 1 & 2

INDICATION

Failure of turbine/generator  
rotating equipment resulting in  
immediate unit shutdown

CLASSIFICATION

NOTIFICATION  
OF UNUSUAL  
EVENT

NUMBER	ATTACHMENT TITLE	REVISION
EPIP-1.01	EMERGENCY ACTION LEVEL TABLE (TAB L) NATURAL EVENTS	39
ATTACHMENT		PAGE
1		38 of 42

<u>CONDITION/APPLICABILITY</u>	<u>INDICATION</u>	<u>CLASSIFICATION</u>
1. Earthquake greater than or equal to DEE levels  MODES 1, 2, 3. & 4	<ul style="list-style-type: none"> <li>Confirmed earthquake which activates the Event Indicator on the Strong Motion Accelerograph</li> </ul> <p style="text-align: center;"><u>AND</u></p> <ul style="list-style-type: none"> <li>Alarms on the Peak Shock Annunciator indicate a horizontal motion of greater than or equal to 0.12 g or a vertical motion of greater than or equal to 0.08g</li> </ul>	SITE AREA EMERGENCY
2. Sustained winds in excess of design levels experienced or projected  MODES 1, 2, 3. & 4	Sustained winds 155 mph OR GREATER experienced or projected	SITE AREA EMERGENCY
3. NQT USED		

NUMBER	ATTACHMENT TITLE	REVISION
EPIP-1.01	EMERGENCY ACTION LEVEL TABLE (TAB L) NATURAL EVENTS	39
ATTACHMENT		PAGE
1		39 of 42

<u>CONDITION/APPLICABILITY</u>	<u>INDICATION</u>	<u>CLASSIFICATION</u>
4. Earthquake greater than or equal to GBE levels  ALL MODES	<ul style="list-style-type: none"> <li>Confirmed earthquake which activates Event Indicator on the Strong Motion Accelerograph</li> </ul> <p>AND</p> <ul style="list-style-type: none"> <li>Alarms on the Peak Shock Annunciator indicate a horizontal motion of greater than or equal to 0.06 g or a vertical motion of greater than or equal to 0.04g</li> </ul>	ALERT
5. Tornado striking facility  ALL MODES	Tornado visually detected striking structures within the Protected Area or Switchyard	ALERT
6. Hurricane winds near design basis level experienced or projected  ALL MODES	Hurricane winds 120 mph OR GREATER experienced or projected	ALERT
7. Flood near design levels  ALL MODES	Flood in the Lake Anna Reservoir with indicated Bevel - greater than 263 feet MSC	ALERT



NUMBER	ATTACHMENT TITLE	REVISION
EPIP-1.01	EMERGENCY ACTION LEVEL TABLE	39
ATTACHMENT	(TAB L)	PAGE
1	NATURAL EVENTS	40 of 42

<u>CONDITION/APPLICABILITY</u>	<u>INDICATION</u>	<u>CLASSIFICATION</u>
8. Earthquake detected ALL MODES	Confirmed earthquake which activates the Event Indicator on the Strong Motion Accelerograph	NOTIFICATION OF UNUSUAL EVENT
9. Tornado within Protected Area or Switchyard ALL MODES	Tornado visually detected within Protected Area or Switchyard	NOTIFICATION OF UNUSUAL EVENT
10. Hurricane force winds projected onsite within 12 hours ALL MODES	<ul style="list-style-type: none"> <li>Confirmation by Weather Center that hurricane force winds (greater than 73 mph) projected onsite within 12 hours</li> </ul>	NOTIFICATION OF UNUSUAL EVENT
11. 50 year flood ALL MODES	Flood in the Lake Anna Reservoir with indicated level - greater than 254 feet MSL	NOTIFICATION OF UNUSUAL EVENT

NUMBER	ATTACHMENT TITLE	REVISION
EPIP-1.01	EMERGENCY ACTION LEVEL TABLE	39
ATTACHMENT	(TAB M)	PAGE
1	MISCELLANEOUS ABNORMAL EVENTS	41 of 42

CONDITION/APPLICABILITY

INDICATION

CLASSIFICATION

1. Any major internal or external events which singly or in combination cause massive damage to station facilities or may warrant evacuation of the public

Shift Manager/Station Emergency  
Manager judgement

GENERAL  
EMERGENCY

ALL MODES

2. Station conditions which may warrant notification of the public near the site

Shift Manager/Station Emergency  
Manager judgement

SITE AREA  
EMERGENCY

ALL MODES

3. Station conditions which have the potential to degrade or are actually-degrading the level of-safety of the station

Shift Manager/Station Emergency  
Manager judgement

ALERT

ALL MODES

NUMBER	ATTACHMENT TITLE	REVISION
EPIP-1.01	EMERGENCY ACTION LEVEL TABLE	39
ATTACHMENT	(TAB M)	PAGE
1	MISCELLANEOUS ABNORMAL EVENTS	42 of 42

<u>CONDITION/APPLICABILITY</u>	<u>INDICATION</u>	<u>CLASSIFICATION</u>
<p>4. Station conditions which warrant increased awareness of state and/or local authorities</p> <p>ALL MODES</p>	<p>Shift Manager/Station Emergency Manager judgement that any of the followins exist:</p> <ul style="list-style-type: none"> <li>Unit shutdown is other than a controlled shutdown</li> </ul> <p><u>OR</u></p> <p>Unit is in an uncontrolled condition during operation</p> <p><u>OR</u></p> <p>A condition exists which has the potential for escalation and therefore warrants notification</p>	<p>NOTIFICATION OF UNUSUAL EVENT</p>

NUMBER	ATTACHMENT TITLE	REVISION
EPIP-1.01	TURNOVER CHECKLIST	39
ATTACHMENT		PAGE
2		1 of 1

Conduct a turnover between the onshift and relief SEM in accordance with the following checklist. Use placekeeping aid at left of item, "\_\_\_\_", to track completion.

- \_\_\_\_ 1. Determine the status of primary responder notification.
- \_\_\_\_ 2. Determine the status of 'Report of Emergency to State and Local Governments.' EPIP-2.01, Attachment 2. Get completed copies if available.
- \_\_\_\_ 3. Determine status of the "Report of Radiological Conditions to the State." EPIP-2.01, Attachment 3. Get completed copy if available.
- \_\_\_\_ 4. Determine status of Emergency Notification System (ENS) communications and completion status of NRC Event Notification Worksheet (EPIP-2.02 Attachment 1).
- \_\_\_\_ 5. Review classification and initial PAR status.
- \_\_\_\_ 6. Review present plant conditions and status. Get copy of Critical Safety Functions form.
- \_\_\_\_ 7. Review status of station firewatches and re-establish if conditions allow.
- \_\_\_\_ 8. Determine readiness of TSC for activation.
- \_\_\_\_ 9. After all information is obtained. transfer location to TSC. (Consider direct transfer of State & local notifications to LEOF/CEOF.)
- \_\_\_\_ 10. Call the Control Room and assess any changes that may have occurred during transition to the TSC.
- \_\_\_\_ 11. When sufficient personnel are available. the relief SEM is to assume the following responsibilities from the onshift Station Emergency Manager:
  - a. Reclassification.
  - b. Protective Action Recommendations until LEOF activated.
  - c. Notifications (i.e., state, local. & NRC). Upon LEOF activation. transfer notification responsibilities except for the NRC ENS.
  - d. Site evacuation authorization.
  - e. Emergency exposure authorization.
  - f. Command/control of onsite response.
- \_\_\_\_ 12. Formally relieve the Interim SEM and assume control in the TSC. Announce name and facility activation status to facility.

NUMBER	ATTACHMENT TITLE	REVISION
EPIP-1.01	CONSIDERATIONS FOR OPERATIONS RESPONSE UNDER ABNORMAL CONDITIONS	39
ATTACHMENT		PAGE
3		1 of 1

This attachment provides procedural guidance for controlling selected emergency response actions when their implementation would have adverse results.

Station Emergency Manager (SEM) approval is required before any required action is postponed, suspended or modified. The guidance below is not all-inclusive.

UNANTICIPATED HAZARD EXISTS (e.g., security event, tornado or toxic release):

IF implementation of emergency response actions **could** compromise Security Plan response strategies. THEN consider postponing or suspending emergency response actions until threat has been resolved. e.g., on-site announcement directing assembly and emergency response facility activation, pager activation and call-out per EPIP-3.05, AUGMENTATION OF EMERGENCY RESPONSE ORGANIZATION, dispatch of Security Team members to the LEOF per EPIP-3.04, ACTIVATION OF LOCAL EMERGENCY OPERATIONS FACILITY, and staging of road blocks per EPIP-5.04, ACCESS CONTROL

IF assembling on-site personnel for accountability or activation of emergency response facilities could endanger plant personnel, THEN consider postponing emergency assembly until hazardous conditions are resolved. (Consider having Corporate Security notify corporate emergency response organization **only** using CPIP-3.4, INNSBROOK SECURITY SUPPORT, and notifying personnel in unaffected areas on-site selectively.)

IF notifying augmentation could create a safety hazard for personnel coming to the station. THEN consider postponing augmentation notification. (Consider having Corporate Security notify corporate emergency response Organization only using CPIP-3.4, INNSBROOK SECURITY SUPPORT, or deferring notifications until hazardous conditions are resolved.)

ANTICIPATED SITUATION (e.g., forecasted severe weather or grid disturbance):

IF all or part of the ERO has been staged in anticipation of a predicted event, THEN notify Security to omit performance of augmentation notification (as described in EPIP-3.05, AUGMENTATION OF EMERGENCY RESPONSE ORGANIZATION).

IF adequate controls have been **established** to continually account for personnel staged in anticipation of a predicted event. THEN notify Security to omit performance of initial accountability (as described in EPIP-5.03, PERSONNEL ACCOUNTABILITY).

IF a decision has been made to staff the Central EOP in lieu of the LEOF. THEN notify Security that performance of EPIP-3.04, ACTIVATION OF LOCAL EMERGENCY OPERATIONS FACILITY, is not required.

IF environmental conditions are hazardous. THEN consult with Security Team Leader about suspending procedural requirements for staging road blocks (IAW EPIP-5.04, ACCESS CONTROL).