

V.C. SUMMER NUCLEAR STATION JOB PERFORMANCE MEASURE

***JPM NO: 09 RO/SRO
A.1.a***

EOP-18.2 Maximum Allowable Head Vent Calculation

APPROVAL: WRQ APPROVAL DATE: 4/25/2007

REV NO: 0

CANDIDATE:

EXAMINER:

THIS JPM IS APPROVED

TASK:

TASK STANDARD:

Calculation of Head Venting time of approximately 10.4 minutes (tolerance of 9.1-11.6 minutes).

PREFERRED EVALUATION LOCATION

CLASSROOM

PREFERRED EVALUATION METHOD

PERFORM

REFERENCES:

TOOLS: EOP-18.2
Calculator
Pen

EVALUATION TIME

15

TIME CRITICAL

NO

10CFR55: 55.45(a)12

TIME START:

TIME FINISH:

PERFORMANCE TIME:

PERFORMANCE RATING:

SAT:

UNSAT:

EXAMINER:

SIGNATURE

DATE

INSTRUCTIONS TO OPERATOR

READ TO OPERATOR:

WHEN I TELL YOU TO BEGIN, YOU ARE TO PERFORM THE ACTIONS AS DIRECTED IN THE INITIATING CUES. I WILL DESCRIBE THE GENERAL CONDITIONS UNDER WHICH THIS TASK IS TO BE PERFORMED AND PROVIDE THE NECESSARY TOOLS WITH WHICH TO PERFORM THIS TASK. BEFORE STARTING, I WILL EXPLAIN THE INITIAL CONDITIONS, WHICH STEPS TO SIMULATE OR DISCUSS, AND PROVIDE INITIATING CUES. WHEN YOU COMPLETE THE TASK SUCCESSFULLY, THE OBJECTIVE FOR THIS JOB PERFORMANCE MEASURE WILL BE SATISFIED.

SAFETY CONSIDERATIONS: None

INITIAL CONDITION: The following conditions exist:

1. RB Pressure is 0.9 psig on PI-950.
2. RB Temperature is 148°F on TI-9201A
3. RB Temperature is 146°F on TI-9203A.
4. Hydrogen Concentration is 2.1% on CI-8257
5. Hydrogen Concentration is 2.3% on CI-8258.
6. RCS Pressure is 310 psig on PI-402
7. RCS Pressure is 320 psig on PI-403.

INITIATING CUES: The CRS has directed you to perform EOP-18.2 step 17 to determine the maximum allowable head venting time.

HAND JPM BRIEFING SHEET TO OPERATOR AT THIS TIME!

JPM BRIEFING SHEET

OPERATOR INSTRUCTIONS:

SAFETY CONSIDERATIONS: None

INITIAL CONDITION: The following conditions exist:

1. RB Pressure is 0.9 psig on PI-950.
2. RB Temperature is 148°F on TI-9201A
3. RB Temperature is 146°F on TI-9203A.
4. Hydrogen Concentration is 2.1% on CI-8257
5. Hydrogen Concentration is 2.3% on CI-8258.
6. RCS Pressure is 310 psig on PI-402
7. RCS Pressure is 320 psig on PI-403.

INITIATING CUES: The CRS has directed you to perform EOP-18.2 step 17 to determine the maximum allowable head venting time.

**HAND THIS PAPER BACK TO YOUR
EVALUATOR WHEN YOU FEEL THAT YOU
HAVE SATISFACTORILY COMPLETED THE
ASSIGNED TASK.**

STEPS

STEP: 1

CUES:

CR SEQ

No Yes Record values for the following parameters:
a. TI-9201A, RB TEMP "F. "F
b. TI-9203A, RB TEMP "F. "F
c. CI-8257, RB H2 CONC %. %H2
d. CI-8258, RB H2 CONC %. %H2
e. PI-402, RCS WR PRESS PSIG. psig
f. PI-403, RCS WR PRESS PSIG. Psig

STEP STANDARD:

148°F is entered for TI-9201A and
146°F for TI-9203A;
2.1 % Hydrogen Concentration is
entered for CI-8257 and 2.3% for CI-
8258;
310 psig is entered for PI-402 and 320
psig for PI- 403.

COMMENTS:

SAT

UNSAT

STEP: 2

CUES:

CR SEQ

Yes Yes Use the higher of the two readings recorded
above to calculate:
a. Reactor Building volume
(at standard temperature and pressure):
 $RB\ AIR\ VOLUME = (1.84E6\ ft^3) \times$
 $[492"R / (RB\ TEMP\ (^{\circ}F) + 460)]$
 $RB\ AIR\ VOLUME = ft^3$

STEP STANDARD:

RB Air Volume is approximately 1.489E6
ft3

$MAX\ VENTED\ VOL = (3\% - RB\ H2\ CONC$
 $\%) \times (RB\ AIR\ VOLUME\ (STP))\ ft^3/100\%$

$MAX\ VENTED\ VOL = ft^3$

COMMENTS:

SAT

UNSAT

STEP: 3

CUES:

CR SEQ

No Yes Maximum hydrogen volume to be vented
(when RB H2 CONC is LESS THAN 3%):

STEP STANDARD:

Max Vented Volume is approximately
1.0423E4 ft3.

COMMENTS:

SAT

UNSAT

STEP: 4

CUES:

CR SEQ

Yes Yes From the graph on the next page, determine
the hydrogen flow rate using
the higher RCS pressure recorded from
Step 1:
HYDROGEN FLOW RATE = SCFM

STEP STANDARD:

SCFM calculated to be approximately
1000 SCFM (based on 320 psig). Based
on a tolerance of +/- 1/2 the smallest
increment, the tolerance for RCS
pressure would be 300-350 psig
(unacceptable to read below 300 psig
line), which results in a hydrogen flow
rate tolerance of 900-1150 SCFM.

COMMENTS:

SAT

UNSAT

STEP: 5

CUES:

CR SEQ

Yes Yes Calculate maximum allowable head venting
period:

MAXIMUM ALLOWABLE HEAD VENTING
TIME = (MAX VENTED VOL) ft3
/(HYDROGEN FLOW RATE) SCFM
MAXIMUM ALLOWABLE HEAD VENTING
TIME = Minutes

STEP STANDARD:

A calculated Maximum Allowable Head
Venting Time of approximately 10.4
minutes. Based on the tolerance of 900-
1150 SCFM hydrogen flow rate, the
maximum allowable venting time should
be from 9.1 minutes to 11.6 minutes.

COMMENTS:

SAT

UNSAT

Examiner ends JPM at this point.

JPM SETUP SHEET

JPM NO: 09 RO/SRO A.

DESCRIPTION: EOP-18.2 Maximum Allowable Head Vent Calculation

IC SET:

INSTRUCTIONS:

COMMENTS:

NRC Ro/SRO
Admin A.I.e

KEY

SOUTH CAROLINA ELECTRIC & GAS COMPANY

VIRGIL C. SUMMER NUCLEAR STATION

NUCLEAR OPERATIONS

NUCLEAR OPERATIONS

COPY NO. _____

EMERGENCY OPERATING PROCEDURE

EOP-18.2

RESPONSE TO VOIDS IN REACTOR VESSEL

REVISION 13

SAFETY RELATED

Original signed by Baker
DISCIPLINE SUPERVISOR

01/16/05
DATE

Original signed by Ray
APPROVAL AUTHORITY

01/19/05
DATE

RESPONSE TO VOIDS IN REACTOR VESSEL

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RESPONSE TO VOIDS IN REACTOR VESSEL

PURPOSE

This procedure provides instructions for responding to voids in the Reactor Vessel Head.

ENTRY CONDITIONS

This procedure is entered from EOP-12.0, MONITORING OF CRITICAL SAFETY FUNCTIONS, Attachment 6.

RESPONSE TO VOIDS IN REACTOR VESSEL

ACTION/EXPECTED RESPONSE	ALTERNATIVE ACTION
<u>OPERATOR ACTIONS</u>	
<div style="border: 1px solid black; padding: 10px; text-align: center;"> <p><u>CAUTION</u></p> <p>If a controlled natural circulation cooldown is in progress <u>AND</u> a void in the Reactor Vessel Upper Head is expected, this procedure should <u>NOT</u> be performed.</p> </div>	
<div style="border: 1px solid black; padding: 10px; text-align: center;"> <p><u>NOTE</u></p> <p>Conditions for implementing Emergency Plan Procedures should be evaluated using EPP-001, ACTIVATION AND IMPLEMENTATION OF EMERGENCY PLAN.</p> </div>	
<p>1 Verify SI has been terminated:</p> <p style="margin-left: 20px;">a. SI has been reset. <input type="checkbox"/></p> <p style="margin-left: 20px;">b. <u>Both</u> MVG-8801A(B), HI HEAD TO COLD LEG INJ, are closed. <input type="checkbox"/></p> <p>2 Verify Instrument Air to the RB has been established. <input type="checkbox"/></p>	<p>1 RETURN TO the Procedure and Step in effect. <input type="checkbox"/></p> <p>2 Perform the following:</p> <p style="margin-left: 20px;">a) Start <u>one</u> Instrument Air Compressor and place the other in Standby. <input type="checkbox"/></p> <p style="margin-left: 20px;"><u>IF</u> <u>no</u> Instrument Air Compressor can be started, <u>THEN</u> locally start the Diesel Driven Air Compressor. REFER TO SOP-220, STATION AND BACKUP INSTRUMENT AIR SYSTEMS. <input type="checkbox"/></p> <p style="margin-left: 20px;">b) Open PVA-2659, INST AIR TO RB AIR SERV. <input type="checkbox"/></p> <p style="margin-left: 20px;">c) Open PVT-2660, AIR SPLY TO RB. <input type="checkbox"/></p>

RESPONSE TO VOIDS IN REACTOR VESSEL

ACTION/EXPECTED RESPONSE	ALTERNATIVE ACTION
<p>3 Verify at least <u>one</u> Charging Pump is running. <input type="checkbox"/></p>	<p>3 Perform the following:</p> <p>a) <u>IF</u> CCW flow to the RCP Thermal Barrier(s) is lost, <u>THEN</u> close MVT-8102A(B)(C), A(B)(C) SEAL WTR INJ ISOL, to the AFFECTED RCP(s) before starting a Charging Pump. <input type="checkbox"/></p> <p>b) <u>IF</u> Charging Pump miniflow is isolated, <u>THEN</u> open the miniflow valves:</p> <p>1) Open MVG-8106, CHG PP. <input type="checkbox"/></p> <p>2) Open MVT-8109A(B)(C), CHG PP A(B)(C). <input type="checkbox"/></p> <p>c) Ensure at least <u>one</u> CCW Pump is running. <input type="checkbox"/></p> <p>d) Start the associated Charging Pump. <input type="checkbox"/></p>
<p>4 Verify Charging flow on FI-122A, CHG FLOW GPM. <input type="checkbox"/></p>	<p>4 Perform the following:</p> <p>a) Close FCV-122, CHG FLOW. <input type="checkbox"/></p> <p>b) Open <u>both</u> MVG-8107 <u>AND</u> MVG-8108, CHG LINE ISOL. <input type="checkbox"/></p> <p>c) Adjust FCV-122, CHG FLOW, to obtain 60 gpm Charging flow. <input type="checkbox"/></p> <p><u>IF</u> FCV-122, CHG FLOW, is inoperable, <u>THEN</u> locally control Charging flow (AB-412 West Pen):</p> <p>a) Close XVG08402B-CS, CHG HDR FLOW CONTROL INLET ISOL VALVE. <input type="checkbox"/></p> <p>b) Throttle open XVT08403-CS, FCV0122-CS BYPASS, to obtain 60 gpm Charging flow. <input type="checkbox"/></p> <p><u>IF</u> 60 gpm Charging flow can <u>NOT</u> be established, <u>THEN RETURN TO the Procedure and Step in effect.</u> <input type="checkbox"/></p>

RESPONSE TO VOIDS IN REACTOR VESSEL

ACTION/EXPECTED RESPONSE	ALTERNATIVE ACTION
<p>5 Verify Letdown flow on FI-150, LO PRESS LTDN FLOW GPM. <input type="checkbox"/></p>	<p>5 Establish Normal Letdown:</p> <p>a) Set PCV-145, LO PRESS LTDN, to 70%. <input type="checkbox"/></p> <p>b) Open TCV-144, CC TO LTDN HX. <input type="checkbox"/></p> <p>c) Open PVT-8152, LTDN LINE ISOL. <input type="checkbox"/></p> <p>d) Open both LCV-459 AND LCV-460, LTDN LINE ISOL. <input type="checkbox"/></p> <p>e) Open desired Orifice Isolation Valve(s) to obtain 60 gpm to 120 gpm:</p> <ul style="list-style-type: none"> • PVT-8149A, LTDN ORIFICE A ISOL (45 gpm). <input type="checkbox"/> • PVT-8149B, LTDN ORIFICE B ISOL (60 gpm). <input type="checkbox"/> • PVT-8149C, LTDN ORIFICE C ISOL (60 gpm). <input type="checkbox"/> <p>f) Adjust FCV-122, CHG FLOW, to maintain TI-140, REGEN HX OUT TEMP °F, between 250°F and 350°F while maintaining PZR level. <input type="checkbox"/></p> <p>g) Adjust PCV-145, LO PRESS LTDN, to maintain PI-145, LO PRESS LTDN PRESS PSIG, between 300 psig and 400 psig. <input type="checkbox"/></p> <p>h) Place PCV-145, LO PRESS LTDN, in AUTO. <input type="checkbox"/></p> <p>i) Place TCV-144, CC TO LTDN HX, in AUTO. <input type="checkbox"/></p> <p>j) Verify 60 gpm to 120 gpm on FI-150, LO PRESS LTDN FLOW GPM. <input type="checkbox"/></p> <p>k) Transfer Charging Pump suction to the VCT:</p> <ul style="list-style-type: none"> 1) Open both LCV-115C(E), VCT OUTLET ISOL. <input type="checkbox"/> 2) Close both LCV-115B(D), RWST TO CHG PP SUCT. <input type="checkbox"/> <p>IF Normal Letdown can NOT be established, THEN establish Excess Letdown. REFER TO SOP-102, CHEMICAL AND VOLUME CONTROL SYSTEM. <input type="checkbox"/></p>

RESPONSE TO VOIDS IN REACTOR VESSEL

ACTION/EXPECTED RESPONSE	ALTERNATIVE ACTION
<p>6 Establish stable RCS conditions:</p> <p>a. Verify PZR level is GREATER THAN 72%. <input type="checkbox"/></p> <p>b. Verify RCS pressure is stable. <input type="checkbox"/></p> <p>c. Verify RCS T_{hot} is stable. <input type="checkbox"/></p>	<p>a. Control Charging and Letdown flows to establish PZR level GREATER THAN 72%. <input type="checkbox"/></p> <p>b. Control PZR Heaters and Normal PZR Spray as necessary to control RCS pressure. <input type="checkbox"/></p> <p>IF Normal PZR Spray is <u>NOT</u> available <u>AND</u> Letdown is in service, <u>THEN</u> use Aux Spray. REFER TO SOP-102, CHEMICAL AND VOLUME CONTROL SYSTEM. <input type="checkbox"/></p> <p>c. Dump steam as necessary to control RCS T_{hot}. <input type="checkbox"/></p>
<p>7 Verify <u>all</u> RCPs are stopped. <input type="checkbox"/></p>	<p>7 GO TO Step 13. <input type="checkbox"/></p>
<p>8 Check if RCS pressure should be increased:</p> <p>a. Verify RCS pressure is at least 100 psi LESS THAN the Tech Spec limit. REFER TO Attachment 1. <input type="checkbox"/></p> <p>b. Verify RCS pressure is LESS THAN 1875 psig. <input type="checkbox"/></p> <p>c. Control PZR Heaters as necessary to increase RCS pressure 50 psi. <input type="checkbox"/></p>	<p>a. GO TO Step 11. Observe the CAUTION and NOTE prior to Step 11. <input type="checkbox"/></p> <p>b. GO TO Step 11. Observe the CAUTION and NOTE prior to Step 11. <input type="checkbox"/></p>
<p>9 Control Charging and Letdown flows to maintain PZR level GREATER THAN 30% [50%]. <input type="checkbox"/></p>	

RESPONSE TO VOIDS IN REACTOR VESSEL

ACTION/EXPECTED RESPONSE	ALTERNATIVE ACTION
<p>10 Check RVLIS Upper Plenum level:</p> <p>a. Verify level is increasing. <input type="checkbox"/></p> <p>b. Verify level is GREATER THAN 94%. <input type="checkbox"/></p> <p>c. Control PZR Heaters as necessary to stabilize RCS pressure. <input type="checkbox"/></p> <p>d. RETURN TO the Procedure and Step in effect. <input type="checkbox"/></p>	<p>a. GO TO Step 11. Observe the CAUTION and NOTE prior to Step 11. <input type="checkbox"/></p> <p>b. RETURN TO Step 8. <input type="checkbox"/></p>

RESPONSE TO VOIDS IN REACTOR VESSEL

ACTION/EXPECTED RESPONSE	ALTERNATIVE ACTION
<p>13 Start the RB Hydrogen Analyzers. REFER TO SOP-122, POST ACCIDENT HYDROGEN REMOVAL SYSTEM. <input type="checkbox"/></p>	<p>13 IF both Hydrogen Analyzers are inoperable, THEN notify Chemistry to sample the RB atmosphere for hydrogen concentration. <input type="checkbox"/></p>
<p>14 Check if Low PZR Pressure SI can be blocked:</p> <p>a. Verify PZR pressure is LESS THAN 1925 psig. <input type="checkbox"/></p> <p>b. Place both PZR SI TRAIN A(B) Switches to BLOCK. <input type="checkbox"/></p>	<p>a. Decrease PZR pressure to LESS THAN 1925 psig using Normal PZR Spray. <input type="checkbox"/></p> <p>IF Normal PZR Spray is NOT available AND Letdown is in service, THEN depressurize using Aux Spray. REFER TO SOP-102, CHEMICAL AND VOLUME CONTROL SYSTEM. <input type="checkbox"/></p> <p>IF Aux Spray is NOT available, THEN depressurize using one PZR PORV. <input type="checkbox"/></p>
<p>15 Establish the following RCS conditions:</p> <p>a. Verify PZR level is GREATER THAN 72%. <input type="checkbox"/></p> <p>b. Verify RCS pressure is stable. <input type="checkbox"/></p> <p>c. Verify RCS subcooling on TI-499A(B), A(B) TEMP °F, is GREATER THAN 80°F. <input type="checkbox"/></p> <p>d. Verify RCS T_{hot} is stable. <input type="checkbox"/></p>	<p>a. Control Charging and Letdown flows as necessary to establish PZR level GREATER THAN 72%. <input type="checkbox"/></p> <p>b. Control PZR Heaters and Normal PZR Spray as necessary to control RCS pressure. <input type="checkbox"/></p> <p>IF Normal PZR Spray is NOT available AND Letdown is in service, THEN use Aux Spray. REFER TO SOP-102, CHEMICAL AND VOLUME CONTROL SYSTEM. <input type="checkbox"/></p> <p>c. Dump steam to increase subcooling. <input type="checkbox"/></p> <p>d. Dump steam as necessary to control RCS T_{hot}. <input type="checkbox"/></p>

RESPONSE TO VOIDS IN REACTOR VESSEL

ACTION/EXPECTED RESPONSE	ALTERNATIVE ACTION
<div style="border: 1px solid black; padding: 10px; text-align: center;"> <p><u>NOTE - Step 16</u></p> <p>RB Purge and Alternate Purge Systems should be isolated. All other available Containment air circulation equipment should be started to prevent hydrogen from forming local gas pockets.</p> </div>	
<p>16 Prepare the RB for Reactor Vessel venting:</p> <p>a. Verify PRT pressure is <u>NOT</u> EQUAL TO RB pressure. <input type="checkbox"/></p> <p>b. Verify Containment Ventilation Isolation Valves closed by verifying the following SAFETY INJECTION monitor lights are dim:</p> <ul style="list-style-type: none"> • XCP-6103 3-4 (POST ACCID HR EXH 6057 & 6067). <input type="checkbox"/> • XCP-6103 2-1 (POST ACCID HR EXH 6056/6066). <input type="checkbox"/> <p>c. Start <u>all</u> other available RB ventilation fans. REFER TO SOP-114, REACTOR BUILDING VENTILATION SYSTEM. <input type="checkbox"/></p> <p>d. Align the PRT for cooldown. REFER TO SOP-101, REACTOR COOLANT SYSTEM. <input type="checkbox"/></p>	<p>a. Consult with TSC personnel to determine if Reactor Vessel venting should be performed without an INTACT PRT. <input type="checkbox"/></p> <p><u>IF</u> Reactor Vessel venting will <u>NOT</u> be performed, THEN GO TO Step 23. <input type="checkbox"/></p> <p>b. <u>IF any</u> listed SAFETY INJECTION monitor light is bright, THEN close the associated damper (HVAC Panel):</p> <ul style="list-style-type: none"> • PVG-6057, ALT PUR SPLY ISOL VLV, <u>AND</u> PVG-6067, CNTMT PUR EXH ISOL VLV. <input type="checkbox"/> • PVG-6056, ALT PUR SPLY ISOL VLV, <u>AND</u> PVG-6066, CNTMT PUR EXH ISOL VLV. <input type="checkbox"/>

RESPONSE TO VOIDS IN REACTOR VESSEL

ACTION/EXPECTED RESPONSE	ALTERNATIVE ACTION
<div style="border: 1px solid black; padding: 10px; text-align: center;"> <p><u>NOTE - Step 17</u></p> <p>Venting time is limited to prevent hydrogen concentration in the RB from exceeding 3% in the event the PRT Rupture Disk ruptures.</p> </div> <div> <p>17 Determine maximum allowable head venting time:</p> </div> <div> <p>a. Verify RB hydrogen concentration is LESS THAN 3%. <input type="checkbox"/></p> </div> <div> <p>b. COMPLETE ATTACHMENT 2, CALCULATION OF MAXIMUM ALLOWABLE HEAD VENTING TIME. <input type="checkbox"/></p> </div>	
	<div> <p>a. Reduce RB hydrogen concentration to LESS THAN 3%:</p> </div> <div> <p>1) Verify hydrogen concentration is LESS THAN 6%. <input type="checkbox"/></p> </div> <div> <p>2) Start <u>one</u> Hydrogen Recombiner. REFER TO SOP-122, POST ACCIDENT HYDROGEN REMOVAL SYSTEM. <input type="checkbox"/></p> </div> <div> <p><u>IF</u> hydrogen concentration is GREATER THAN 6%, <u>THEN</u> notify TSC personnel of excessive RB hydrogen concentration. GO TO Step 23. <input type="checkbox"/></p> </div>

RESPONSE TO VOIDS IN REACTOR VESSEL

ACTION/EXPECTED RESPONSE	ALTERNATIVE ACTION										
<p>18 Review Reactor Vessel venting termination criteria:</p> <ul style="list-style-type: none"> • RCS subcooling on TI-499A(B), A(B) TEMP °F, is LESS THAN 30°F. <input type="checkbox"/> <p style="text-align: center;"><u>OR</u></p> • PZR level is LESS THAN 30% [50%]. <input type="checkbox"/> <p style="text-align: center;"><u>OR</u></p> • RCS pressure decreases by 200 psi. <input type="checkbox"/> <p style="text-align: center;"><u>OR</u></p> • The venting time is GREATER THAN <input type="checkbox"/> the maximum determined on ATTACHMENT 2, CALCULATION OF MAXIMUM ALLOWABLE HEAD VENTING TIME. <p style="text-align: center;"><u>OR</u></p> • PRT pressure increases to <input type="checkbox"/> 80 psig. <p style="text-align: center;"><u>OR</u></p> • PRT level increases to 100%. <input type="checkbox"/> <p style="text-align: center;"><u>OR</u></p> • RVLIS GREATER THAN the following <input type="checkbox"/> indicates the Reactor Vessel Upper Head is full: <table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="padding: 5px;">RCPs running</th> <th style="padding: 5px;">RVLIS level</th> </tr> </thead> <tbody> <tr> <td style="padding: 5px;">0</td> <td style="padding: 5px;">94% Upper Plen</td> </tr> <tr> <td style="padding: 5px;">1</td> <td style="padding: 5px;">37% WR</td> </tr> <tr> <td style="padding: 5px;">2</td> <td style="padding: 5px;">56% WR</td> </tr> <tr> <td style="padding: 5px;">3</td> <td style="padding: 5px;">94% WR</td> </tr> </tbody> </table>	RCPs running	RVLIS level	0	94% Upper Plen	1	37% WR	2	56% WR	3	94% WR	
RCPs running	RVLIS level										
0	94% Upper Plen										
1	37% WR										
2	56% WR										
3	94% WR										

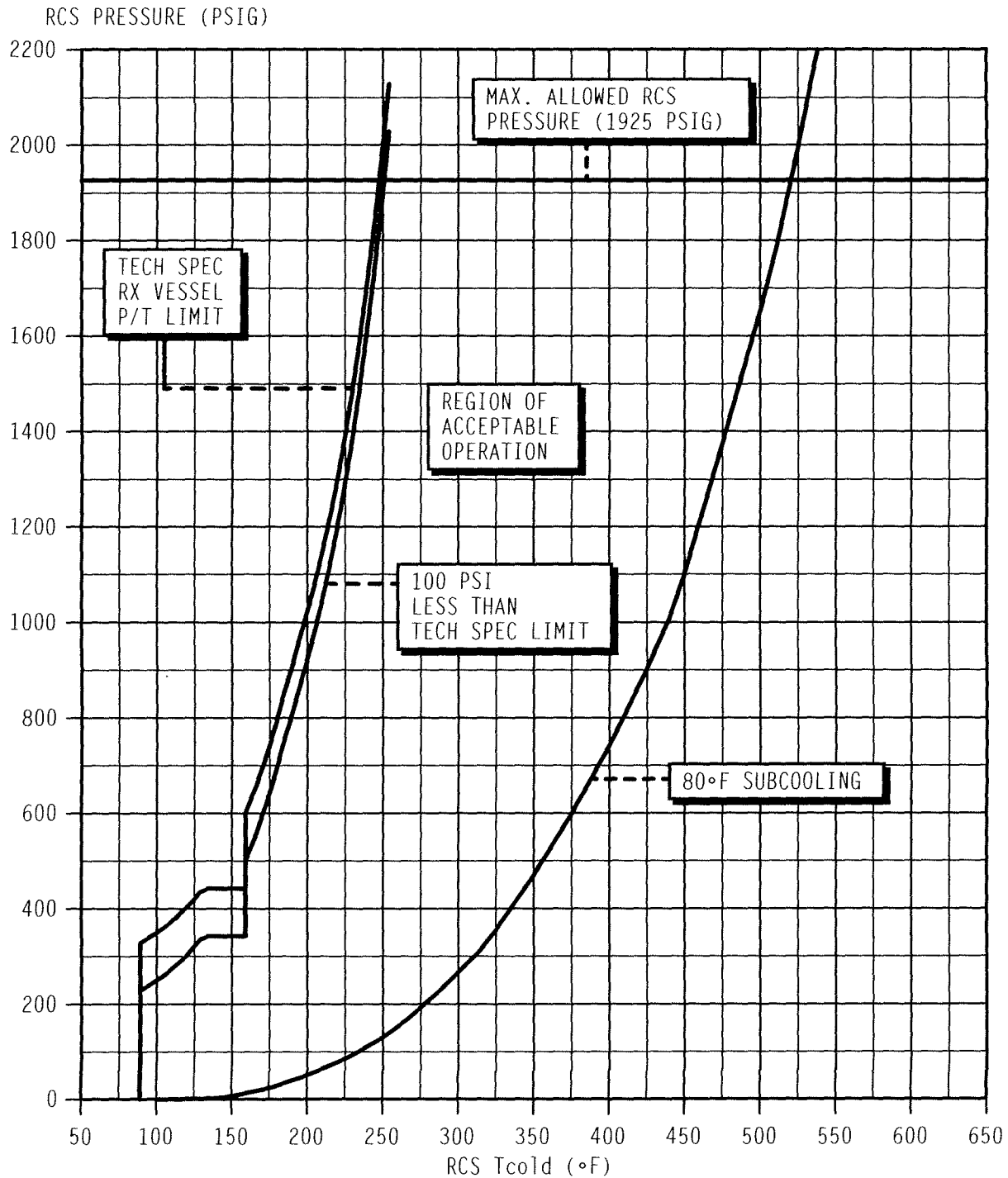
RESPONSE TO VOIDS IN REACTOR VESSEL

ACTION/EXPECTED RESPONSE	ALTERNATIVE ACTION
<div style="border: 1px solid black; padding: 10px; text-align: center;"> <p><u>CAUTION - Step 19</u></p> <p>If any venting termination criterion in Step 18 is exceeded, venting should be stopped. Venting termination criteria may be reached rapidly.</p> </div>	
<p>19 Initiate Reactor Vessel Head venting:</p> <p>a. Locally unlock and close the breakers for the Reactor Vessel Head Vent Valves:</p> <ul style="list-style-type: none"> • XMC1DA2X 05IM, RX HEAD VENT VLV TO PRT XVT08095A-RC (IB-463). <input type="checkbox"/> • XMC1DA2X 07AE, RX HEAD VENT VLV TO PRT XVT08096A-RC (IB-463). <input type="checkbox"/> • XMC1DB2Y 23FJ, RX HEAD VENT VLV TO PRT XVT08095B-RC (AB-463). <input type="checkbox"/> • XMC1DB2Y 12IM, RX HEAD VENT VLV TO PRT XVT08096B-RC (AB-463). <input type="checkbox"/> <p>b. Open <u>both</u> valves in <u>either</u> vent path:</p> <ul style="list-style-type: none"> • Open <u>both</u> MVG-8095A <u>AND</u> MVG-8096B, RX HEAD VENT VLV. <input type="checkbox"/> <p style="text-align: center;"><u>OR</u></p> <ul style="list-style-type: none"> • Open <u>both</u> MVG-8095B <u>AND</u> MVG-8096A, RX HEAD VENT VLV. <input type="checkbox"/> <p>20 Continue venting until <u>any</u> of the criteria of Step 18 are satisfied before continuing with Step 21. <input type="checkbox"/></p> <p>21 Close Reactor Vessel Head Vent Valves opened in Step 19. <input type="checkbox"/></p>	<p>b. <u>IF</u> <u>either</u> valve fails to open in <u>one</u> vent path, <u>THEN</u> close <u>both</u> valves and open the valves in the other vent path. <input type="checkbox"/></p>

RESPONSE TO VOIDS IN REACTOR VESSEL

ACTION/EXPECTED RESPONSE	ALTERNATIVE ACTION										
<p>22 Verify RVLIS GREATER THAN the following indicates the Reactor Vessel Upper Head is full: <input type="checkbox"/></p> <table border="1"> <thead> <tr> <th>RCPs running</th> <th>RVLIS level</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>94% Upper Plen</td> </tr> <tr> <td>1</td> <td>37% WR</td> </tr> <tr> <td>2</td> <td>56% WR</td> </tr> <tr> <td>3</td> <td>94% WR</td> </tr> </tbody> </table> <p>23 Verify PZR level is stable. <input type="checkbox"/></p> <p>24 RETURN TO the Procedure and Step in effect. <input type="checkbox"/></p>	RCPs running	RVLIS level	0	94% Upper Plen	1	37% WR	2	56% WR	3	94% WR	<p>22 Increase RCS pressure to the higher value recorded on ATTACHMENT 2, CALCULATION OF MAXIMUM ALLOWABLE HEAD VENTING TIME. <input type="checkbox"/></p> <p>RETURN TO Step 13. <input type="checkbox"/></p> <p>23 Control Charging and Letdown flows as necessary to stabilize PZR level. <input type="checkbox"/></p>
RCPs running	RVLIS level										
0	94% Upper Plen										
1	37% WR										
2	56% WR										
3	94% WR										
<p style="text-align: center;">----- End of EOP-18.2 -----</p>											

RCS PRESSURE/TEMPERATURE LIMITS



NOTES: Minimum pressure for RCPs = 290 psig.
Maximum pressure for RHR = 425 psig.
Maximum temperature for RHR = 350°F.

CALCULATION OF MAXIMUM ALLOWABLE HEAD VENTING TIME

OPERATOR ACTIONS

1. Record the following parameters:

- a. TI-9201A, RB TEMP °F. _____ °F
- b. TI-9203A, RB TEMP °F. _____ °F
- c. CI-8257, RB H₂ CONC %. _____ %H₂
- d. CI-8258, RB H₂ CONC %. _____ %H₂
- e. PI-402, RCS WR PRESS PSIG. _____ psig
- f. PI-403, RCS WR PRESS PSIG. _____ psig

2. Use the higher of the two readings recorded above to calculate:

- a. Reactor Building volume
 (at standard temperature and pressure):

$$\text{RB AIR VOLUME} = (1.84\text{E}6 \text{ ft}^3) \times [492^\circ\text{R}/(\text{RB TEMP } (^\circ\text{F}) + 460)]$$

$$\text{RB AIR VOLUME} = \text{_____} \text{ ft}^3$$

- b. Maximum hydrogen volume to be vented
 (when RB H₂ CONC is LESS THAN 3%):

$$\text{MAX VENTED VOL} = \frac{(3\% - \text{RB H}_2 \text{ CONC } \%) \times (\text{RB AIR VOLUME (STP)}) \text{ ft}^3}{100\%}$$

$$\text{MAX VENTED VOL} = \text{_____} \text{ ft}^3$$

3. From the graph on the next page, determine the hydrogen flow rate using the higher RCS pressure recorded from Step 1:

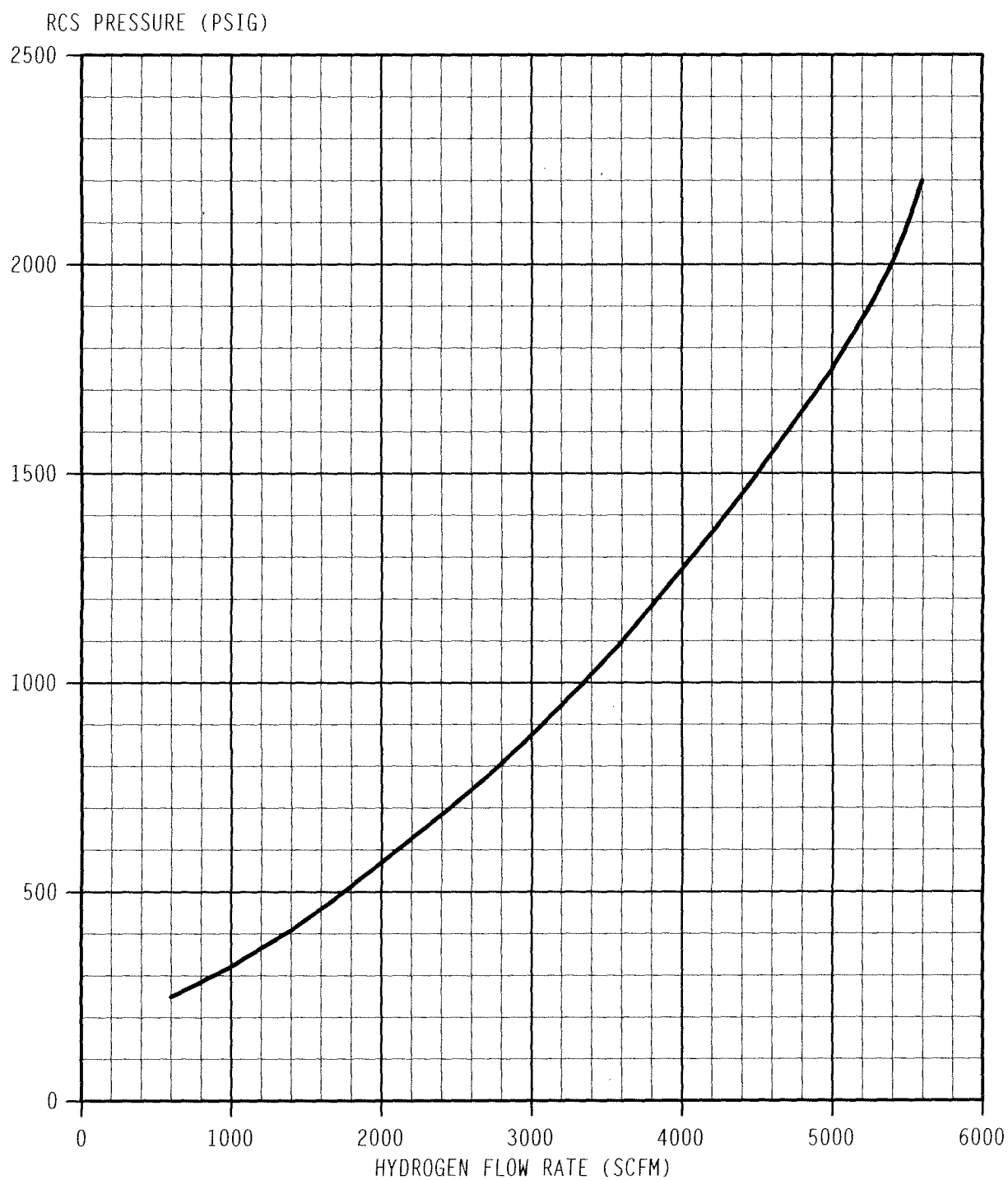
$$\text{HYDROGEN FLOW RATE} = \text{_____} \text{ SCFM}$$

4. Calculate maximum allowable head venting period:

$$\text{MAXIMUM ALLOWABLE HEAD VENTING TIME} = \frac{(\text{MAX VENTED VOL}) \text{ ft}^3}{(\text{HYDROGEN FLOW RATE}) \text{ SCFM}}$$

$$\text{MAXIMUM ALLOWABLE HEAD VENTING TIME} = \text{_____} \text{ minutes}$$

CALCULATION OF MAXIMUM ALLOWABLE HEAD
VENTING TIME



OPERATOR ACTIONS

1. Record the following parameters:

a. TI-9201A, RB TEMP °F.	<u>148</u>	°F
b. TI-9203A, RB TEMP °F.	<u>146</u>	°F
c. CI-8257, RB H ₂ CONC %.	<u>2.1</u>	%H ₂
d. CI-8258, RB H ₂ CONC %.	<u>2.3</u>	%H ₂
e. PI-402, RCS WR PRESS PSIG.	<u>310</u>	psig
f. PI-403, RCS WR PRESS PSIG.	<u>320</u>	psig

2. Use the higher of the two readings recorded above to calculate:

a. Reactor Building volume
(at standard temperature and pressure): $492/608 = 0.81$

RB AIR VOLUME = $(1.84E6 \text{ ft}^3) \times [492^\circ\text{R}/(\text{RB TEMP } (^\circ\text{F}) + 460)]$
 $1.84E6 \times 0.81 = 1.49E6 \text{ ft}^3$ $148 + 460 = 608$

b. Maximum hydrogen volume to be vented
(when RB H₂ CONC is LESS THAN 3%): $(3 - 2.3) = [0.7 \times 1.49E6] = 1.04E6$

MAX VENTED VOL = $\frac{(3\% - \text{RB H}_2 \text{ CONC } \%) \times (\text{RB AIR VOLUME (STP)}) \text{ ft}^3}{100\%}$

$\frac{1.04E6}{100} = \text{MAX VENTED VOL} = 1.04E4 \text{ ft}^3$

3. From the graph on the next page, determine the hydrogen flow rate using the higher RCS pressure recorded from Step 1: *TOLERANCE ESTABLISHED ON PP2 OF ATT 2.*

HYDROGEN FLOW RATE = 900 - 1150 SCFM

MINIMUM 900 ACTUAL 1000 MAXIMUM 1150

4. Calculate maximum allowable head venting period:

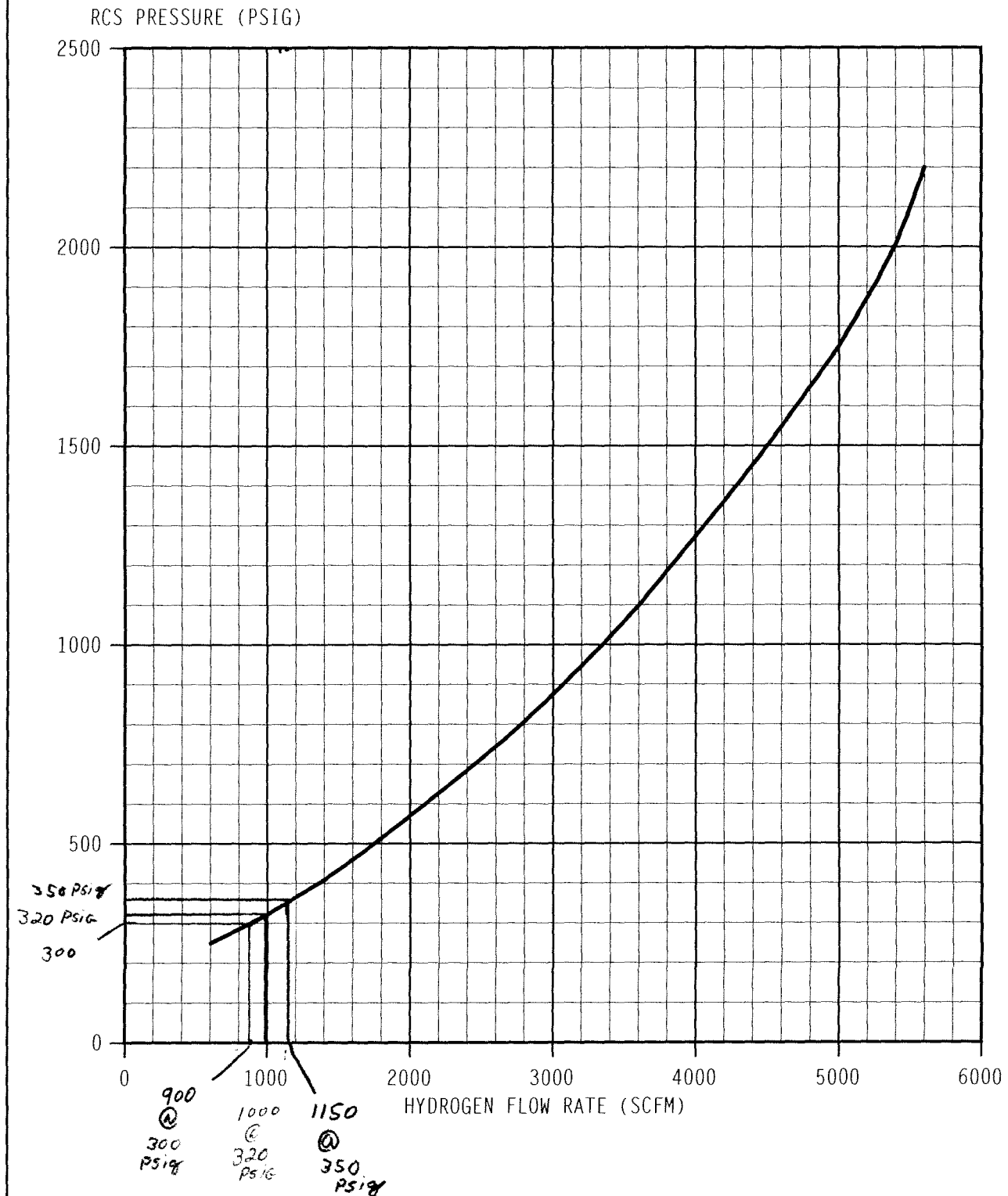
MAXIMUM ALLOWABLE HEAD VENTING TIME	=	$\frac{(\text{MAX VENTED VOL}) \text{ ft}^3}{(\text{HYDROGEN FLOW RATE}) \text{ SCFM}}$	$\frac{1.04E4}{900}$	$\frac{1.04E4}{1150}$
			11.6	9.0

MAXIMUM ALLOWABLE HEAD VENTING TIME = 9.0 TO 11.6 minutes

NRC ~~ASRO~~ KEY
Admin A.I.e

CALCULATION OF MAXIMUM ALLOWABLE HEAD
VENTING TIME

EOP-18.2
REVISION 13
ATTACHMENT 2
PAGE 2 of 2



V.C. SUMMER NUCLEAR STATION JOB PERFORMANCE MEASURE

JPM NO: 09 RO A.1.b

**PERFORM A SHUTDOWN MARGIN FOR
INTENDED PLANT CONDITIONS**

APPROVAL:

APPROVAL DATE:

REV NO: 0

CANDIDATE:

EXAMINER:

THIS JPM IS NOT APPROVED

TASK:

TASK STANDARD:

Obtain required data from the Curve Book, tables, and graphs. Use obtained data to calculate required boron concentration to maintain required shutdown margin in MODE 5. Determine that shutdown margin is not satisfied for MODE 5 using Attachment III of STP-134.001.

PREFERRED EVALUATION LOCATION

PREFERRED EVALUATION METHOD

CLASSROOM

PERFORM

REFERENCES:

Curve Book

Station Curve Book

GOP-5

REACTOR SHUTDOWN FROM STARTUP TO HOT ST
(Mode 2 to Mode 3)

STP-134.001

SHUTDOWN MARGIN VERIFICATION

TOOLS:

GOP-5, step 3.7 (Page 9 of 20)

STP-134.001, SHUTDOWN MARGIN VERIFICATION

Station Curve Book or copies of the following:

Figure II-9.1

Figure II-7.3

EVALUATION TIME

20

TIME CRITICAL

NO

10CFR55: 55.45(a)13

TIME START:

TIME FINISH:

PERFORMANCE TIME:

PERFORMANCE RATING:

SAT:

UNSAT:

EXAMINER:

SIGNATURE

DATE

INSTRUCTIONS TO OPERATOR

READ TO OPERATOR:

WHEN I TELL YOU TO BEGIN, YOU ARE TO PERFORM THE ACTIONS AS DIRECTED IN THE INITIATING CUES. I WILL DESCRIBE THE GENERAL CONDITIONS UNDER WHICH THIS TASK IS TO BE PERFORMED AND PROVIDE THE NECESSARY TOOLS WITH WHICH TO PERFORM THIS TASK. BEFORE STARTING, I WILL EXPLAIN THE INITIAL CONDITIONS, WHICH STEPS TO SIMULATE OR DISCUSS, AND PROVIDE INITIATING CUES. WHEN YOU COMPLETE THE TASK SUCCESSFULLY, THE OBJECTIVE FOR THIS JOB PERFORMANCE MEASURE WILL BE SATISFIED.

SAFETY CONSIDERATIONS: N/A

INITIAL CONDITION:

- The unit had been operating at 100% power for 150 days when a shutdown to Mode 5 was directed by plant management to repair a leaking Main Steam Safety Valve.
- RCS Tavg is 557 °F.
- Current RCS Boron Concentration is 262 ppm.
- Core Burnup is 20000 MWD/MTU
- One Control Bank (D) Control Rod did not indicate movement during the power reduction and is assumed to be untrippable.
- The operating crew is performing GOP-5, REACTOR SHUTDOWN FROM STARTUP TO HOT STANDBY (Mode 2 to Mode 3) and will continue to MODE 5.

INITIATING CUES: You are an extra licensed operator in the Control Room. The Control Room Supervisor has directed you to perform GOP-5, Step 3.7.b: If a return to power from present conditions is not desired, perform STP-134.001, Shutdown Margin Verification, for the desired Mode and temperature.
Round any calculations to the nearest whole number.

HAND JPM BRIEFING SHEET TO OPERATOR AT THIS TIME!

JPM BRIEFING SHEET

OPERATOR INSTRUCTIONS:

SAFETY CONSIDERATIONS: N/A

INITIAL CONDITION:

- The unit had been operating at 100% power for 150 days when a shutdown to Mode 5 was directed by plant management to repair a leaking Main Steam Safety Valve.
- RCS Tavg is 557 °F.
- Current RCS Boron Concentration is 262 ppm.
- Core Burnup is 20000 MWD/MTU
- One Control Bank (D) Control Rod did not indicate movement during the power reduction and is assumed to be untrippable.
- The operating crew is performing GOP-5, REACTOR SHUTDOWN FROM STARTUP TO HOT STANDBY (Mode 2 to Mode 3) and will continue to MODE 5.

INITIATING CUES: You are an extra licensed operator in the Control Room. The Control Room Supervisor has directed you to perform GOP-5, Step 3.7.b: If a return to power from present conditions is not desired, perform STP-134.001, Shutdown Margin Verification, for the desired Mode and temperature.
Round any calculations to the nearest whole number.

**HAND THIS PAPER BACK TO YOUR
EVALUATOR WHEN YOU FEEL THAT YOU
HAVE SATISFACTORILY COMPLETED THE
ASSIGNED TASK.**

STEPS

STEP: 1

CUES:

CR SEQ

No Yes Review Precautions.

STEP STANDARD:

Reviews Precautions in front of STP-134.001. Initials the top blank on Page 1 of Attachment I of STP-134.001.

COMMENTS:

SAT

UNSAT

STEP: 2

CUES:

CR SEQ

No Yes Review Initial Conditions.

STEP STANDARD:

Reviews Initial Conditions for STP-134.001.

Initials the second blank on Page 1 of Attachment I of STP-134.001.

COMMENTS:

SAT

UNSAT

STEP: 3

CUES:

CR SEQ

No Yes Record Cycle Burnup.

STEP STANDARD:

Enters "20,000 on Attachment III step 1, of STP-134.001.

COMMENTS:

SAT

UNSAT

STEP: 4

CUES:

Evaluator Note: There is no error band because the value can be read directly from the figure.

CR SEQ

Yes Yes Enter required RCS boron concentration to maintain Shutdown Margin based on Burnup: Using Curve Book Figure II-9.1 (Column SI BLOCKED MODES 3, 4, 5) enter the required RCS boron concentration to maintain Shutdown Margin based on Burnup.

STEP STANDARD:

Enters "1108" on Attachment III step 2, of STP-134.001.

COMMENTS:

SAT

UNSAT

STEP: 5

CUES:

CR SEQ

Yes Yes Perform the following to calculate the required additional Boron concentration to compensate for untrippable Control Rods:
3.a.1 If no Control Rods are untrippable, enter a value of zero.
3.a.2 Enter 2200 pcm if one rod is untrippable.

STEP STANDARD:

Enters 2200 on Attachment III step 3.a, of STP-134.001

COMMENTS:

SAT

UNSAT

STEP: 6

CUES:

Evaluator Note: The acceptable band for differential boron worth is based on applying a tolerance of + or - 1/2 the smallest increment on the graph of Figure II-7.3:

The smallest increment on the graph is 50 ppm; therefore the graph may be read between 1083 (1108 - 25) and 1133 ppm (1108 + 25)

The DBW for 1083 = - 7.57 and the DBW for 1133 = - 7.50

CR SEQ

Yes Yes Enter the Differential Boron Worth for the boron concentration entered in Step 2 (Curve Book Figure II-7.3 at 557 °F)

STEP STANDARD:

Enters a value at or between -7.50 and -7.57, on Attachment III step 3.b, of STP-134.001.

COMMENTS:

SAT

UNSAT

STEP: 7

CUES:

CR SEQ

Yes Yes Divide Step 3.a by Step 3.b.

STEP STANDARD:

Enters a value at or between -290 and -293, on Attachment III step 3.c, of STP-134.001.

$2200 \text{ pcm} \div -7.50 = \leq -293 \text{ (293.3)}$

$2200 \text{ pcm} \div -7.57 = \geq -290 \text{ (290.6)}$

COMMENTS:

SAT

UNSAT

STEP: 8

CUES:

CR SEQ

Yes Yes Determine required minimum boron concentration to maintain Shutdown Margin (Subtract Step 3.c from Step 2).

STEP STANDARD:

Enters a value at or between 1398 and 1401, on Attachment III step 3.c, of STP-134.001

$1108 - (-293) = 1401 \text{ ppm}$

$1108 - (-291) = 1399 \text{ ppm}$

COMMENTS:

SAT

UNSAT

STEP: 9

CUES:

CR SEQ

Yes Yes Enter present boron concentration.

STEP STANDARD:

Enters "262" ppm on Attachment III step 5, of STP-134.001.

COMMENTS:

SAT

UNSAT

STEP: 10

CUES:

CR SEQ

Yes Yes Shutdown Margin is satisfied if Step 5 is greater than Step 4.

STEP STANDARD:

Circles or otherwise indicates NO and signs his/her Initials

COMMENTS:

SAT

UNSAT

STEP: 11

CUES:

Evaluator Cue: For the purposes of the JPM, there will be no independent verification of your work. You may review it yourself if you choose to do so now.

CR SEQ

No Yes Calculated by:

STEP STANDARD:

Signs and dates.

COMMENTS:

SAT

UNSAT

Examiner ends JPM at this point.

JPM SETUP SHEET

JPM NO: 09 RO A.1.b

DESCRIPTION: PERFORM A SHUTDOWN MARGIN FOR INTENDED PLANT CONDITIONS

IC SET:

INSTRUCTIONS:

COMMENTS:

09 NRC
RO A.I.b.

KEY

STP-134.001
ATTACHMENT III
PAGE 1 OF 2
REVISION 12
STTS # _____

SHUTDOWN MARGIN VERIFICATION WITH SAFETY INJECTION BLOCKED
(MODES 3, 4, AND 5)

STEP **ACTION**

DATA

5.2.a PRECAUTIONS of Section 2.0 reviewed.

[Signature]
SS/CRS Signature

5.2.b INITIAL CONDITIONS of Section 5.0 met.

[Signature]
SS/CRS Signature

1. Enter Cycle Burnup.

20000 MWD/MTU

2. Using either of the following enter the required RCS boron concentration to maintain Shutdown Margin based on Burnup:

1108 ppm

a. Curve Book Figure II-9.1 (column SI BLOCKED, MODES 3, 4, 5).

b. An EIR supplied by Reactor Engineering.

CHG
A

3. Perform the following to calculate the required additional Boron concentration to compensate for untriappable Control Rods:

3.a Enter one of the following Bounding Worths of Untriappable Control Rods:

(+) 2200 pcm

- 1) If no Control Rods are untriappable, enter a value of zero.
- 2) Enter 2200 pcm if one rod is untriappable.
- 3) Enter 7000 pcm if more than one rod is untriappable).

- 7.50

3.b Enter the Differential Boron Worth for the boron concentration entered in Step 2
(Curve Book Figure II-7.3 at 557°F).

(-) -7.57 pcm/ppm

3.c Divide Step 3.a by Step 3.b:

$$\begin{array}{rcl} (+) \frac{2200}{\text{Step 3.a}} \text{ pcm} & \div & (-) \frac{7.50}{\text{Step 3.b}} \text{ pcm/ppm} = \end{array}$$

293.3
(-) 290.6 ppm

09 NRC
RO A.1.b.

KEY

STP-134.001
ATTACHMENT III
PAGE 2 OF 2
REVISION 12
STTS # _____

SHUTDOWN MARGIN VERIFICATION WITH SAFETY INJECTION BLOCKED
(MODES 3, 4, AND 5)

STEP ACTION

4. Determine required minimum boron concentration to maintain Shutdown Margin
(Subtract Step 3.c from Step 2):

$$\begin{array}{rcl} (+) & 1108 & \text{ppm} \\ & \text{Step 2} & \\ - & 293.3 & \\ & \text{Step 3.c} & \\ \hline & 814.7 & \text{ppm} \end{array}$$

5. Enter present boron concentration.

- 8.3 Shutdown Margin is satisfied if Step 5 is greater than Step 4.

Calculated by: *Jo*

Verified by: _____

DATA Note

$1108 + 293.3 = 1401.3$
Examinee may conservatively round up to 1402.

1401

1399 ppm

YES / NO

Initials: *Jo*

Date: (TODAY'S DATE)

Date: _____

Figure II-9.1

Revision Date:

Prepared By:

Verified By:

Approved By:

5-13-08

**Required Boron Concentration for Shutdown Margin as a Function
of Temperature and Burnup for Modes 3-5, No Xenon**

Burnup (MWD/MTU)	Shutdown Banks In		Shutdown Banks Out		SI Blocked, Modes 3, 4, 5
	450 °F	557 °F	450 °F	557 °F	68 to 557 °F
0	1294	1136	1397	1283	1452
500	1339	1185	1452	1346	1475
1000	1379	1230	1503	1404	1503
1500	1416	1270	1548	1455	1534
2000	1449	1306	1588	1501	1566
2500	1478	1337	1624	1542	1598
3000	1503	1364	1656	1577	1629
3500	1524	1387	1683	1607	1657
4000	1543	1406	1706	1632	1683
4500	1557	1421	1724	1652	1704
5000	1569	1432	1739	1668	1722
5500	1577	1440	1750	1679	1735
6000	1582	1444	1757	1687	1745
6500	1584	1445	1761	1689	1750
7000	1583	1443	1761	1688	1752
7500	1580	1437	1758	1683	1749
8000	1573	1428	1752	1675	1744
8500	1564	1416	1743	1663	1735
9000	1552	1402	1731	1648	1724
9500	1538	1384	1716	1630	1710
10000	1522	1364	1699	1608	1694
10500	1503	1342	1679	1584	1677
11000	1482	1317	1656	1557	1657
11500	1459	1290	1632	1528	1636
12000	1434	1261	1605	1497	1614
12500	1407	1229	1577	1463	1591
13000	1378	1196	1546	1427	1567
13500	1348	1161	1514	1390	1542
14000	1316	1124	1481	1351	1516
14500	1282	1086	1446	1310	1489
15000	1247	1046	1410	1269	1461
15500	1211	1005	1372	1226	1432
16000	1173	962	1334	1182	1402
16500	1134	919	1295	1137	1370
17000	1094	874	1255	1092	1337
17500	1054	829	1214	1046	1302
18000	1012	783	1173	1000	1266
18500	970	736	1131	953	1228
19000	926	688	1090	907	1189
19500	883	640	1048	861	1149
20000	839	592	1006	815	1108
20500	794	544	965	770	1067
21000	749	495	924	725	1026
21500	704	447	883	682	987
22000	659	398	843	639	951
22500	614	350	804	597	918
23000	569	302	765	557	891

Note: When SI is blocked, credit for Samarium is included. With SI enabled, credit for Samarium may be taken per STP-134.001. All scenarios include penalty for B10 depletion.

Interpolation from table:

$$1100 = 7.53$$

$$1200 = 7.41$$

$$1108 \times .08 = .0064$$

$$7.53 - .0064 = 7.52$$

Figure II-7.3

Revision Date:

Prepared By:

Verified By:

Approved By:

5-13-08

Dr. Benson

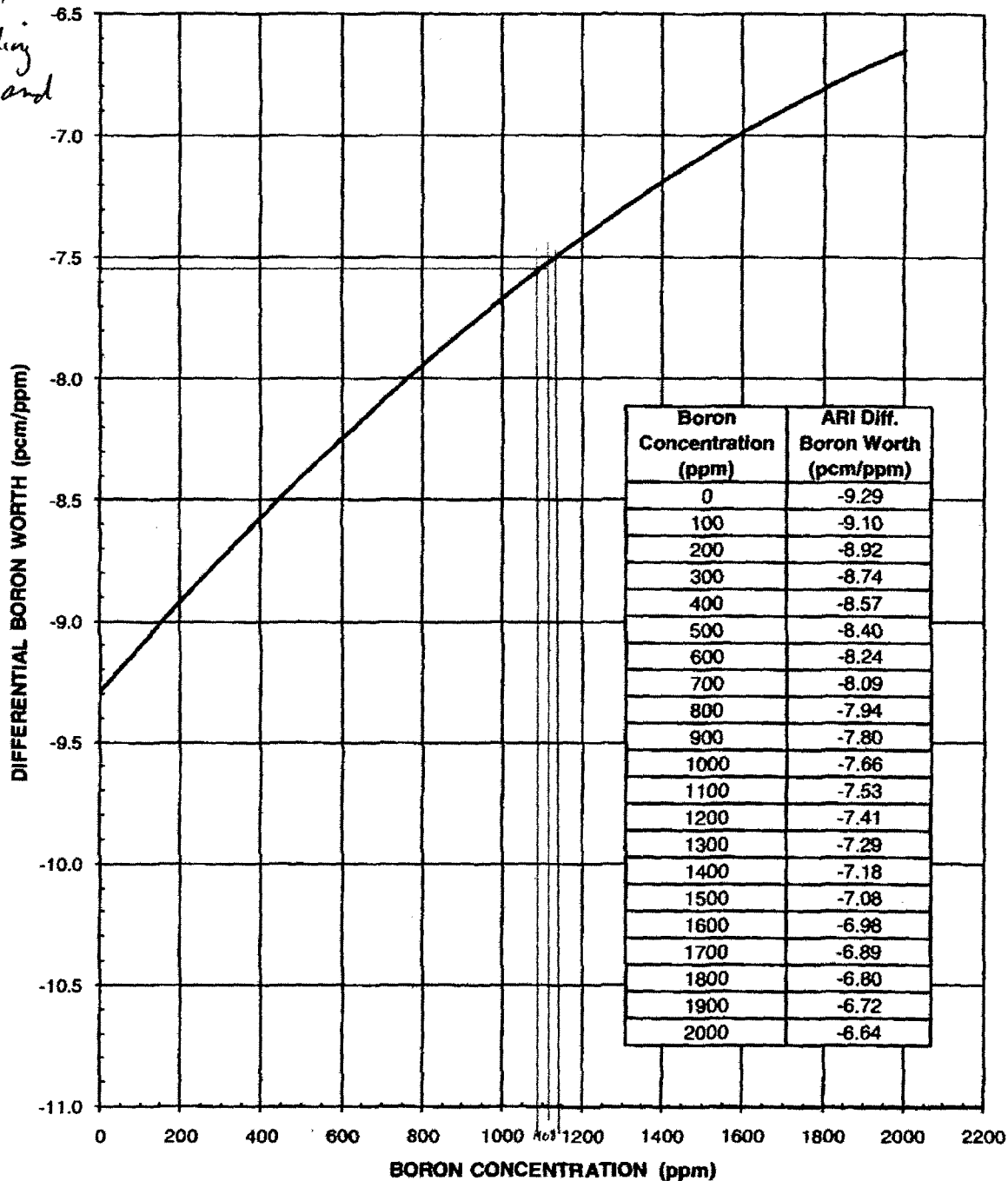
W. J. ...

...

Reading graph w/ $\pm \frac{1}{2}$ smallest
increment as tolerance:

Accept any reading
between -7.50 and
-7.55

ARI Differential Boron Worth at HZP vs. Boron Concentration
No Xenon and Samarium



SOUTH CAROLINA ELECTRIC & GAS COMPANY

VIRGIL C. SUMMER NUCLEAR STATION

NUCLEAR OPERATIONS

NUCLEAR OPERATIONS

COPY NO._____

SURVEILLANCE TEST PROCEDURE

STP-134.001

SHUTDOWN MARGIN VERIFICATION

REVISION 12

SAFETY RELATED

RECORD OF CHANGES

CHANGE LETTER	TYPE CHANGE	APPROVAL DATE	CANCELLATION DATE	CHANGE LETTER	TYPE CHANGE	APPROVAL DATE	CANCELLATION DATE
A	P	05/25/06					
B	P	10/12/06					
C	P	10/31/07					

CONTINUOUS USE

Continuous Use Of Procedure Required.
Read Each Step Prior To Performing.

DOCUMENT REVIEW FORM

Page 1 of 2

Document Identification							
Originators Name: R. Perrill;				Ext: 55524		Mail Code: 410	
Date: 05/01/07		Document No.: STP-134.001		Revision No.: 12		Change Letter: C	
Title: Shutdown Margin Verification						<input checked="" type="checkbox"/> SR <input type="checkbox"/> QR <input type="checkbox"/> NNS	
Development Process: Permanent: (check one) <input checked="" type="checkbox"/> Normal Rev/Chg or <input type="checkbox"/> Editorial Correction <input type="checkbox"/> Temporary Approval							
Description: See attached.							
Reason/Basis for Change: See attached.							
Is the SCOPE of the procedure affected by this change? NO <input checked="" type="checkbox"/> YES <input type="checkbox"/>							
Temporary Approval						Final approval required by: (30 days)	
QR		DC&R (Person Notified)		SS		Date	
Document Reviewers (Enclosure C)							
Required	Position	Type/Print Name	Comments Yes/No	*Additional	Position	Type/Print Name	Comments Yes/No
	QR	F Lucas	<input type="checkbox"/> <input checked="" type="checkbox"/>		RENG	D Bryson	<input checked="" type="checkbox"/> <input type="checkbox"/>
			<input type="checkbox"/> <input type="checkbox"/>		ors	J Shepp	<input type="checkbox"/> <input checked="" type="checkbox"/>
			<input type="checkbox"/> <input type="checkbox"/>		SE	E Rumpfelt	<input type="checkbox"/> <input checked="" type="checkbox"/>
			<input type="checkbox"/> <input type="checkbox"/>				<input type="checkbox"/> <input type="checkbox"/>
Concurrence <u>TR Astor 4/30/07</u>				Comment Due Date <u>05/25/07</u>			
Supervisor/Date							
Pre-implementation Actions							
All Comments Resolved <input checked="" type="checkbox"/> Yes				<u>R Perrill 10/08/07</u> <small>Originator/Date</small>			
Commitments Addressed per SAP-0630 <input checked="" type="checkbox"/> NA				<input type="checkbox"/> Yes, P/CAP # _____ <input type="checkbox"/> MLSA <small>Initial/Date</small>			
50.59 Applicability/Review Completed (SAP-0107) <input checked="" type="checkbox"/> NA				<input type="checkbox"/> Yes, Attached			
Pre-implementation Training Completed <input checked="" type="checkbox"/> NA				<input type="checkbox"/> Yes			
Training required after implementation <input checked="" type="checkbox"/> NA				<input type="checkbox"/> Yes, CER # _____			
PSRC Review Completed <input type="checkbox"/> NA				<input type="checkbox"/> Yes, Mtg. No. _____			
NSRC Review Completed <input type="checkbox"/> NA				<input type="checkbox"/> Yes, Mtg. No. _____			
CHAMPS Update Required <input type="checkbox"/> NA				<input type="checkbox"/> Yes CHAMPS Updated <u>Planner Notified</u> <small>Initial/Date</small>			
<u>[Signature] 10/31/07</u> Supervisor/Date				<u>[Signature] 10/31/07</u> Approval Authority/Date			

* Failure by the "Additional Reviewers" to provide comments within 5 working days following the comment due date may be considered as "No Comment".

DOCUMENT REVIEW FORM

Page 2 of 2

Document No.: STP-134.001 Rev. 12 Chg. C
No.: _____ Ltr.: _____

DESCRIPTION CONTINUED:

- a. Simplified wording in Steps 6.1 c and d for ease of transition to the proper attachment.
- b. Modified Attachment III as follows
 - 1) Changed title description to include IPCS Shutdown Margin Program (XENON) unavailable.
 - 2) Deleted Caution regarding unavailability if the IPCS Program.
 - 3) Amended Step 14 transition requirements.
- c. Added new Note 6.1.a through d regarding using values for Shutdown margin calculations provided by the Reactor Engineering group when the station Curve Book has not been updated.

REASON/BASIS FOR CHANGE CONTINUED:

- a. Procedure enhancement.
- b. Reason:
 - 1) Attachment II is not used unless the IPCS Shutdown Margin Program is unavailable; otherwise, Attachment II is used.
 - 2) Caution is unnecessary when applied as a limitation for attachment use in the title description.
 - 3) This transition description change is required because the IPCS Shutdown margin Program cannot be used when the Shutdown Banks are not inserted.
- c. Procedure feedback from Refuel 16 stating that the procedure did not compensate for Mode 1 through 5 conditions when the Station Curve Book had not been updated.

* Failure by the "Additional Reviewers" to provide comments within 5 working days following the comment due date may be considered as "No Comment".

DOCUMENT REVIEW FORM

Page 1 of 1

Document Identification							
Originators Name: Fenstermacher				Ext: 5974		Mail Code: 410	
Date: 10/12/06		Document No.: STP-134.001		Revision No.: 12		Change Letter: B	
Title: SHUTDOWN MARGIN VERIFICATION						<input checked="" type="checkbox"/> SR <input type="checkbox"/> QR <input type="checkbox"/> NNS	
Development Process: Permanent: (check one) <input type="checkbox"/> Normal Rev/Chg or <input checked="" type="checkbox"/> Editorial Correction <input type="checkbox"/> Temporary Approval							
Description: 1) Added Mode 3 to Step 4.1.c (Test Frequency) to clarify test requirements.							
Reason/Basis for Change: 1) Feedback (comment from simulator startup).							
Is the SCOPE of the procedure affected by this change? NO <input checked="" type="checkbox"/> YES <input type="checkbox"/>							
Temporary Approval						Final approval required by: (30 days)	
QR		DC&R (Person Notified)		SS		Date	
Document Reviewers (Enclosure C)							
Required	Position	Type/Print Name	Comments Yes/No	*Additional	Position	Type/Print Name	Comments Yes/No
	QR	<i>MD Johnson</i>	<input type="checkbox"/> <input checked="" type="checkbox"/>		_____	_____	<input type="checkbox"/> <input type="checkbox"/>
	_____	_____	<input type="checkbox"/> <input type="checkbox"/>		_____	_____	<input type="checkbox"/> <input type="checkbox"/>
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	_____	_____	<input type="checkbox"/> <input type="checkbox"/>		_____	_____	<input type="checkbox"/> <input type="checkbox"/>
	_____	_____	<input type="checkbox"/> <input type="checkbox"/>		_____	_____	<input type="checkbox"/> <input type="checkbox"/>
Concurrence <i>MD Johnson</i> 10/12/06				Comment Due Date			
Supervisor/Date							
Pre-implementation Actions							
All Comments Resolved <i>md</i>				<input checked="" type="checkbox"/> Yes <i>MD Johnson</i> 10-12-06 <small>Original/Date</small>			
Commitments Addressed per SAP-0630				<input checked="" type="checkbox"/> NA <input type="checkbox"/> Yes, P/CAP # _____ <input type="checkbox"/> MLSA <small>Initial/Date</small>			
50.59 Applicability/Review Completed (SAP-0107)				<input checked="" type="checkbox"/> NA <input type="checkbox"/> Yes, Attached			
Pre-implementation Training Completed				<input checked="" type="checkbox"/> NA <input type="checkbox"/> Yes			
Training required after implementation				<input checked="" type="checkbox"/> NA <input type="checkbox"/> Yes, CER # _____			
PSRC Review Completed				<input checked="" type="checkbox"/> NA <input type="checkbox"/> Yes, Mtg. No. _____			
NSRC Review Completed				<input checked="" type="checkbox"/> NA <input type="checkbox"/> Yes, Mtg. No. _____			
Other:				<input checked="" type="checkbox"/> NA <input type="checkbox"/> Yes			
<i>T Astor</i> 10/12/06				<i>T Astor</i> 10/12/06			
Supervisor/Date				Approval Authority/Date			

* Failure by the "Additional Reviewers" to provide comments within 5 working days following the comment due date may be considered as "No Comment".

DOCUMENT REVIEW FORM

Page 1 of ____

Document Identification								
Originators Name: Eric L. Erickson				Ext: 55666		Mail Code: 410		
Date: 05/24/06		Document No.: STP-134.001		Revision No.: 12		Change Letter: A		
Title: SHUTDOWN MARGIN VERIFICATION						<input checked="" type="checkbox"/> SR <input type="checkbox"/> QR <input type="checkbox"/> NNS		
Development Process: Permanent: (check one) <input type="checkbox"/> Normal Rev/Chg or <input checked="" type="checkbox"/> Editorial Correction <input type="checkbox"/> Temporary Approval <input type="checkbox"/> Restricted Chg (expires: _____)								
Description: Corrected typos on Page 3 of both Att. I and Att. III								
Reason/Basis for Change: Typos								
Is the SCOPE of the procedure affected by this change? NO <input checked="" type="checkbox"/> YES <input type="checkbox"/> If yes, attach SAP-0107 form.								
Temporary Approval						Final approval required by: (30 days)		
QR		DC&R (Person Notified)		SS		Date		
Document Reviewers (Enclosure C)								
Required	Position	Type/Print Name	Comments Yes/No	*Additional	Position	Type/Print Name	Comments Yes/No	
	OPS	BECKHAN	<input type="checkbox"/> <input checked="" type="checkbox"/>					<input type="checkbox"/> <input type="checkbox"/>
			<input type="checkbox"/> <input type="checkbox"/>					<input type="checkbox"/> <input type="checkbox"/>
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			<input type="checkbox"/> <input type="checkbox"/>					<input type="checkbox"/> <input type="checkbox"/>
Concurrence				Comment Due Date				
Supervisor/Date								
Pre-implementation Activities								
All Comments Resolved <input checked="" type="checkbox"/> Yes				Originator/Date: <u>05/24/06</u>				
Commitments Addressed per SAP-0630 <input checked="" type="checkbox"/> NA				<input type="checkbox"/> Yes, P/CAP # _____ <input type="checkbox"/> MLSA				
50.59 Applicability/Review Completed (SAP-0107) <input checked="" type="checkbox"/> NA				<input type="checkbox"/> Yes, Attached				
Pre-implementation Training Completed <input checked="" type="checkbox"/> NA				<input type="checkbox"/> Yes				
Training required after implementation <input checked="" type="checkbox"/> NA				<input type="checkbox"/> Yes, CER # _____				
PSRC Review Completed <input type="checkbox"/> NA				<input type="checkbox"/> Yes, Mtg. No. _____				
NSRC Review Completed <input checked="" type="checkbox"/> NA				<input type="checkbox"/> Yes, Mtg. No. _____				
Other: <input checked="" type="checkbox"/> NA				<input type="checkbox"/> Yes				
Supervisor/Date: <u>Trastler 5/25/06</u>				Approval Authority/Date: <u>NA</u>				

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DOCUMENT REVIEW FORM

Page 1 of 2

Document Identification							
Originators Name: Eric L. Erickson				Ext: 55666		Mail Code: 410	
Date: 05/03/06		Document No.: STP-134.001		Revision No.: 12		Change Letter: N/A	
Title: Shutdown Margin Verification						<input checked="" type="checkbox"/> SR <input type="checkbox"/> QR <input type="checkbox"/> NNS	
Development Process: Permanent: (check one) <input checked="" type="checkbox"/> Normal Rev/Chg or <input type="checkbox"/> Editorial Correction <input type="checkbox"/> Temporary Approval <input type="checkbox"/> Restricted Chg (expires: _____)							
Description: see Page 2							
Reason/Basis for Change: CER-06-1285, change to Station Curve Book Figure II-9.1, verbal comments, the ECR that installed the new IPCS, and a Procedure Feedback							
Is the SCOPE of the procedure affected by this change? NO <input checked="" type="checkbox"/> YES <input type="checkbox"/> If yes, attach SAP-0107 form.							
Temporary Approval						Final approval required by: (30 days)	
QR		DC&R (Person Notified)		SS		Date	
Document Reviewers (Enclosure C)							
Required	Position	Type/Print Name	Comments Yes/No	*Additional	Position	Type/Print Name	Comments Yes/No
	QR	R Justace	<input checked="" type="checkbox"/> <input type="checkbox"/>		OPS	D Goldston	<input type="checkbox"/> <input checked="" type="checkbox"/>
	RE	D Bryson	<input checked="" type="checkbox"/> <input type="checkbox"/>				<input type="checkbox"/> <input type="checkbox"/>
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			<input type="checkbox"/> <input type="checkbox"/>				<input type="checkbox"/> <input type="checkbox"/>
			<input type="checkbox"/> <input type="checkbox"/>				<input type="checkbox"/> <input type="checkbox"/>
Concurrence: T.A. Stoker 5/4/06				Comment Due Date: 5/10/06			
Supervisor/Date							
Pre-implementation Actions							
All Comments Resolved				<input checked="" type="checkbox"/> Yes <u>5/15/06</u> <small>Originator/Date</small>			
Commitments Addressed per SAP-0630				<input checked="" type="checkbox"/> NA <input type="checkbox"/> Yes, P/CAP # _____ <input type="checkbox"/> MLSA			
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Pre-implementation Training Completed				<input checked="" type="checkbox"/> NA <input type="checkbox"/> Yes			
Training required after implementation				<input checked="" type="checkbox"/> NA <input type="checkbox"/> Yes, CER # _____			
PSRC Review Completed				<input checked="" type="checkbox"/> NA <input type="checkbox"/> Yes, Mtg. No. _____			
NSRC Review Completed				<input checked="" type="checkbox"/> NA <input type="checkbox"/> Yes, Mtg. No. _____			
Other:				<input checked="" type="checkbox"/> NA <input type="checkbox"/> Yes			
Supervisor/Date: T.A. Stoker 5/17/06				Approval Authority/Date: <u>5/23/06</u>			

* Failure by the "Additional Reviewers" to provide comments within 5 working days following the comment due date may be considered as "No Comment".

DOCUMENT REVIEW FORM

Page 2 of 2

Document No.: STP-134.001 Rev. 12 Chg. N/A
No.: _____ Ltr.: _____

DESCRIPTION CONTINUED: The Shutdown Margin philosophy was altered somewhat to simplify the process, as well as alleviate the potential for being needlessly required by procedure to perform an Emergency Boration following a Reactor Trip. In so doing, the overriding considerations as to which attachment to utilize, especially in Mode 3, became dependent upon whether or not the Low Pressure SI or Steam Line Pressure SI is blocked and the position of the Shutdown Banks. The new IPCS required that the electronic S/D Margin Calculation be modified in order to print the report. Reformatted several steps to remove important information from Notes.

REASON/BASIS FOR CHANGE CONTINUED: N/A

DOCUMENT REVIEWERS CONTINUED:

	Position	Type/Print Name	Comments Yes/No		Position	Type/Print Name	Comments Yes/No
Required	_____	_____	<input type="checkbox"/> <input type="checkbox"/>	*Additional	_____	_____	<input type="checkbox"/> <input type="checkbox"/>
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	_____	_____	<input type="checkbox"/> <input type="checkbox"/>		_____	_____	<input type="checkbox"/> <input type="checkbox"/>

* Failure by the "Additional Reviewers" to provide comments within 5 working days following the comment due date may be considered as "No Comment".

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ATTACHMENTS

- Attachment I - Required RCS Boron Determination
For Maintaining Shutdown Margin In Mode 3
(Safety Injection Unblocked)
- Attachment II - Required RCS Boron Determination For
Maintaining Shutdown Margin In Mode 3
Shutdown Margin Program (Xenon) Not Available
(Safety Injection Unblocked)
- Attachment III - Shutdown Margin Verification With Safety Injection
Blocked (Modes 3, 4, And 5)
- Attachment IV - Boron Concentration Verification For Mode 6
- Attachment V - Shutdown Margin Verification Prior To Initial
Entry Into Mode 1 Following Refueling

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1.0 PURPOSE/SCOPE

- 1.1 This procedure determines if the Limiting Condition For Operation requirements for Reactor Shutdown Margin found in Sections 3.1.1.1 and 3.1.1.2 of Technical Specifications are satisfactorily met by performing Surveillance Requirements 4.1.1.1.1.a, 4.1.1.1.1.d, or 4.1.1.2, as appropriate for the Operational Mode.
- 1.2 When in Mode 6, this procedure determines if the Limiting Condition For Operation requirement for Reactor Shutdown Margin found in Section 3.9.1 of Technical Specifications is satisfactorily met by performing Surveillance Requirements 4.9.1.1 and 4.9.1.2.
- 1.3 The SAP-107 Applicability Determination established that 10CFR50.59 Screening is not required as this procedure is classified as a maintenance activity which restores SSCs to their original condition.
- 1.4 Changes to this procedure that have been determined to comply with the Scope of this procedure will not require screening per 10CFR50.59. However, the following processes will apply:
 - a. 10CFR50.65a(4).
 - b. SAP-139 (10CFR50, Appendix B).

2.0 PRECAUTIONS

- 2.1 Following a plant shutdown, Shutdown Margin may decrease by as much as 3000 pcm due to Xenon decay over a 24 hour period. Any deviation from the conditions used in the Shutdown Margin calculation requires reverification of adequate Shutdown Margin.
- 2.2 The RCS must be borated to a Cold Shutdown, Xenon-Free concentration whenever the Low Pressurizer Pressure SI below P-11 or the Low Steam Line Pressure SI below P-12 signals are required to be manually blocked per Station Curve Book Figure II-9.1 (Column SI Blocked, Modes 3, 4, 5).

3.0 TEST EQUIPMENT

- 3.1 None.

4.0 TEST FREQUENCY

4.1 Normal Operations:

- a. In Mode 1 or 2, at least once every 12 hours (see NROATC Operating Logs).
- b. Upon initial entry into Mode 3 from Modes 1 or 2. A Shutdown Margin calculation shall be performed on demand thereafter to ensure Shutdown Margin is maintained.
- c. In Modes 3, 4, and 5, at least once every 24 hours.
- d. Prior to entering Mode 6.
- e. In Mode 6, at least once every 72 hours.
- f. After each fuel loading, prior to exceeding five percent power.

4.2 While in Modes 1, 2, 3, 4, or 5, during operation with inoperable Control Rod(s), Shutdown Margin should be verified within one hour after detection of the inoperable Control Rod(s) and at least once per 12 hours thereafter while the rod(s) is inoperable.

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NOTE 5.0 through 8.0

An asterisk (*) preceding a step indicates that data or a signoff is required on the Attachment identified within that step.

5.0 INITIAL CONDITIONS

- 5.1 The plant is in any of the Operational Modes as defined in Technical Specifications Section 1.0, Table 1-1.
- 5.2 The Shift Supervisor/Control Room Supervisor has signed on the appropriate attachment signifying the following:
 - *a. The Precautions of Section 2.0 have been discussed with the necessary personnel involved in the performance of the test.
 - *b. All Initial Conditions required for this test have been met.

6.0 PROCEDURE

6.1 Normal Operation:

NOTE 6.1.a through d

When the latest revision to the Station Curve Book is unavailable, Reactor Engineering should be contacted to provide documentation providing updated values required for Shutdown Margin calculations.

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- a. For Mode 1 or 2, verify that all Control Rods are above the Rod Insertion Limit (see NROATC Operating Logs).
- b. Prior to the initial entry into Mode 1 after completion of physics testing, perform the following and record on Attachment V:
 - *1) Verify all BOL startup testing acceptance criteria have been met.
 - *2) Verify all Rods are above the Rod Insertion Limit.

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NOTE 6.1.c

The IPCS Shutdown Margin Program (XENON) assumes the Shutdown Banks are inserted.

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- c. For Mode 3 perform either of the following when the Low Pressurizer Pressure SI (below P-11) or the Low Steam Line Pressure SI (below P-12) are unblocked:
 - *1) If the Shutdown Banks are inserted perform Attachment I.
 - *2) If the Shutdown Banks are withdrawn perform Attachment II.
- *d. For Modes 3, 4, or 5 when either the Low Pressurizer Pressure SI (below P-11) or the Low Steam Line Pressure SI (below P-12) is blocked perform Attachment III.

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Step 6.1 continued

e. For Mode 6, perform the following:

- *1) Request a calculation from Reactor Engineering of the boron concentration sufficient to ensure that the more restrictive of the following is met, and record on Attachment IV:
 - a) The required boron concentration which will ensure a K_{eff} less than or equal to 0.95.
 - b) A boron concentration of greater than or equal to 2000 ppm.
- *2) Record the present boron concentration on Attachment IV.
- *3) Verify the present boron concentration is greater than the Reactor Engineering calculated minimum value, and record on Attachment IV.

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NOTE 6.2

In Mode 1, 2, 3, 4, or 5 with one or more untrippable control rod(s), the RCS should be borated per the applicable Abnormal Operating Procedure.

6.2 Operation with one or more inoperable rod(s):

a. For Mode 1 or 2:

- 1) With one or more untrippable rods, Shutdown Margin requirements can not be verified per this procedure. AOP-403.5, Stuck Or Misaligned Control Rod, must be implemented, which in turn will require emergency boration and verification of shutdown margin in Mode 3.
- 2) With one control rod below the Rod Insertion Limit (whether misaligned or dropped), Shutdown Margin requirements are met by limiting cycle design calculations, and a Shutdown Margin calculation is not required.
- 3) With one or more Inoperable rods due to an electrical malfunction (not misaligned, dropped, or untrippable), Shutdown Margin requirements are satisfied by verification of rods above their Rod Insertion Limit and documented on GTP-702, Attachment IV.A.

Step 6.2 continued

- *b. For Mode 3, complete Attachment I, Attachment II, or Attachment III, referring to the appropriate figures in the Station Curve Book.
- *c. For Mode 4 or 5 complete Attachment III, referring to the appropriate figures in the Station Curve Book.

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7.0 DATA REQUIREMENTS

- 7.1 All required data will be entered on the applicable Attachment.
- 7.2 IPCS Shutdown Margin Program printout.

8.0 ACCEPTANCE CRITERIA

- 8.1 In Mode 1 or 2, all Control Rods are above the Rod Insertion Limit.
- *8.2 Prior to initial Mode 1 entry after Refueling, all BOL startup testing acceptance criteria have been met, and Control Rods are above the Rod Insertion Limit.
- *8.3 In Mode 3, 4, or 5, Shutdown Margin is above the limits of Technical Specification 3.1.1.2.
- *8.4 In Mode 6, the boron concentration is sufficient to ensure the more limiting of:
 - a. A boron concentration greater than or equal to 2000 ppm, or
 - b. The boron concentration required to maintain a K_{eff} of 0.95 or less.
- 8.5 If any Acceptance Criteria is not met, Emergency Borate per AOP-106.1, Emergency Boration.

9.0 REFERENCES

- 9.1 AOP-106.1, Emergency Boration.
- 9.2 AOP-403.5, Stuck Or Misaligned Control Rod.
- 9.3 CGSS-97-547, Cycle 11 N-2 Stuck Rod Worth.
- 9.4 NROATC Operating Logs.
- 9.5 V.C. Summer Station Curve Book.
- 9.6 V.C. Summer Tech Specs, Section 1.0, Table 1-1 and Sections 3.1.1.1, 3.1.1.2, and 3.9.1.

REQUIRED RCS BORON DETERMINATION
FOR MAINTAINING SHUTDOWN MARGIN IN MODE 3

(SAFETY INJECTION UNBLOCKED)

CHG
C

STEP **ACTION**

DATA

5.2.a PRECAUTIONS of Section 2.0 reviewed.

SS/CRS Signature

5.2.b INITIAL CONDITIONS of Section 5.0 met.

SS/CRS Signature

CAUTION

Following a plant shutdown, Shutdown Margin may decrease by as much as 3000 pcm due to Xenon decay over a 24 hour period. Any deviation from the conditions used in the Shutdown Margin calculation requires reverification of adequate Shutdown Margin.

NOTE

If the Shutdown Margin Program (XENON) is not available, Shutdown Margin should be determined manually using Attachment II.

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1. At an IPCS terminal, enter XENON.

☐

2. Select #6 to start the calculations.

☐

NOTE 3

The following fields are populated by default, and only need to be changed if current conditions need to be adjusted.

3. Enter input data for the calculation, if required:

☐ (Required)

☐ (Not required)

3.a. Year (last two digits).

3.b. Month (Two digit number).

3.c. Day (Two digit).

3.d. Hour (Two digit 24 hour number).

3.e. Minute (Two digit).

REQUIRED RCS BORON DETERMINATION
 FOR MAINTAINING SHUTDOWN MARGIN IN MODE 3

(SAFETY INJECTION UNBLOCKED)

CHG
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<u>STEP</u>	<u>ACTION</u>	<u>DATA</u>
3.f.	Burn up (MWD/MTU).	_____
3.g.	Number of untrippable Rods.	_____
3.h.	Xenon Correction Factor (0.9)	_____
3.i.	Xenon Concentration (100 at equilibrium).	_____
3.j.	Iodine Concentration.	_____
3.k.	Samarium Concentration.	_____
3.l.	Promethium Concentration.	_____
4.	Press F2 to calculate.	<input type="checkbox"/>
5.	Press < Esc >.	<input type="checkbox"/>
6.	From the menu, select LOGS/REPORTS.	<input type="checkbox"/>
7.	Select window 3-4, LOG MANAGER.	<input type="checkbox"/>
8.	Click on TIMESTAMP twice to organize the files in descending order by time.	<input type="checkbox"/>
9.	Select the most recent SDMC file.	<input type="checkbox"/>
10.	Click PRINT to display the available printers.	<input type="checkbox"/>
11.	Select the desired printer and click OK.	<input type="checkbox"/>

NOTE 12 and 13

The printed output will list the required boron concentration each hour for the next several days.

- | | | |
|-----|--|--------------------------|
| 12. | Attach the IPCS printout to this Attachment. | <input type="checkbox"/> |
| 13. | Enter present boron concentration. | _____ ppm |
| 8.3 | Shutdown Margin is satisfied. | Initials: _____ |

REQUIRED RCS BORON DETERMINATION
FOR MAINTAINING SHUTDOWN MARGIN IN MODE 3

SHUTDOWN MARGIN PROGRAM (XENON) NOT AVAILABLE

(SAFETY INJECTION UNBLOCKED)

CHG
C

NOTE

When the IPCS Shutdown Margin Program (XENON) becomes available and the Shutdown Banks are inserted, the required RCS boron concentration for maintaining Shutdown Margin in Mode 3 should be determined using Attachment I.

<u>STEP</u>	<u>ACTION</u>	<u>DATA</u>
5.2.a	PRECAUTIONS of Section 2.0 reviewed.	_____ SS/CRS Signature
5.2.b	INITIAL CONDITIONS of Section 5.0 met.	_____ SS/CRS Signature

CAUTION

Following a plant shutdown, Shutdown Margin may decrease by as much as 3000 pcm due to Xenon decay over a 24 hour period. Any deviation from the conditions used in the Shutdown Margin calculation requires reverification of adequate Shutdown Margin.

- | | | |
|----|--------------------------|---------------|
| 1. | Enter Cycle Burn-up. | _____ MWD/MTU |
| 2. | Present RCS temperature: | _____ °F |
| 3. | Desired RCS temperature: | _____ °F |

REQUIRED RCS BORON DETERMINATION
FOR MAINTAINING SHUTDOWN MARGIN IN MODE 3

SHUTDOWN MARGIN PROGRAM (XENON) NOT AVAILABLE

(SAFETY INJECTION UNBLOCKED)

CHG
C

STEP ACTION

DATA

CAUTION 4

- a. The RCS must be borated to a Cold Shutdown, Xenon-Free concentration per Attachment IV prior to manually blocking the Low Pressurizer Pressure SI below P-11 or the Low Steam Line Pressure SI below P-12 signals.
- b. During EOP/AOP directed rapid cooldowns, boration to a Cold Shutdown, Xenon-Free concentration per Attachment III prior to manually blocking either the Low Pressurizer Pressure SI below P-11 or the Low Steam Line Pressure SI below P-12 is not required, unless directed by the EOP/AOP.

CHG
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4. Using Curve Book Figure II-9.1 (column SHUTDOWN BANKS OUT or SHUTDOWN BANKS IN), enter the required RCS boron concentration to maintain Shutdown Margin based on Burnup at the desired temperature, as well as Shutdown Bank position. _____ ppm

☐ S/D Banks OUT
☐ S/D Banks IN

NOTE 5 through 7

If no data for Xenon or Samarium is available from the IPCS or Reactor Engineering, zero should be recorded as the value for Xenon and Samarium Worths.

5. Determine Xenon Worth using 5.a or 5.b:

5.a $\frac{\text{_____}}{(\text{XENDISP or U1500})} \times \frac{0.9}{(\text{Correction Factor})} = \text{(-) _____ pcm}$

5.b Obtain Xenon Worth from Reactor Engineering. (-) _____ pcm
6. Determine Samarium Worth using 6.a or 6.b:

6.a $\frac{\text{_____}}{(\text{XENDISP or U1503})} \times \frac{0.9}{(\text{Correction Factor})} = \text{(-) _____ pcm}$

6.b Obtain Samarium Worth from Reactor Engineering. (-) _____ pcm
7. Calculate the Total Poison Worth:

$\frac{\text{(-) _____}}{(\text{Xenon Worth from Step 5})} + \frac{\text{(-) _____}}{(\text{Samarium Worth from Step 6})} = \text{(-) _____ pcm}$

REQUIRED RCS BORON DETERMINATION
FOR MAINTAINING SHUTDOWN MARGIN IN MODE 3

SHUTDOWN MARGIN PROGRAM (XENON) NOT AVAILABLE

(SAFETY INJECTION UNBLOCKED)

CHG
C

<u>STEP</u>	<u>ACTION</u>	<u>DATA</u>
8.	Enter one of the following Bounding Worths of Untriappable Control Rods: a) If no Control Rods are untriappable, enter a value of zero. b) Enter 2200 pcm if one rod is untriappable. c) Enter 7000 pcm if more than one rod is untriappable).	(+) _____ pcm
9.	Add Step 7 and Step 8: $\begin{array}{c} (-) \\ \text{(Total Poison Worth from Step 7)} \end{array} + \begin{array}{c} (+) \\ \text{(Rod Worth from Step 8)} \end{array} =$	() _____ pcm
10.	Enter the Differential Boron Worth for the boron concentration entered in Step 4 (Curve Book Figure II-7.3 at 557°F).	(-) _____ pcm/ppm
11.	Divide Step 9 by Step 10: $\begin{array}{c} () \\ \text{Step 9} \end{array} \text{ pcm} \div \begin{array}{c} (-) \\ \text{Step 10} \end{array} \text{ pcm/ppm} =$	() _____ ppm
12.	Determine required minimum boron concentration to maintain Shutdown Margin (Subtract Step 11 from Step 4): $\begin{array}{c} \text{Step 4} \end{array} \text{ ppm} - \begin{array}{c} () \\ \text{Step 11} \end{array} \text{ ppm} =$	_____ ppm
13.	Enter present boron concentration.	_____ ppm

CHG
A

REQUIRED RCS BORON DETERMINATION
FOR MAINTAINING SHUTDOWN MARGIN IN MODE 3

SHUTDOWN MARGIN PROGRAM (XENON) NOT AVAILABLE

(SAFETY INJECTION UNBLOCKED)

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<u>STEP</u>	<u>ACTION</u>	<u>DATA</u>
14.	Monitor for Xenon decay as follows:	
14.a	Repeat this calculation every four hours using indicated Xenon (XENDISP or U1500) and Samarium (XENDISP or U1503) values.	<input type="checkbox"/>
14.b	When XENDISP or U1500 indicates Xenon is starting to add positive reactivity, perform one of the following:	
1)	If the Shutdown Banks are inserted, borate the RCS to Mode 3, Xenon-Free (Curve Book Figure II-9.1 (column SHUTDOWN BANKS IN).	<input type="checkbox"/>
2)	If the Shutdown Banks are withdrawn, ensure Shutdown Margin is maintained between Shutdown Margin verifications by borating the RCS to 120 ppm greater than the calculated value determined in Step 12 above until the RCS has been borated to Mode 3, Xenon-Free (Curve Book Figure II-9.1 (column SHUTDOWN BANKS OUT): _____ ppm + 120 ppm = _____ ppm STEP 12	<input type="checkbox"/>
8.3	Shutdown Margin is satisfied if line 13 is greater than line 12.	YES / NO Initials: _____
Calculated by: _____		Date: _____
Verified by: _____		Date: _____

SHUTDOWN MARGIN VERIFICATION WITH SAFETY INJECTION BLOCKED
(MODES 3, 4, AND 5)

<u>STEP</u>	<u>ACTION</u>	<u>DATA</u>
5.2.a	PRECAUTIONS of Section 2.0 reviewed.	_____ SS/CRS Signature
5.2.b	INITIAL CONDITIONS of Section 5.0 met.	_____ SS/CRS Signature
1.	Enter Cycle Burnup.	_____ MWD/MTU
2.	Using either of the following enter the required RCS boron concentration to maintain Shutdown Margin based on Burnup:	_____ ppm
	a. Curve Book Figure II-9.1 (column SI BLOCKED, MODES 3, 4, 5).	
	b. An EIR supplied by Reactor Engineering.	
3.	Perform the following to calculate the required additional Boron concentration to compensate for untrippable Control Rods:	
3.a	Enter one of the following Bounding Worths of Untrippable Control Rods: 1) If no Control Rods are untrippable, enter a value of zero. 2) Enter 2200 pcm if one rod is untrippable. 3) Enter 7000 pcm if more than one rod is untrippable).	(+) _____ pcm
3.b	Enter the Differential Boron Worth for the boron concentration entered in Step 2 (Curve Book Figure II-7.3 at 557°F).	(-) _____ pcm/ppm
3.c	Divide Step 3.a by Step 3.b:	
	(+) _____ pcm ÷ (-) _____ pcm/ppm =	(-) _____ ppm
	Step 3.a Step 3.b	

CHG
A

SHUTDOWN MARGIN VERIFICATION WITH SAFETY INJECTION BLOCKED
(MODES 3, 4, AND 5)

<u>STEP</u>	<u>ACTION</u>	<u>DATA</u>
4.	Determine required minimum boron concentration to maintain Shutdown Margin (Subtract Step 3.c from Step 2): (+) _____ ppm - (-) _____ ppm = Step 2 Step 3.c	_____ ppm
5.	Enter present boron concentration.	_____ ppm
8.3	Shutdown Margin is satisfied if Step 5 is greater than Step 4.	YES / NO Initials: _____
Calculated by: _____		Date: _____
Verified by: _____		Date: _____

BORON CONCENTRATION VERIFICATION FOR MODE 6

5.2.a PRECAUTIONS of Section 2.0 reviewed.

SS/CRS Signature

5.2.b INITIAL CONDITIONS of Section 5.0 met.

SS/CRS Signature

6.1.e.1) Reactor Engineering's calculated minimum boron concentration: _____ ppm

6.1.e.2) Present boron concentration: _____ ppm

6.1.e.3) Verify the present boron concentration exceeds the Reactor Engineering
calculated value.

INITIALS

8.4 Acceptance criteria is met.

INITIALS

Prepared by: _____

Date: _____

Reviewed by: _____

Date: _____

SHUTDOWN MARGIN VERIFICATION
PRIOR TO INITIAL ENTRY INTO MODE 1
FOLLOWING REFUELING

5.2.a PRECAUTIONS of Section 2.0 reviewed.

SS/CRS Signature

5.2.b INITIAL CONDITIONS of Section 5.0 met.

SS/CRS Signature

6.1.b.1) All BOL startup testing acceptance criteria met.

INITIALS

6.1.b.2) All rods are above the Rod Insertion Limit.

INITIALS

8.2 Acceptance Criteria is met.

INITIALS

Prepared By: _____

Date: _____

Reviewed By: _____

Date: _____

V.C. SUMMER NUCLEAR STATION JOB PERFORMANCE MEASURE

JPM NO: 09 SRO A.1.b

**DETERMINE REQUIRED ADMINISTRATIVE
ACTIONS**

APPROVAL:

APPROVAL DATE:

REV NO: 0

CANDIDATE:

EXAMINER:

SRO ONLY

THIS JPM IS NOT APPROVED

TASK:

341-038-03-02

INTERPRET AND ENSURE COMPLIANCE WITH PLANT
ADMINISTRATIVE PROCEDURES DURING NORMAL AND OFF
NORMAL PLANT OPERATIONS

TASK STANDARD:

The most limiting Technical Specification is determined and the Removal and Restoration
Checksheet is completed satisfactorily.

PREFERRED EVALUATION LOCATION

CLASSROOM

PREFERRED EVALUATION METHOD

PERFORM

REFERENCES:

OAP 106.1

OPERATING ROUNDS

SAP-134

CONTROL OF STATION SURVEILLANCE ACTIVITIES

GTP-702

SURVEILLANCE ACTIVITY TRACKING AND TRIGGER

SAP-205

Status Control and Removal and Restoration

T.S.

Technical Specifications

SOP-304

7.2 kV SWITCHGEAR

TOOLS:

SOP-304, 115KV/7.2KV Operations
Technical Specifications
SAP-205, Status Control and Removal and Restoration
GTP-702, Surveillance Activity Tracking and Triggering.
OAP-106.1 Operating Rounds

EVALUATION TIME

30

TIME CRITICAL

NO

10CFR55: 55.45(a)13

TIME START:

TIME FINISH:

PERFORMANCE TIME:

PERFORMANCE RATING:

SAT:

UNSAT:

EXAMINER:

SIGNATURE

DATE

INSTRUCTIONS TO OPERATOR

READ TO OPERATOR:

WHEN I TELL YOU TO BEGIN, YOU ARE TO PERFORM THE ACTIONS AS DIRECTED IN THE INITIATING CUES. I WILL DESCRIBE THE GENERAL CONDITIONS UNDER WHICH THIS TASK IS TO BE PERFORMED AND PROVIDE THE NECESSARY TOOLS WITH WHICH TO PERFORM THIS TASK. BEFORE STARTING, I WILL EXPLAIN THE INITIAL CONDITIONS, WHICH STEPS TO SIMULATE OR DISCUSS, AND PROVIDE INITIATING CUES. WHEN YOU COMPLETE THE TASK SUCCESSFULLY, THE OBJECTIVE FOR THIS JOB PERFORMANCE MEASURE WILL BE SATISFIED.

SAFETY CONSIDERATIONS: NONE

INITIAL CONDITION:

- 100% Power
- B1 Maintenance Week is in progress
- The Integrated Fire Computer is being fed from Train 'A'
- The Supplemental Instrument Air Compressor is NOT running
- ESF Bus 1DB must be transferred to XTF-4/6 to allow the normal source feeder breaker to be replaced. The work is expected to take approximately two hours. ESF Bus 1DA will remain on the normal source during the work and alarm setpoints will NOT be adjusted since the alignment will only be in effect for approximately two hours.

INITIATING CUES: You are the CRS. Determine the administrative requirements associated with transferring Bus 1DB to XTF-4/6 and complete any associated paperwork.

HAND JPM BRIEFING SHEET TO OPERATOR AT THIS TIME!

JPM BRIEFING SHEET

OPERATOR INSTRUCTIONS:

SAFETY CONSIDERATIONS: NONE

INITIAL CONDITION:

- 100% Power
- B1 Maintenance Week is in progress
- The Integrated Fire Computer is being fed from Train 'A'
- The Supplemental Instrument Air Compressor is NOT running
- ESF Bus 1DB must be transferred to XTF-4/6 to allow the normal source feeder breaker to be replaced. The work is expected to take approximately two hours. ESF Bus 1DA will remain on the normal source during the work and alarm setpoints will NOT be adjusted since the alignment will only be in effect for approximately two hours.

INITIATING CUES: You are the CRS. Determine the administrative requirements associated with transferring Bus 1DB to XTF-4/6 and complete any associated paperwork.

**HAND THIS PAPER BACK TO YOUR
EVALUATOR WHEN YOU FEEL THAT YOU
HAVE SATISFACTORILY COMPLETED THE
ASSIGNED TASK.**

NRC 5RO
A.1.6

KEY

SAP-205
ATTACHMENT I
PAGE 1 OF 1
REVISION 10

REMOVAL AND RESTORATION CHECKSHEET

Section 1-Summary Data	TYPE: <input type="checkbox"/> Action <input type="checkbox"/> Tracking		SERVICE IMPACT: <input type="checkbox"/> Removed From Service <input type="checkbox"/> Restricted Service		TRAIN: <input type="checkbox"/> 'A' Train <input type="checkbox"/> 'X' Train <input type="checkbox"/> 'B' Train <input type="checkbox"/> N/A		R&R NUMBER: NRC 5RO A.1.6	
	SYSTEM: <u>CHUTE</u>		EQUIPMENT ID: <u>ASW-108</u>		EQUIPMENT NAME: <u>ASW-108</u>			
REASON INOPERABLE: <u>ASW-108 Moved to XTP-416</u>								
Section 2-Removal Requirements	COMPENSATORY REQUIREMENTS: <input type="checkbox"/> None		Required By Date/Time	Completed Date/Time	TECHNICAL SPECIFICATIONS: <u>1.5-1.1.2</u>			
	<input type="checkbox"/> Trip/Bypass Bistables?		/	/	TECH. SPEC. 3.0.4 APPLIES: <input type="checkbox"/> Yes <input type="checkbox"/> No Restraining Mode: <u>3</u> Mode Discovered: <u>2</u>			
	<input type="checkbox"/> Backup Fire Suppression?		/	/				
	<input type="checkbox"/> Roving Fire Watch?		/	/	REDUNDANT EQUIPMENT OPERABLE: <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A			
	<input type="checkbox"/> Continuous Fire Watch?		/	/				
	<input type="checkbox"/> Alternate Radiation Monitoring?		/	/	SUPPORTING DOCUMENTATION: <u>SAP-304</u> * <u>SAP-304</u> <u>T.E. 3/4 X.1</u> <u>2x TRU 8/20/03</u> <u>GTP-702</u> <u>ART 201114</u>			
	<input type="checkbox"/> Smoke Detectors Operable?		/	/				
<input type="checkbox"/> GTP-702 Att. <u>VE-X-1</u>		<u>Today/1st</u>	/					
<input type="checkbox"/> Other: <u>See COMMENTS</u>		/	/					
REMOVAL COMMENTS: <u>HOURLY 0.5 108 VOLTAGE READINGS 0.8F-106.1 LUGS</u>								
Section 3-Restoration Req./Related Documents	RESTORATION REQUIREMENTS:			RELATED DOCUMENTS:				
	Operable STP	STTS #	Completed Date/Time	Document Type*	Document #	Completed Initials/Date	Comments	
			/			/		
			/			/		
			/			/		
			/			/		
	All compensatory requirements restored or terminated? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		ECR Operability Form? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Continued on Attachment VII. *ECR, MWR, NCN, PMTS, RTO, STTS, WPO, etc.				
RESTORATION COMMENTS:								
Section 4-Removal/Restoration Status	REMOVAL/RESTORATION STATUS		SS Authorization	OATC Concurrence	Date/Time	Updated		
	Declared Inoperable				/	MCB <input type="checkbox"/> Yes <input type="checkbox"/> No	BISI <input type="checkbox"/> Yes <input type="checkbox"/> No	EOOS <input type="checkbox"/> Yes <input type="checkbox"/> No
	Time Limit to Declare Operable							
	Restoration Required By				/			
	Downgraded to:	<input type="checkbox"/> Tracking <input type="checkbox"/> Restricted Service			/			<input type="checkbox"/> Yes <input type="checkbox"/> No
	Declared Operable				/	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
	Total Time:	Inoperable Non-Functional						
COMMENTS:								

STEP: 4

CUES:

Evaluators Note: When the Removal and Restoration Checksheet is handed to the Examiner the JPM is Concluded.

CR SEQ

Yes No Completes a Removal and Restoration
Checksheet for the transfer of Bus 1DB.

STEP STANDARD:

Removal and Restoration Checksheet
properly completed.

Critical Elements:

Type: ACTION

Service Impact: REMOVED FROM
SERVICE

Train: "B" TRAIN

Equipment I.D. and Equipment Name:
ANY DESIGNATION AS TO BUS 1DB
IS ACCEPTABLE

Reason Inoperable: XSW-1DB
ALIGNED TO XTF-4/6

Compensatory Requirements:

GTP-702 Att. _____ (VI.Y-1)

Required By Date/Time: Time within
one hour of transfer accomplished. And
Current Date.

Other: CHECKED:

REMOVAL COMMENTS: Statement
reflecting need to record Bus 1DB
Voltage Readings Hourly

Technical Specifications: 3.8.1.1.a
required as a minimum

Tech Spec 3.0.4 applies: YES

CHECKED

Restraining Mode: MODE 4 Annotated.

Mode Discovered: MODE 1 Annotated.

Redundant Equipment Operable: YES
CHECKED

COMMENTS:

SAT

UNSAT

Examiner ends JPM at this point.

JPM SETUP SHEET

JPM NO: 09 SRO A.1.b

DESCRIPTION: DETERMINE REQUIRED ADMINISTRATIVE ACTIONS

IC SET:

INSTRUCTIONS:

COMMENTS:

STEPS

STEP: 1

CUES:

Evaluator's Cue: Provide SOP-304 if electronic or hard copy access is not available.

CR SEQ

Yes Yes Review SOP-304 Precautions.

STEP STANDARD:

Determines hourly Bus 1DB voltage logs are required per PRECAUTION II.1:

Anytime the 7.2KV ESF buses are placed in a lineup other than normal or XTF0006, XTF0004 7.2KV VOLTAGE REGULATOR, is in MANUAL or OFF, hourly Bus Voltage readings should be recorded per OAP-106.1, Operating Logs. Readings should be taken until the alarm setpoint has been reset to new limits for the applicable lineup per Attachment VA and/or Attachment VB.

COMMENTS:

SAT

UNSAT

STEP: 2

CUES:

CR SEQ

Yes Yes Review SOP-304 PRECAUTIONS. PRECAUTION II.8

- ° To maintain separate offsite circuit operability in Modes 1 through 4, one of the following conditions must be met for BUS 1DA and BUS 1DB:
- ° Both NORM FEED BREAKERS must be closed.
- ° Both ALT FEED BREAKERS must be closed.

STEP STANDARD:

Determines offsite circuit operability is affected since both BUS 1DA and 1DB will not meet the requirements of precaution II.8 of SOP-304.

COMMENTS:

SAT

UNSAT

STEP: 3

CUES:

CR SEQ

Yes Yes Determinines actions required by Technical Specifications per precaution II.8 of SOP-304

STEP STANDARD:

Determines LCO 3/4.8.1 is not met and action a) is applicable

3.8.1.1

a. Two Physically independent circuits between the offsite transmission network and the onsite Class 1E distribution system, is not met.

Action a) With one offsite circuit of 3.8.1.1.a inoperable:

Demonstrate the OPERABILITY of the remaining offsite A.C. sources by performing Surveillance Requirement 4.8.1.1.1 within 1 hour and at least once per 8 hours thereafter, and

if either EDG has not been successfully tested within the past 24 hours, demonstrate its OPERABILITY by performing Surveillance Requirement 4.8.1.1.2.a.3 separately for each such EDG within 24 hours unless the diesel is already operating, and

Restore the offsite circuit to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and COLD SHUTDOWN within the following 30 hours.

COMMENTS:

SAT

UNSAT

INSTRUCTIONS FOR COMPLETION OF ATTACHMENT I,
REMOVAL AND RESTORATION CHECKSHEET

NOTE

This procedure is applicable when R&Rs are prepared manually or by the Computer Generated R&R program.

1. Section 1, Summary Data.

- A. R&R Type - There are two R&R types - Action and Tracking. The appropriate block should be checked.

- 1) Action R&R - An R&R for which any of the following apply:
 - a) The Technical Specification LCO requirements are met only by reliance on the Action Statement and action must be completed to restore the equipment to full LCO requirements within a specified time period or additional actions must be initiated (i.e., plant shutdown or additional reporting requirements).
 - b) Technical Specification 3.0.4 is identified as being applicable.
 - c) Reportability requirements exist as specified in any of the following:
 - (1) Technical Specifications.
 - (2) FPP-023, FPP-024, FPP-025, and FPP-027.
 - (3) Offsite Dose Calculation Manual.
 - (4) Other administrative reportability requirements (i.e., AMSAC).
 - d) REG GUIDE 1.97 requirements are identified in the Technical Specifications Cross-Reference program.
 - e) A GTP-702 Attachment exists to track required actions.

INSTRUCTIONS FOR COMPLETION OF ATTACHMENT I,

REMOVAL AND RESTORATION CHECKSHEET (Cont'd)

- 2) Tracking R&R - An R&R for which any of the following apply:
- a) Reactor Building Door Seal testing requirements following Reactor Building entries.
 - b) Removal of a Spent Fuel Cooling Pump/Train from service for Maintenance.
 - c) Removal of a TB Instrument Air Compressor from service for maintenance (XAC0003A(B)).
 - d) Shift Supervisor's discretion to track systems or components to ensure timely and proper restoration.

B. R&R Service Impact - The appropriate block should be checked.

- 1) Removed From Service: - This statement is used when alignment of the system or component must be changed such that the system is unavailable to perform its intended function.
- 2) Restricted Service:
 - a) This statement is used if the alignment of a system or component can remain such that the system is available to perform its intended function however, associated activities such as open paperwork or work in the near vicinity requires increased operator awareness.
 - b) This statement must detail conditions for which the operator must be alerted if the system actuates.
 - c) This statement can apply to either an Action or Tracking R&R. If it is an Action R&R, the clock is still running. Technical Specification credit is not taken for Restricted Service equipment.

C. R&R Train - Check the appropriate block for the train associated with the inoperable equipment. This information is usually located in the CHAMPS equipment record.

INSTRUCTIONS FOR COMPLETION OF ATTACHMENT I,

REMOVAL AND RESTORATION CHECKSHEET (Cont'd)

- D. R&R Number - The R&R number is a sequential number consisting of the year followed by four digits. The Removal and Restoration Index, Attachment II, is used to keep track of the numbers.
- E. System, Equipment ID, and Equipment Name - Fill in using the information from the CHAMPS equipment record.
- F. Reason Inoperable - Enter a short statement describing the inoperable condition.

2. Section 2, Removal Requirements.

A. Compensatory Requirements:

- 1) If no requirements are identified, check NONE.
- 2) Check marks by the various items indicate that the specified item applies. N/A's are not required for non-applicable items.
- 3) Required By Date/Time indicates the time the requirement must be accomplished. The implementing documents, such as Fire Watch Log, GTP-702 Checklist, Bistable Trip Report, etc. will provide documentation as to actual compliance.
- 4) Completed Date/Time indicates the time that the requirement was completed.

B. Technical Specifications - Enter the applicable LCOs and other documents listed in the Tech Spec Cross-Reference (FPPs, ODCM, REG GUIDE 1.97, etc.).

- 1) Check the appropriate block specifying whether Technical Specification 3.0.4 applies.
- 2) Restraining Mode is the lowest mode in which the LCO applies. Example: The restraining mode for Emergency Feedwater System is Mode 3.
- 3) Mode Discovered - Enter the mode the inoperable condition was initiated or discovered.

INSTRUCTIONS FOR COMPLETION OF ATTACHMENT I.

REMOVAL AND RESTORATION CHECKSHEET (Cont'd)

- 4) Redundant Equipment Operable - Check the appropriate block. This question refers to the opposite train component, not swing components.
 - 5) Supporting Documentation - Enter any other applicable documentation, such as SAPs, etc.
 - C. Removal Comments - Enter any comments applicable to the items in Section 2, Removal Requirements, including plant restrictions or other amplifying information. Examples: "Mode 1 <10%" or "Mode 4 > 300°F".
3. Section 3, Restoration Requirements/Related Documents.
- A. Restoration Requirements:
 - 1) The STP section records the surveillance tests performed to determine an operable condition. Record the STP and task sheet number. Enter the completion date and time when the surveillance is satisfactorily completed.
 - 2) All Compensatory Requirements shall be terminated or restored to normal alignment and the section marked YES unless another condition not reflected on the R&R exists. A NO answer shall be explained in the Restoration Comments section. If Compensatory Requirements is marked NONE, the N/A block should be checked.
 - 3) ECR Operability Form (ORS) - If the inoperable condition was related to an ECR implementation, an Operability/Return to Service Form may be required:
 - a) Check YES if the ECR Engineering Change Review/Impact Form affecting system/component operability has been completed.
 - b) Check NO if there is no system/component operability impact identified on the ECR Engineering Change Review/Impact Form.

INSTRUCTIONS FOR COMPLETION OF ATTACHMENT I,

REMOVAL AND RESTORATION CHECKSHEET (Cont'd)

- c) If no ECR is associated with the R&R, the N/A block should be checked.
 - d) A summary of ECRs reflecting this information is located in the Operations Procedure Unit files.
 - e) If the requirement for the form cannot be determined, contact the Project Manager or Responsible Engineer for guidance.
- B. Related Documents - Record the serial number and document type of the documents which caused the inoperable condition for cross-referencing purposes, including the STTS number for any failed STP that initiated the R&R condition.
 - 1) These documents provide additional information concerning the inoperable condition that is not reflected on the Removal and Restoration Checksheet. Use Attachment VII when additional space is needed.
 - 2) The Completed Initials/Date column may be used as a convenience to track document completion status, but is not required if this is being accomplished in another fashion, such as a Work Package Organizer (WPO) or danger tagout.
- C. Restoration Comments - Enter any comments applicable to the items in Section 3, Restoration Requirements/Related Documents. Comments will be entered if:
 - 1) All compensatory requirements are not restored or terminated.
 - 2) A method other than an STP is used to determine operability, such as post MWR VT-2.
 - 3) An R&R is voided when additional information and review confirm that the condition was not an inoperable condition.
 - 4) An NCN disposition confirms operability.

INSTRUCTIONS FOR COMPLETION OF ATTACHMENT I,

REMOVAL AND RESTORATION CHECKSHEET (Cont'd)

4. Section 4 - Removal/Restoration Status.

A. Declared Inoperable Date/Time - The time the Shift Supervisor either determines the system or component is inoperable or when he authorizes work to begin. This entry starts the clock for subsequent actions.

- 1) SS Authorization indicates the Shift Supervisor has:
 - a) Completed the responsibilities specified in Section 5.4.
 - b) Reviewed and concurred with the information entered on the Removal and Restoration Checksheet.
 - c) Approved declaring the system inoperable.
- 2) OATC Concurrence indicates the Reactor Operator at the Controls has reviewed the Removal and Restoration Checksheet, is aware of the conditions and impact on plant operations, and concurs with the inoperable status and required actions.
- 3) Updated:
 - a) If the inoperable condition impacts on a component with Main Control Board control, an orange R&R marker shall be placed on that control. The purpose of the marker is to alert the operator and provide a visual indication that the control relates to an inoperable or restricted service component. The operator shall be responsible for knowing the exact conditions and what actions, if any, should be performed if the equipment actuates.
 - b) BISI update is required for Action R&Rs associated with the following systems:
 - (1) High Head Safety Injection.
 - (2) Low Head Safety Injection.
 - (3) Accumulator System.

INSTRUCTIONS FOR COMPLETION OF ATTACHMENT I,

REMOVAL AND RESTORATION CHECKSHEET (Cont'd)

- (4) Reactor Building Spray System.
- (5) Containment Isolation System.
- (6) Reactor Building Cooling.
- (7) Emergency Feedwater System.
- (8) Steam Generator Isolation.
- (9) Ventilation and Cooling System.
- (10) Emergency Safeguard Power.
- (11) Service Water System.
- (12) Component Cooling System.

- c) For R&Rs impacting risk, EOOS shall be updated to reflect the impact of the inoperable equipment.

- B. Time Limit to Declare Operable - The time specified by the Technical Specification Action Statement for recovery or administrative time limits imposed on non-Technical Specification items. If the R&R is a Tracking R&R, this should be left blank.
- C. Restoration Required Date/Time - The summation of the Technical Specification time limit or the administrative time limit added to the Declared Inoperable Date/Time. The units of time shall also be the Technical Specification or administrative time units. If the Technical Specification or administrative limit reflects hours, the restoration time shall reflect the hour, minute and date of expiration. If the R&R is a Tracking R&R, this should be left blank.

INSTRUCTIONS FOR COMPLETION OF ATTACHMENT I.

REMOVAL AND RESTORATION CHECKSHEET (Cont'd)

D. Downgraded To Tracking:

- 1) When all compensatory and reportability requirements have been completed, an Action R&R may be downgraded to Tracking.
- 2) SS Authorization indicates the Shift Supervisor has:
 - a) Verified all compensatory and reportability requirements have been completed.
 - b) Approved downgrading the R&R to Tracking.
- 3) When an Action R&R is downgraded, the following items shall also be accomplished:
 - a) The R&R type shall be changed on the Removal and Restoration Checksheet.
 - b) The Removal and Restoration Index shall be updated.
 - c) The Removal and Restoration Checksheet shall be moved to the Tracking section of the R&R Logbook.

E. Downgraded To Restricted Service:

- 1) When an inoperable system or component is restored to a condition where it is available to perform its intended function as specified in Technical Specifications, but associated activities such as open paperwork or work in the near vicinity require increased operator awareness and vigilance, an R&R may be downgraded to Restricted Service.
- 2) Downgrading to Restricted Service permits an inoperable system or component to be declared functional, with the additional functional time used as maintenance rule available time.
- 3) Restricted Service shall not be used for systems specified in Section 6.6.3.

INSTRUCTIONS FOR COMPLETION OF ATTACHMENT I.

REMOVAL AND RESTORATION CHECKSHEET (Cont'd)

- 4) Systems or components in a Restricted Service Mode may be energized provided:
 - a) Operations shift personnel are completely aware of the restrictions and what impact it has on system function.
 - b) No credit is taken for the equipment when determining Technical Specification LCO compliance.
 - c) The energized system or component will not prevent related equipment from performing its function.
- 5) SS Authorization indicates the Shift Supervisor has:
 - a) Reviewed conditions for which operators must be alerted if the system actuates.
 - b) Informed Operations shift personnel of the restrictions and impact of the restricted service equipment.
 - c) Verified the energized system or component will not prevent related equipment from performing its function.
 - d) Approved downgrading the R&R to Restricted Service.
- 6) OATC Concurrence indicates the Reactor Operator at the Controls is aware of the conditions and impact on plant operations, required actions upon system actuation, and concurs with the Restricted Service condition.
- 7) When an R&R is downgraded to Restricted Service, the R&R Service Impact shall be changed on the Removal and Restoration Checksheet.

INSTRUCTIONS FOR COMPLETION OF ATTACHMENT I.

REMOVAL AND RESTORATION CHECKSHEET (Cont'd)

- F. Declared Operable - Enter the date and time the inoperable condition is restored or corrected.
- 1) SS Authorization indicates the Shift Supervisor has:
 - a) Reviewed and concurred with the information entered on the Removal and Restoration Checksheet.
 - b) Reviewed and concurred with the documentation proving operable conditions.
 - c) Approved declaring the system or component Technical Specification operable.
 - 2) OATC Concurrence indicates the Reactor Operator at the Controls is aware of the conditions and impact on plant operations and concurs with the operability determination.
 - 3) Updated - Any orange Main Control Board R&R markers should be removed, manual BISI inputs updated, and EOOS equipment status updated as required at this time.
- G. Total Time Inoperable - Enter the total time the system or component was inoperable. Mark N/A if restrictions are not reflected in the Restoration Requirements section.
- H. Total Time Non-Functional - If the R&R was downgraded to Restricted Service, enter the total time the system or component was inoperable and unable to perform its intended function. Obtain by subtracting the date and time inoperable from the date and time the R&R was downgraded to Restricted Service.

3. The following regulatory processes apply to this procedure:
 - a. 10CFR50, Appendix B.
 - b. 10CFR50.59.
 - c. SAP-630, Procedure/Commitment Accountability Program.

II. PRECAUTIONS

1. Anytime the 7.2KV ESF buses are placed in a lineup other than normal or XTF0006, XTF0004 7.2KV VOLTAGE REGULATOR, is in MANUAL or OFF, hourly Bus Voltage readings should be recorded per OAP-106.1, Operating Logs. Readings should be taken until the alarm setpoint has been reset to new limits for the applicable lineup per Attachment VA and/or Attachment VB.
2. All electrical work should be complete, applicable danger tags cleared, and ground straps removed prior to energizing any transformer or bus.
3. For the protection of equipment, parallel operations should be kept to a minimum with both normal and alternate feeder breakers closed.
4. XTF0006, XTF0004 7.2KV VOLTAGE REGULATOR, AUTO-OFF-MANUAL Control Switch must be in the OFF position and the tap position indicator in the N position before placing the regulator in service or removing it from service.
5. XES0008, 7.2KV TRANSFER & DISC SWITCHES, SOURCE and LOAD Switches must be open before operating the TRANSFER Switch.
6. The SOURCE or LOAD Switches should not be operated with the switch door open.
7. The TRANSFER Switch should be in the LOAD Position or the AUTO-OFF-MANUAL Control Switch is in the OFF position before paralleling XTF0004, UNIT 1 ENGINEERED SAFEGUARD TRANSFORMER with any other power source.
8. To maintain separate offsite circuit operability in Modes 1 through 4, one of the following conditions must be met for BUS 1DA and BUS 1DB:
 - a. Both NORM FEED BREAKERS must be closed.
 - b. Both ALT FEED BREAKERS must be closed.

CHG
B

9. The Alternate AC Power Supply only has the capacity to supply one fully loaded ESF Bus at any point in time. As a result of this limited capability, no more than one ESF Bus should be supplied by the Alternate AC Power Supply at any time.
10. Since the Alternate AC Power Supply is not qualified to handle automatic loading, the ESFLS on the bus to be supplied by the Alternate AC Power Supply should be de-energized prior to performing the alignment.
11. Starting large loads (50 KW or greater) on the Alternate AC Power Supply will generate an Emergency Start signal from undervoltage when connected to XSW1DA(1DB). Expect Diesel Generator A(B) to start if in REMOTE or LOCAL.
12. Per BAR 2008-01, parallel operations between the Parr feed through 5052 and the Diesel Generators is prohibited.

CHG
C

CHG
G

CHG
K

C. PLACING ESF BUS 1DA AND 1DB ON ALTERNATE FEED

1.0 INITIAL CONDITIONS

- ☐ 1.1 A **Pre-Job Brief** has been conducted per OAP-100.3.
- ☐ 1.2 The Engineered Safety Features 7.2KV buses are energized from their normal sources.
- ☐ 1.3 Both BUS 1DA XFER INIT and BUS 1DB XFER INIT Switches are in OFF.
- ☐ 1.4 If manual transfer of BUS 1DB to alternate feed is to be performed, Breathing Air has been removed from service per SOP-220.

2.0 INSTRUCTIONS

- ☐ 2.1 Notify the System Controller of the applicable bus voltage limits from Enclosure B.
- ☐ 2.2 If required, adjust the 115KV and/or 230KV alarm setpoints per Attachment VA and/or Attachment VB for the current lineup.
- 2.3 Manually transfer BUS 1DA to alternate feed as follows:

CHG
H

CHG
B

NOTE 2.3.a

If the Integrated Fire System computer is being powered from Train A, there will be a momentary power interruption to the computer.

- ☐ a. Turn BUS 1DA XFER INIT Switch to the N-E position. **(PEER ✓)**
- ☐ b. Verify the following:
 - ☐ 1) BUS 1DA potential lights remain energized.
 - ☐ 2) BUS 1DA ALT FEED breaker closes.
 - ☐ 3) BUS 1DA NORM FEED breaker opens.
- ☐ c. Turn BUS 1DA XFER INIT Switch to OFF. **(PEER ✓)**
- ☐ d. Match flags for the BUS 1DA ALT FEED and BUS 1DA NORM FEED breakers.

V.C. SUMMER NUCLEAR STATION JOB PERFORMANCE MEASURE

***JPM NO: 09 NRC RO
A2***

***Perform STP-127.001 PRESSURIZER BLOCK
VALVE OPERABILITY.***

APPROVAL:

APPROVAL DATE:

REV NO: 0

CANDIDATE: _____

EXAMINER: _____

THIS JPM IS NOT APPROVED

TASK:

115-026-02-01

PERFORM A VALVE SURVEILLANCE TEST-STP

TASK STANDARD:

Completion of STP-127.001 PRESSURIZER BLOCK VALVE OPERABILITY TEST and Identification of MVG-8000C exceeding its MAXIMUM LIMITING STROKE TIME.

PREFERRED EVALUATION LOCATION

PREFERRED EVALUATION METHOD

SIMULATOR

PERFORM

REFERENCES:

STP-127.001

PRESSURIZER BLOCK VALVE OPERABILITY TEST

TOOLS:

Stopwatch with sufficient information available for completing STP-127.001, Attachment 1 for the TEST EQUIPMENT.
Current Revision of STP 127.001,

EVALUATION TIME

20

TIME CRITICAL

NO

10CFR55: 55.45(a)12

TIME START: _____

TIME FINISH: _____

PERFORMANCE TIME: _____

PERFORMANCE RATING:

SAT: _____

UNSAT: _____

EXAMINER:

SIGNATURE

DATE

INSTRUCTIONS TO OPERATOR

READ TO OPERATOR:

WHEN I TELL YOU TO BEGIN, YOU ARE TO PERFORM THE ACTIONS AS DIRECTED IN THE INITIATING CUES. I WILL DESCRIBE THE GENERAL CONDITIONS UNDER WHICH THIS TASK IS TO BE PERFORMED AND PROVIDE THE NECESSARY TOOLS WITH WHICH TO PERFORM THIS TASK. BEFORE STARTING, I WILL EXPLAIN THE INITIAL CONDITIONS, WHICH STEPS TO SIMULATE OR DISCUSS, AND PROVIDE INITIATING CUES. WHEN YOU COMPLETE THE TASK SUCCESSFULLY, THE OBJECTIVE FOR THIS JOB PERFORMANCE MEASURE WILL BE SATISFIED.

SAFETY CONSIDERATIONS: NONE

INITIAL CONDITION: 100% Power
All Controls are in their normal, full power alignment and no equipment is out - of - service
Pressurizer Block Valve Operability Test, STP-127.001 is due.

INITIATING CUES: The CRS has directed you to perform STP-127.001 PRESSURIZER BLOCK VALVE OPERABILITY TEST.

HAND JPM BRIEFING SHEET TO OPERATOR AT THIS TIME!

JPM BRIEFING SHEET

OPERATOR INSTRUCTIONS:

SAFETY CONSIDERATIONS: NONE

INITIAL CONDITION: 100% Power
All Controls are in their normal, full power alignment and no equipment
is out - of - service
Pressurizer Block Valve Operability Test, STP-127.001 is due.

INITIATING CUES: The CRS has directed you to perform STP-127.001 PRESSURIZER
BLOCK VALVE OPERABILITY TEST.

**HAND THIS PAPER BACK TO YOUR
EVALUATOR WHEN YOU FEEL THAT YOU
HAVE SATISFACTORILY COMPLETED THE
ASSIGNED TASK.**

STEPS

STEP: 1

CUES:

Evaluator Cue: Provide Handout

CR SEQ

No Yes Review Procedure

STEP STANDARD:

Reviews Sections:

1.0-PUPOSE/SCOPE

2.0-PRECAUTIONS

3.0-TEST EQUIPMENT

4.0-FREQUENCY

5.0-INITIAL CONDITIONS

COMMENTS:

SAT _____

UNSAT _____

STEP: 2

CUES:

CR SEQ

No Yes STP-1267.001 Step 6.1

Record all calibration data on Attachment I
as required

STEP STANDARD:

Fills out Attachment 1 TEST
EQUIPMENT block for the stopwatch

COMMENTS:

SAT _____

UNSAT _____

STEP: 3

CUES:

CR SEQ

No No STP-127.001 Step 6.2

Perform an AS FOUND equipment lineup
per Attachment II

STEP STANDARD:

On Attachment II, marks all PCVs
CLOSED and all MVGs OPEN

COMMENTS:

SAT _____

UNSAT _____

STEP: 4

CUES:

Evaluator Note:

The applicant may complete all ACCEPTANCE CRITERIA MET and RPI/LOCAL blocks when all three valves have been tested.

CR SEQ

Yes Yes STP-127.001, Step 6.3

Procedure Note: To prevent preconditioning, the Block Valves open and closed exercises may be performed out of sequence.

6.3.a Ensure PCV-445A, PWR RELIEF, is closed.

6.3.b Close MVG-8000A, Relief 445A ISOL, and measure the stroke time to the nearest 0.1 second, from switch actuation until the closed light is lit and the open light goes out.

6.3.c Record the stroke time for XVG08000A-RC, PRZ PWR OPER RELIEF ISOL VLV, on Attachment I.

6.3.d Open MVG-8000A, RELIEF 445A ISOL, and measure the stroke time to the nearest 0.1 second, from switch actuation until the open light is lit and the closed light goes out.

6.3.e Record the stroke time for XVG08000A-RC, PRZ PWR OPER RELIEF ISOL VLV, on Attachment I.

STEP STANDARD:

Ensures PCV-445A closed. (NOT CRITICAL)

Places MVG-8000A in Close and simultaneously starts the stopwatch.

Stops the stopwatch when the CLOSED light is LIT and the OPEN light is OUT.

Records the CLOSE stroke time in the CLOSE block for XVG08000A-RC, PRZ PWR OPER RELIEF INLET ISOL VLV, on Attachment I.

Places MVG-8000A in OPEN and simultaneously starts the stopwatch.

Stops the stopwatch when the OPEN light is LIT and the CLOSED light is OUT

Records the OPEN stroke time in the OPEN block for XVG08000A-RC, PRZ PWR OPER RELIEF INLET ISOL VLV, on Attachment I.

Marks YES in both ACCEPTANCE CRITERIA MET Blocks.

COMMENTS:

SAT _____

UNSAT _____

STEP: 5

CUES:

Evaluator Note:

The applicant may complete all ACCEPTANCE CRITERIA MET and RPI/LOCAL blocks when all three valves have been tested.

CR SEQ

Yes Yes STP-127.001, Step 6.4

Procedure Note: To prevent preconditioning, the Block Valves open and closed exercises may be performed out of sequence.

6.4.a Ensure PCV-444B, PWR RELIEF, is closed.

6.4.b Close MVG-8000B, Relief 444B ISOL, and measure the stroke time to the nearest 0.1 second, from switch actuation until the closed light is lit and the open light goes out.

6.4.c Record the stroke time for XVG08000B-RC, PRZ PWR OPER RELIEF ISOL VLV, on Attachment I.

6.4.d Open MVG-8000B, RELIEF 444B ISOL, and measure the stroke time to the nearest 0.1 second, from switch actuation until the open light is lit and the closed light goes out.

6.4.e Record the stroke time for XVG08000B-RC, PRZ PWR OPER RELIEF ISOL VLV, on Attachment I.

STEP STANDARD:

Ensures PCV-444B closed. (NOT CRITICAL)

Places MVG-8000B in Close and simultaneously starts the stopwatch.

Stops the stopwatch when the CLOSED light is LIT and the OPEN light is OUT.

Records the CLOSE stroke time in the CLOSE block for XVG08000B-RC, PRZ PWR OPER RELIEF INLET ISOL VLV, on Attachment I.

Places MVG-8000B in OPEN and simultaneously starts the stopwatch.

Stops the stopwatch when the OPEN light is LIT and the CLOSED light is OUT

Records the OPEN stroke time in the OPEN block for XVG08000B-RC, PRZ PWR OPER RELIEF INLET ISOL VLV, on Attachment I.

Marks YES in both ACCEPTANCE CRITERIA MET Blocks.

COMMENTS:

SAT _____

UNSAT _____

STEP: 6

CUES:

Evaluator Cue:

If necessary, acknowledge a report of ACCEPTANCE CRITERIA NOT MET. Direct the applicant to finish the procedure before taking any further action. Actions would be (Step 8.1.b) to either immediately retest (one time) or declare the valve inoperable.

CR SEQ

Yes Yes STP-127.001, Step 6.5

Procedure Note: To prevent preconditioning, the Block Valves open and closed exercises may be performed out of sequence.

6.5.a Ensure PCV-445B, PWR RELIEF, is closed.

6.5.b Close MVG-8000C, Relief 445B ISOL, and measure the stroke time to the nearest 0.1 second, from switch actuation until the closed light is lit and the open light goes out.

6.5.c Record the stroke time for XVG08000C-RC, PRZ PWR OPER RELIEF ISOL VLV, on Attachment I.

6.5.d Open MVG-8000C, RELIEF 445B ISOL, and measure the stroke time to the nearest 0.1 second, from switch actuation until the open light is lit and the closed light goes out.

6.5.e Record the stroke time for XVG08000C-RC, PRZ PWR OPER RELIEF ISOL VLV, on Attachment I.

STEP STANDARD:

Ensures PCV-445B closed. (NOT CRITICAL)

Places MVG-8000C in Close and simultaneously starts the stopwatch.

Stops the stopwatch when the CLOSED light is LIT and the OPEN light is OUT.

Records the CLOSE stroke time in the CLOSE block for XVG08000C-RC, PRZ PWR OPER RELIEF INLET ISOL VLV, on Attachment I.

Places MVG-8000C in OPEN and simultaneously starts the stopwatch.

Stops the stopwatch when the OPEN light is LIT and the CLOSED light is OUT

Records the OPEN stroke time in the OPEN block for XVG08000C-RC, PRZ PWR OPER RELIEF INLET ISOL VLV, on Attachment I.

Marks NO in both ACCEPTANCE CRITERIA MET Blocks.

COMMENTS:

SAT _____

UNSAT _____

STEP: 7

CUES:

CR SEQ

No Yes STP-127.001, Step 6.6

Perform a RETURN AS FOUND equipment lineup per Attachment II.

STEP STANDARD:

On Attachment II, marks all PCVs CLOSED and all MVGs OPEN

COMMENTS:

SAT _____

UNSAT _____

STEP: 8

CUES:

Evaluator Cue:

Acknowledges the request for and independent verifier.

For the purposes of the examination, no independent verification will be provided. Leave the verification block BLANK.

CR SEQ

No Yes STP-127.001, Step 6.7

Perform a RETURN AS FOUND equipment lineup independent verification per Attachment II.

STEP STANDARD:

Request an independent verifier.

COMMENTS:

SAT _____

UNSAT _____

STEP: 9

CUES:

Evaluator Note:

Based upon plant conditions Verification of local valve positions is not required.

CR SEQ

No Yes STP-127.001, Step 6.8

STEP STANDARD:

Marks all RPI/LOCAL blocks N/A.

Procedure Note:

Local verification of valve position indication shall be performed on designated valves per Step 6.8 each Refuel Outage.

Valve position indication verification shall be verified in both the open and closed positions regardless of the safety functions performed by the valve.

Perform local verification of valve position indication as follows:

6.8.a Station a qualified valve operator at the valve

6.8.b When the valve is stroked, verify Main Control Board position indication matches local valve position.

6.8.c Place a check mark in the RPI/LOCAL column on Attachment I

COMMENTS:

SAT _____

UNSAT _____

Examiner ends JPM at this point.

JPM SETUP SHEET

JPM NO: 09 NRC RO A2

DESCRIPTION: Perform STP-127.001 PRESSURIZER BLOCK VALVE OPERABILITY.

IC SET:

INSTRUCTIONS:

COMMENTS:

09 NRC RO A2 KEY

SOUTH CAROLINA ELECTRIC & GAS COMPANY

VIRGIL C. SUMMER NUCLEAR STATION

NUCLEAR OPERATIONS

NUCLEAR OPERATIONS

COPY NO. _____

SURVEILLANCE TEST PROCEDURE

STP-127.001

PRESSURIZER BLOCK VALVE OPERABILITY TEST

REVISION 8

SAFETY RELATED

Original signed by: Dennis A. Baker
DISCIPLINE SUPERVISOR

02/24/04
DATE

Original signed by: George A. Lippard
APPROVAL AUTHORITY

03/01/04
DATE

RECORD OF CHANGES

CHANGE LETTER	TYPE CHANGE	APPROVAL DATE	CANCELLATION DATE	CHANGE LETTER	TYPE CHANGE	APPROVAL DATE	CANCELLATION DATE

CONTINUOUS USE

Continuous Use of Procedure Required.
Read Each Step Prior to Performing.

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ATTACHMENTS

- Attachment I - Valve Data Sheet
Attachment II - Equipment Lineup

1.0 PURPOSE/SCOPE

- 1.1 This procedure demonstrates the following:
- a. The operability of the PORV Block Valves in accordance with Technical Specification Surveillance Requirements 4.0.5 by performing quarterly stroke timing in addition to position indication verification once every 2 years on the following Valves.
 - 1. XVG08000A-RC, PRZ PWR OPER RELIEF INLET ISOL VLV
 - 2. XVG08000B-RC, PRZ PWR OPER RELIEF INLET ISOL VLV
 - 3. XVG08000C-RC, PRZ PWR OPER RELIEF INLET ISOL VLV
 - b. The operability of the PORV Block Valves in accordance with Technical Specification Surveillance Requirements 4.4.4.2 by exercising the valve through one complete cycle of full travel at least once every 92 days.
- 1.2 10CFR50 Appendix B, 10CFR50.65a(4), and 10CFR50.55a(f) apply to this procedure. A 10CFR50.59 review is not required.

2.0 PRECAUTIONS

- 2.1 The testing of a PORV Block Valve that has been closed with the power removed in order to meet the requirements of Technical Specification 3.4.4.b, 3.4.4.c, or 3.4.4.d, shall not be performed.

3.0 TEST EQUIPMENT

- 3.1 Stopwatch with 0.1 second increment timing capability.

4.0 TEST FREQUENCY

- 4.1 PORV Block Valves must be Inservice Tested at least once every 92 days in accordance with Technical Specification Surveillance Requirement 4.0.5.
- 4.2 Prior to returning a PORV Block Valve to service following maintenance or repair.
- 4.3 Local verification of PORV Block Valve position indication shall be performed each Refuel Outage.

NOTE 5.0 through 8.0

An asterisk (*) preceding a step indicates that data or a signoff is required on the attachment identified within the step.

5.0 INITIAL CONDITIONS

- 5.1 None

6.0 PROCEDURE

- 6.1 Record all calibration data on Attachment I as required.
- 6.2 Perform an AS FOUND equipment lineup per Attachment II.

NOTE 6.3, 6.4, 6.5

To prevent preconditioning, the Block Valves open and closed exercises may be performed out of sequence.

- 6.3 Stroke test XVG08000A-RC, PRZ PWR OPER RELIEF INLET ISOL VLV, as follows:
- a. Ensure PCV-445A, PWR RELIEF, is closed.
 - b. Close MVG-8000A, RELIEF 445A ISOL, and measure the stroke time to the nearest 0.1 second, from switch actuation until the closed light is lit and the open light goes out.
 - c. Record the stroke time for XVG08000A-RC, PRZ PWR OPER RELIEF INLET ISOL VLV, on Attachment I.
 - d. Open MVG-8000A, RELIEF 445A ISOL, and measure the stroke time to the nearest 0.1 second, from switch actuation until the open light is lit and the closed light goes out.
 - e. Record the stroke time for XVG08000A-RC, PRZ PWR OPER RELIEF INLET ISOL VLV, on Attachment I.

NOTE 6.3, 6.4, 6.5

To prevent preconditioning, the Block Valves open and closed exercises may be performed out of sequence.

- 6.4 Stroke test XVG08000B-RC, PRZ PWR OPER RELIEF INLET ISOL VLV, as follows:
- a. Ensure PCV-444B, PWR RELIEF, is closed.
 - b. Close MVG-8000B, RELIEF 444B ISOL, and measure the stroke time to the nearest 0.1 second, from switch actuation until the closed light is lit and the open light goes out.
 - c. Record the stroke time for XVG08000B-RC, PRZ PWR OPER RELIEF INLET ISOL VLV, on Attachment I.
 - d. Open MVG-8000B, RELIEF 444B ISOL, and measure the stroke time to the nearest 0.1 second, from switch actuation until the open light is lit and the closed light goes out.
 - e. Record the stroke time for XVG08000B-RC, PRZ PWR OPER RELIEF INLET ISOL VLV, on Attachment I.

NOTE 6.3, 6.4, 6.5

To prevent preconditioning, the Block Valves open and closed exercises may be performed out of sequence.

- 6.5 Stroke test XVG08000C-RC, PRZ PWR OPER RELIEF INLET ISOL VLV, as follows:
- a. Ensure PCV-445B, PWR RELIEF, is closed.
 - b. Close MVG-8000C, RELIEF 445B ISOL, and measure the stroke time to the nearest 0.1 second, from switch actuation until the closed light is lit and the open light goes out.
 - c. Record the stroke time for XVG08000C-RC, PRZ PWR OPER RELIEF INLET ISOL VLV, on Attachment I.
 - d. Open MVG-8000C, RELIEF 445B ISOL, and measure the stroke time to the nearest 0.1 second, from switch actuation until the open light is lit and the closed light goes out.

- e. Record the stroke time for XVG08000C-RC, PRZ PWR OPER RELIEF INLET ISOL VLV, on Attachment I.
- 6.6 Perform a RETURN AS FOUND equipment lineup per Attachment II.
- 6.7 Perform a RETURN AS FOUND equipment lineup independent verification per Attachment II.

NOTE 6.8

- A. Local verification of valve position indication shall be performed on designated valves per Step 6.8 each Refuel Outage.
- B. Valve position indication verification shall be verified in both the open and closed positions regardless of the safety functions performed by the valve.

- 6.8 Perform local verification of valve position indication as follows:
 - a. Station a qualified valve operator at the valve.
 - b. When the valve is stroked, verify Main Control Board position indication matches local valve position.
 - c. Place a check mark in the RPI/LOCAL column on Attachment I.

7.0 DATA REQUIREMENTS

- 7.1 All required data will be entered on Attachments I and II.

8.0 ACCEPTANCE CRITERIA

8.1 Power Operated Valve Acceptance Criteria:

- a. A valve is considered operable in accordance with Technical Specifications 4.0.5 and 4.4.4.2 when both of the following conditions are satisfied:
 - 1) The measured stroke time is less than or equal to the maximum limiting stroke time.
 - 2) The measured stroke time is greater than or equal to the minimum limiting stroke time.
- b. A valve shall be immediately retested one time and documented in accordance with GTP-302 or declared inoperable in accordance with Technical Specifications 4.0.5, 3.4.4, and 3.4.10 as applicable, when either of the following conditions exist:
 - 1) The measured stroke time is greater than the maximum limiting stroke time and less than or equal to the maximum allowed stroke time.
 - 2) The measured stroke time is less than the minimum limiting stroke time and greater than or equal to the minimum allowed stroke time.
- c. A valve shall be declared inoperable and action taken per Technical Specifications 4.0.5, 3.4.4, and 3.4.10 as applicable, when any of the following conditions exist:
 - 1) The measured stroke time is greater than the maximum allowed stroke time.
 - 2) The measured stroke time is less than the minimum allowed stroke time.
 - 3) Valve stem or disc for power operated valves fails to exhibit the required change in position.
 - 4) The valve fails to meet the acceptance criteria of Step 8.1.a after retesting in accordance with Step 8.1.b.

- d. For local verification of valve position indication (RPI/LOCAL), Main Control Board position indication matches local valve position.

9.0 REFERENCES

- 9.1 Technical Specifications
 - 9.1.1 Section 3.4.4, RCS Relief Valves
 - 9.1.2 Section 3.4.10, RCS Structural Integrity
 - 9.1.3 Section 4.0.5, Surveillance Requirements
- 9.2 FSAR:
 - 9.2.1 Section 5.7.7, Preservice and Inservice Inspection of Class 1, 2, and 3 Components
 - 9.2.2 Section 5.5.10, Pressurizer
 - 9.2.3 Section 5.5.12, Valves
- 9.3 ASME OM Code, Code for Operation and Maintenance of Nuclear Power Plants, 1998 Edition with Addenda through 2000.
 - 9.3.1 Subsection ISTA, General Requirements
 - 9.3.2 Subsection ISTC, Inservice Testing of Valves in Light-Water Reactor Power Plants
- 9.4 Procedures:
 - 9.4.1 GTP-302, Inservice Testing of Valves Third Ten Year Interval.
 - 9.4.2 SAP-145, Containment Leakage Rate and Inservice Test Programs
 - 9.4.3 SAP-1131, Corrective Action Program
- 9.5 Drawings:
 - 9.5.1 D-302-602, Reactor Coolant System
- 9.6 1MS-94B-003, Copes-Vulcan, Inc. Instruction Manual.

10.0 REVISION SUMMARY

- 10.1 Section 1.0, Identified components, by tag number and description, that are tested by this procedure and testing performed. Provided statement regarding the controls associated with changes to the procedure and applicability to 50.59 safety evaluation.
- 10.2 Typical, when referring to a valve or recording data the valve's Champs tag number was referenced. When referring to valve positioning or switch manipulation the valve ID as identified at the control station was used. Also, this is consistent with the valve tag numbering in the IST Program. The renumbering is intended to establish consistency in the STPs since some STPs currently reflect this numbering format and others don't.
- 10.3 Step 4.3 and Note 6.8, Changed should to shall and deleted going into per IST Engineer.
- 10.4 Section 5.0, Included Note explaining Asterisk.
- 10.5 Steps 6.3.b, 6.4.b, 6.5.b, Deleted these steps to prevent preconditioning per the IST Engineer. Also added Note 6.3, 6.4, 6.5 to identify exercising of block valves may be performed out of sequence to prevent preconditioning.
- 10.6 Step 6.3, Changed valve tag numbers from MVG-8000A to XVG08000A-RC per revision step 10.2.
- 10.7 Step 6.4,, Changed valve tag numbers from MVG-8000B to XVG08000B-RC per revision step 10.2.
- 10.8 Step 6.5,, Changed valve tag numbers from MVG-8000C to XVG08000C-RC per revision step 10.2.
- 10.9 Note 6.8, Provided new Note regarding position indication verification for consistency with other test procedures.
- 10.10 Section 9.0, Organized References by subject and included SAP-145 and SAP-1131 as new procedure references. Also provided Code reference to reflect Third 10-Year Interval.
- 10.11 Enclosure 10.0, Deleted for consistency with other procedures.
- 10.12 Attachments 1, Provided hard numbers for reference stroke time, minimum/maximum limiting stroke time and changed valve tag numbers to reflect Champs and PV Plus. Also revised maximum limiting stroke times per the IST Engineer.

ROA.2

KEY

STP-127.001
ATTACHMENT I
PAGE 1 OF 1
REVISION 8
STTS # _____

VALVE DATA SHEET

COMPONENT	TEST DIRECTION	REFERENCE STROKE TIME (SEC)	MINIMUM ALLOWED STROKE TIME (SEC)	MINIMUM LIMITING STROKE TIME (SEC)	MEASURED STROKE TIME (SEC)	MAXIMUM LIMITING STROKE TIME (SEC)	MAXIMUM ALLOWED STROKE TIME (SEC)	SECTION 8.0 ACCEPTANCE CRITERIA MET		RPI/ LOCAL (1)
								YES	NO	
XVG08000A-RC	CLOSED	9.5	N/A	7.2	9.9	11.8	15.0	✓		n/a
	OPEN	9.1	N/A	6.9	8.7	11.3	15.0	✓		n/a
XVG08000B-RC	CLOSED	9.3	N/A	7.0	7.7	11.6	15.0	✓		n/a
	OPEN	9.2	N/A	6.9	7.1	11.5	15.0	✓		n/a
XVG08000C-RC	CLOSED	9.5	N/A	7.2	13.1	11.8	15.0		✓	n/a
	OPEN	9.3	N/A	7.0	13.1	11.6	15.0		✓	n/a

(1) RPI Verification shall be performed each Refueling Outage.

→ will not meet
acceptance
criteria

TEST EQUIPMENT					
TYPE	NUMBER	CALIBRATION DUE DATE	TYPE	NUMBER	CALIBRATION DUE DATE
TBO	TBO	TBO			

* All stroke times are measured on 1.5 liter

KEY

EQUIPMENT LINEUP

STP-127.001
ATTACHMENT II
PAGE 1 OF 1
REVISION 8
STTS # _____

COMPONENT	DESCRIPTION	AS FOUND	RETURN AS FOUND	INITIALS	VERIFIERS INITIALS
PCV-445A	PWR RELIEF	<i>closed</i>	<i>closed</i>	<i>R</i>	
MVG-8000A	RELIEF 445A ISOL	<i>open</i>	<i>open</i>	<i>R</i>	
PCV-444B	PWR RELIEF	<i>closed</i>	<i>closed</i>	<i>R</i>	
MVG-8000B	RELIEF 444B ISOL	<i>open</i>	<i>open</i>	<i>R</i>	
PCV-445B	PWR RELIEF	<i>closed</i>	<i>closed</i>	<i>R</i>	
MVG-8000C	RELIEF 445B ISOL	<i>open</i>	<i>open</i>	<i>R</i>	

V.C. SUMMER NUCLEAR STATION JOB PERFORMANCE MEASURE

***JPM NO: 09 NRC SRO
A2***

EVALUATION OF SURVEILLANCE TEST RESULTS

APPROVAL:

APPROVAL DATE:

REV NO: 0

CANDIDATE:

EXAMINER:

SRO ONLY

THIS JPM IS NOT APPROVED

TASK:

342-026-03-02

REVIEW RESULTS OF SURVEILLANCE TESTS

TASK STANDARD:

Correctly determine that STP 205.004 does not pass the acceptance criteria.

PREFERRED EVALUATION LOCATION

CLASSROOM

PREFERRED EVALUATION METHOD

SIMULATE

REFERENCES:

STP 205.004

RHR PUMP AND VALVE OPERABILITY TEST

TOOLS:

STP 205.004 and attached data sheets.

STTS

EVALUATION TIME

15

TIME CRITICAL

NO

10CFR55: 41b8

TIME START:

TIME FINISH:

PERFORMANCE TIME:

PERFORMANCE RATING:

SAT:

UNSAT:

EXAMINER:

SIGNATURE

DATE

INSTRUCTIONS TO OPERATOR

READ TO OPERATOR:

WHEN I TELL YOU TO BEGIN, YOU ARE TO PERFORM THE ACTIONS AS DIRECTED IN THE INITIATING CUES. I WILL DESCRIBE THE GENERAL CONDITIONS UNDER WHICH THIS TASK IS TO BE PERFORMED AND PROVIDE THE NECESSARY TOOLS WITH WHICH TO PERFORM THIS TASK. BEFORE STARTING, I WILL EXPLAIN THE INITIAL CONDITIONS, WHICH STEPS TO SIMULATE OR DISCUSS, AND PROVIDE INITIATING CUES. WHEN YOU COMPLETE THE TASK SUCCESSFULLY, THE OBJECTIVE FOR THIS JOB PERFORMANCE MEASURE WILL BE SATISFIED.

SAFETY CONSIDERATIONS: None

INITIAL CONDITION: TS required surveillance has been completed on "A" RHR pump.

INITIATING CUES: You are the Control Room Supervisor and STP 205.004, RHR PUMP AND VALVE OPERABILITY TEST, has been completed and given to you for review. Determine if STP 205.004 meets the acceptance criteria..

HAND JPM BRIEFING SHEET TO OPERATOR AT THIS TIME!

JPM BRIEFING SHEET

OPERATOR INSTRUCTIONS:

SAFETY CONSIDERATIONS: None

INITIAL CONDITION: TS required surveillance has been completed on "A" RHR pump.

INITIATING CUES: You are the Control Room Supervisor and STP 205.004, RHR PUMP AND VALVE OPERABILITY TEST, has been completed and given to you for review. Determine if STP 205.004 meets the acceptance criteria..

**HAND THIS PAPER BACK TO YOUR
EVALUATOR WHEN YOU FEEL THAT YOU
HAVE SATISFACTORILY COMPLETED THE
ASSIGNED TASK.**

STEPS

STEP: 1

CUES:

CR SEQ

Yes Yes Review STP-205.004 Test Data.

STEP STANDARD:

Determine that the Test Data does not meet the acceptance criteria of STP-205.004.

Stroke time for FCV00602A-RH 8809B exceeds maximum limiting stroke time, which requires the valve to be immediately retested one time and documented in accordance with GTP-302 Attachment I, Evaluation/Corrective Action For Power Operated Valves, or declared inoperable.

A math error is introduced into the reading for RHR Pump A. The Recorded Value is 129 which IS within the acceptance criteria. However, mathematically the actual value based on discharge and inlet pressure should be 127 which falls outside the acceptable range. With pump DP outside the acceptable range. The pump should be declared inoperable in accordance with the acceptance criteria.

RHR Pump A vibration data point XPP0031A 2H (MOH) 90 degress is recorded and the value is in the ALERT Range for that vibration point. In accordance with the acceptance criteria: The frequency of testing specified shall be doubled until the cause of the deviation is determined and the conditon corrected.

COMMENTS:

SAT

UNSAT

Examiner ends JPM at this point.

JPM SETUP SHEET

JPM NO: 09 NRC SRO A

DESCRIPTION: EVALUATION OF SURVEILLANCE TEST RESULTS

IC SET:

INSTRUCTIONS:

COMMENTS:

- B. The MEASURED STROKE TIME is less than the MINIMUM ALLOWED STROKE TIME.
- C. Valve stem or disc for power operated valves fails to exhibit the required change in position.
- D. The valve fails to meet the acceptance criteria of Step 8.2.1 after retesting in accordance with Step 8.2.2.

8.2.4 For local verification of valve position indication (RPI/LOCAL), Main Control Board position indication matches local valve position.

8.3 Check Valve Acceptance Criteria

8.3.1 XVC08958A(B)-SI shall be considered operable in the closed direction in accordance with Technical Specification 4.0.5 by exhibiting a minimum differential pressure of seven (7) psid or a VCT level decrease of less than or equal to three percent (3%) over a ten minute interval.

- A. If either the pressure differential requirement or VCT level requirement is not met, a Test Deficiency should be written and the cause should be investigated and corrected on a priority basis. The check valve is still considered operable.
- B. If both criteria, pressure differential and VCT level, cannot be met, the valve shall be declared inoperable in accordance with Technical Specification 4.0.5, 3.4.1.4.1, and 3.4.1.4.2 as applicable.

8.3.2 XVC08716A(B)-RH shall be considered operable in the closed position in accordance with Technical Specification 4.0.5 by exhibiting a differential pressure of greater than or equal to 90 psid.

- A. If the required differential pressure is not obtained, the valve shall be declared inoperable in accordance with Technical Specifications 4.0.5, 3.4.1.3, 3.4.1.4.1, 3.4.1.4.2, 3.5.2, 3.5.3, 3.9.7.1 and 3.9.7.2 as required.
- B. An evaluation shall be performed to determine the effects of the deficiency.

8.1.3 If deviations exceed the REQUIRED ACTION RANGE, take the following actions:

- A. The pump shall be declared inoperable and action taken per Technical Specifications 4.0.5, 3.4.1.3, 3.4.1.4.1, 3.4.1.4.2, 3.5.2, 3.5.3, 3.9.7.1, and 3.9.7.2 as applicable.
- B. The pump will not be returned to service until the condition has been corrected and a satisfactory Inservice Test has been conducted.
- C. The instruments involved may be recalibrated and the test rerun.
- D. Attachment II of GTP-301, Inservice Testing of Pumps Third Ten Year Interval, will be completed and attached to the Re-test STTS.
- E. Write a CER.

8.2 Power Operated Valve Acceptance Criteria

8.2.1 The valve is considered operable in accordance with Technical Specification 4.0.5 when both of the following conditions are satisfied:

- A. The MEASURED STROKE TIME is less than or equal to the MAXIMUM LIMITING STROKE TIME.
- B. The MEASURED STROKE TIME is greater than or equal to the MINIMUM LIMITING STROKE TIME.

8.2.2 A valve shall be immediately retested one time and documented in accordance with GTP-302 Attachment I, Evaluation/Corrective Action For Power Operated Valves, or declared inoperable in accordance with Technical Specifications 4.0.5, 3.4.1.3, 3.4.1.4.1, 3.4.1.4.2, 3.5.2, 3.5.3, 3.9.7.1, and 3.9.7.2 as applicable, when either of the following conditions exist:

- A. The MEASURED STROKE TIME is greater than the MAXIMUM LIMITING STROKE TIME and less than or equal to the MAXIMUM ALLOWED STROKE TIME.
- B. The MEASURED STROKE TIME is less than the MINIMUM LIMITING STROKE TIME and greater than or equal to the MINIMUM ALLOWED STROKE TIME.

8.2.3 A valve shall be declared inoperable and action taken per Technical Specifications 4.0.5, 3.4.1.3, 3.4.1.4.1, 3.4.1.4.2, 3.5.2, 3.5.3, 3.9.7.1, and 3.9.7.2 as applicable when any of the following conditions exist:

- A. The MEASURED STROKE TIME is greater than the MAXIMUM ALLOWED STROKE TIME.

NOTE 6.3

Valve position indication verification shall be verified in both the open and closed positions regardless of the safety functions performed by the valve.

- 6.3 Perform local verification of valve position indication of designated valves as follows:
- 6.3.1 Station a qualified valve operator at the valve.
 - 6.3.2 When the valve is stroked, verify Main Control Board position indication reflects accurate local valve position.
 - * 6.3.3 Place a checkmark in the RPI/LOCAL column on Attachment IIIA or IIIB as applicable.

7.0 DATA REQUIREMENTS

- 7.1 All required data will be entered on all Attachments.

*8.0 ACCEPTANCE CRITERIA

- 8.1 Pump Acceptance Criteria
- 8.1.1 If Test Quantities fall in the ACCEPTABLE RANGE, the pump is considered operable in accordance with Technical Specification 4.0.5, 4.5.2.f and 4.5.3.1.
 - 8.1.2 If Test Quantities fall within the ALERT RANGE, the following corrective actions will be taken:
 - A. The frequency of testing specified shall be doubled until the cause of the deviation is determined and the condition corrected. The pump is still considered operable.
 - B. The instruments involved may be recalibrated and the test rerun.
 - C. Attachment II of GTP-301, Inservice Testing of Pumps Third Ten Year Interval, will be completed and attached to the Re-test STTS.
 - D. Write a CER.

8.1.3 If deviations exceed the REQUIRED ACTION RANGE, take the following actions:

- A. The pump shall be declared inoperable and action taken per Technical Specifications 4.0.5, 3.4.1.3, 3.4.1.4.1, 3.4.1.4.2, 3.5.2, 3.5.3, 3.9.7.1, and 3.9.7.2 as applicable.
- B. The pump will not be returned to service until the condition has been corrected and a satisfactory Inservice Test has been conducted.
- C. The instruments involved may be recalibrated and the test rerun.
- D. Attachment II of GTP-301, Inservice Testing of Pumps Third Ten Year Interval, will be completed and attached to the Re-test STTS.
- E. Write a CER.

8.2 Power Operated Valve Acceptance Criteria

8.2.1 The valve is considered operable in accordance with Technical Specification 4.0.5 when both of the following conditions are satisfied:

- A. The MEASURED STROKE TIME is less than or equal to the MAXIMUM LIMITING STROKE TIME.
- B. The MEASURED STROKE TIME is greater than or equal to the MINIMUM LIMITING STROKE TIME.

8.2.2 A valve shall be immediately retested one time and documented in accordance with GTP-302 Attachment I, Evaluation/Corrective Action For Power Operated Valves, or declared inoperable in accordance with Technical Specifications 4.0.5, 3.4.1.3, 3.4.1.4.1, 3.4.1.4.2, 3.5.2, 3.5.3, 3.9.7.1, and 3.9.7.2 as applicable, when either of the following conditions exist:

- A. The MEASURED STROKE TIME is greater than the MAXIMUM LIMITING STROKE TIME and less than or equal to the MAXIMUM ALLOWED STROKE TIME.
- B. The MEASURED STROKE TIME is less than the MINIMUM LIMITING STROKE TIME and greater than or equal to the MINIMUM ALLOWED STROKE TIME.

8.2.3 A valve shall be declared inoperable and action taken per Technical Specifications 4.0.5, 3.4.1.3, 3.4.1.4.1, 3.4.1.4.2, 3.5.2, 3.5.3, 3.9.7.1, and 3.9.7.2 as applicable when any of the following conditions exist:

- A. The MEASURED STROKE TIME is greater than the MAXIMUM ALLOWED STROKE TIME.

NOTE 6.3

Valve position indication verification shall be verified in both the open and closed positions regardless of the safety functions performed by the valve.

- 6.3 Perform local verification of valve position indication of designated valves as follows:
- 6.3.1 Station a qualified valve operator at the valve.
 - 6.3.2 When the valve is stroked, verify Main Control Board position indication reflects accurate local valve position.
 - * 6.3.3 Place a checkmark in the RPI/LOCAL column on Attachment IIIA or IIIB as applicable.

7.0 DATA REQUIREMENTS

- 7.1 All required data will be entered on all Attachments.

*8.0 ACCEPTANCE CRITERIA

8.1 Pump Acceptance Criteria

- 8.1.1 If Test Quantities fall in the ACCEPTABLE RANGE, the pump is considered operable in accordance with Technical Specification 4.0.5, 4.5.2.f and 4.5.3.1.

- 8.1.2 If Test Quantities fall within the ALERT RANGE, the following corrective actions will be taken:

- A. The frequency of testing specified shall be doubled until the cause of the deviation is determined and the condition corrected. The pump is still considered operable.
- B. The instruments involved may be recalibrated and the test rerun.
- C. Attachment II of GTP-301, Inservice Testing of Pumps Third Ten Year Interval, will be completed and attached to the Re-test STTS.
- D. Write a CER.

VC Summer Nuclear Station	WORK ORDER STEP	WO Step: 0813375-00
Type: STTSR3	Status: Ready to Approve	Page 1 of 1

Equipment Information

EQ ID: XPP0031A	EQ Name: RESIDUAL HEAT REMOVAL PUMP A			
Safety Class: c2	Mech: SR	Elect: NA	Seismic: S1	Environ: *
Location: AB-374-J-08 AB374-17	Room: AB374-17		System: RH	Train: A
EQ Description: PUMP & RETROFIT KIT (NEW PUMP SEAL & BEARING & COUPLING) ORIGINAL PO 546-1893, ORIGINAL SPEC: 677125, NEW SPEC: 411A33				

Detailed Work Information

Procedure: STP0205.004-XPP0031A	Planned by:
Instructions: RHR A PUMP & VALVE OPERABILITY TEST	

Impact Section

EOOS	This activity impacts EOOS risk.
Pre-Job Brief	This activity requires a Pre-Job Brief.
Reactivity Management	This activity impacts Reactivity Management
S/RWP	-0001
Technical Specifications	This activity impacts Technical Specifications.

Maintenance Rule Section

Maintenance Rule	MRT - WORK NORMAL WORK HOURS
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Lockout-Tagout Section

LOTO Required: No	Tagout ID:	Tagout Name:
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Scheduling Section

Priority: 3- Schedule at next available system week within 12 week	FEG: 176AOAZM	Freq: EVERY 84 DAYS
Schedule Start Date: 12/18/2008	Due Date: 12/15/2008	End Date: 01/05/2009
Classification: Repetitive Tasks - High Value - Tech Spec, Category 1 or 2 PM's		
Outage Required:		

Trades Section

Trade Name	Crew	Min Workers	Duration
TEST UNIT	OT	2	3.00

Completion Section

Completed By: RAG	Date: 01/03/09	Actual Hours: 3.00
Completion Remarks: SRC A2 HEN		

VC Summer Nuclear Station	WORK ORDER STEP	WO Step: 0813375-00
Type: STTSR3	Status: Ready to Approve	Page 2 of 2

Approval Route Slip	Comment	Reference	Date
DAVID STONE			11/03/08

Test Participant Section

Badge ID	Involvement	Date

Test Deficiency Section

Test Deficiency Description:

Action Taken:



Responsible Supervisor/Date:	Shift Supervisor/Date:	
Test Failure: Yes/No	Test Spec Failure: Yes/No	
R&R #:	CR #:	W.O. #:

Post Test Reviews

Test Performer	S/U	<i>[Signature]</i>	1010309
S/S	S/U		/
Responsible Sup	S/U		/
	S/U		/
	S/U		/
	S/U		/
Completed By:	History Date:	Time:	

SKC A2

KEY

	WO Step: 0813375-001	
Page 2 of 2	12/1/2008 11:18	001

500 A2
KEY

STP-205.004
ATTACHMENT IA
PAGE 1 OF 1
REVISION 6
STTS# 0913375-001
CHANGE D

TRAIN A FIELD STANDARD INSTALLATION AND REMOVAL

XPP0031A, RESIDUAL HEAT REMOVAL PUMP A

INSTALLATION LOCATION	REQUIRED RANGE	REFERENCE OR EXPECTED READING	FS NUMBER	CAL DUE DATE	AS FOUND	REQUIRED POSITION	POSITIONERS INITIALS	VERIFIERS INITIALS
IPT00600A-TC-RH Pd AB-374-J-08	0 - 300 PSIG (1)	190	5231	011809	closed capped	CLOSED/ CAPPED	R	Z
IPI00601A-TC-RH Pi AB-374-J-08	0 - 100 PSIG (1)	58	5234	021909	closed capped	CLOSED/ CAPPED	R	Z
IPT00600B-TC-RH Pd (RHR PUMP B) AB-374-K-08	0 - 300 PSIG (1)	190	5387	031209	closed capped	CLOSED/ CAPPED	R	Z

NOTE 1: If gage ranges are not available, a gage whose full scale range is not greater than 3 times the reference reading may be substituted.

TEST EQUIPMENT

FS NUMBER	DESCRIPTION	CAL DUE DATE
5079	VIBRATION MONITOR	022209
4940	VIBRATION PROBE	031409

ACCEPTABLE INSTRUMENT ACCURACY

QUANTITY	PERCENT
PRESSURE	± 0.5
FLOW RATE	± 2
SPEED	± 2
VIBRATION	± 5
DIFFERENTIAL PRESSURE	± 0.5

SR0 A2
HEV

STP-205.004
ATTACHMENT IIA
PAGE 1 OF 3
REVISION 6
STTS# 0813 375-001
CHANGE D

TRAIN A COMPONENT LINEUP
(MCB)

	COMPONENT NUMBER	COMPONENT DESCRIPTION	AS FOUND	TEST POSITION	POSITIONERS INITIALS	REQUIRED POSITION	POSITIONERS INITIALS	VERIFIERS INITIALS
	MVG-8701A	RCS LP A TO PUMP A	<i>closed/off</i>	N/A		CLOSED/OFF	<i>R</i>	<i>20</i>
	MVG-8702A	RCS LP A TO PUMP A	<i>closed/off</i>	N/A		CLOSED/OFF	<i>R</i>	<i>20</i>
	MVG-8812A	RHR SUMP A TO RHR PP A	<i>closed</i>	CLOSED	<i>R</i>	CLOSED	<i>R</i>	<i>20</i>
	MVG-8809A	RWST TO RHR PP A	<i>open</i>	N/A		OPEN	<i>R</i>	<i>20</i>
	MVB-9503A	CC TO RHR HX A	<i>open</i>	N/A		OPEN	<i>R</i>	<i>20</i>
C01 →	MVG-8888A	RHR LP A TO COLD LEGS	<i>open</i>	N/A		OPEN	<i>R</i>	<i>20</i>
C02 →	MVG-8887A	RHR LP A TO HOT LEGS	<i>open</i>	N/A		OPEN	<i>R</i>	<i>20</i>
C02 →	HCV-603A	A OUTLET	<i>open</i>	N/A		OPEN	<i>R</i>	<i>20</i>
	FCV-605A	A BYP	<i>closed</i>	N/A		CLOSED	<i>R</i>	<i>20</i>
	MVG-8706A	RHR LP A TO CHG PP	<i>closed</i>	CLOSED	<i>R</i>	CLOSED	<i>R</i>	<i>20</i>
C02 →	MVG-8887B	RHR LP B TO HOT LEGS	<i>open</i>	N/A		OPEN	<i>R</i>	<i>20</i>
C02 →	MVG-8889	RHR LP A & B TO HOT LEGS	<i>closed</i>	CLOSED	<i>R</i>	CLOSED	<i>R</i>	<i>20</i>
	MVG-602A	PUMP A MINI FLOW	<i>Auto/open</i>	OPEN	<i>R</i>	AUTO/OPEN	<i>R</i>	<i>20</i>
	SWITCH	TRAIN A PWR LCKOUT	<i>off</i>	OFF	<i>R</i>	OFF	<i>R</i>	<i>20</i>
	SWITCH	RX COOL SYS MU MODE SELECT	<i>Auto</i>	N/A		AUTO	<i>R</i>	<i>20</i>

SRG A2
KEY

STP-205.004
ATTACHMENT IIA
PAGE 2 OF 3
REVISION 6
STTS#0813375-001
CHANGE D

TRAIN A COMPONENT LINEUP
(MCB)

COMPONENT NUMBER	COMPONENT DESCRIPTION	AS FOUND	TEST POSITION	POSITIONERS INITIALS	REQUIRED POSITION	POSITIONERS INITIALS	VERIFIERS INITIALS
MVB-9503B	CC TO RHR HX B	<i>closed</i>	N/A		CLOSED	<i>R</i>	<i>Bo</i>
FCV-605B	B BYP	<i>closed</i>	N/A		CLOSED	<i>R</i>	<i>Bo</i>
SWITCH	XPP-0031A PUMP A	<i>After stop</i>	N/A		AFTER STOP	<i>R</i>	<i>Bo</i>
SWITCH	XPP-0031B PUMP B	<i>After stop</i>	N/A		AFTER STOP	<i>R</i>	<i>Bo</i>

Step 5.9.1 The required Initial Conditions for this test have been satisfied.

RG 1010309
Initials Date

Step 5.9.2 The Precautions listed in Section 2.0 have been reviewed with the necessary personnel involved in the performance of this test.

RG 1010309
Initials Date

5/10 A2
KEY

STP-205.004
ATTACHMENT IIA
PAGE 3 OF 3
REVISION 6
STTS# 0813375-001
CHANGE D

TRAIN A COMPONENT LINEUP

COMPONENT NUMBER	COMPONENT DESCRIPTION	AS FOUND	TEST POSITION	POSITIONERS INITIALS	REQUIRED POSITION	POSITIONERS INITIALS	VERIFIERS INITIALS
XMC1DA2Y 18AD AB-412-L-08	RHR PP A MINIFLOW FCV0602A XVT0602A-RH	<i>closed</i>	OPEN	<i>R</i>	CLOSED	<i>R</i>	<i>Bo</i>
XVT08725A-RH AB-374-J-08	RH PUMP A DISCHARGE SAMPLE ISOL VALVE	<i>closed</i>	N/A		CLOSED (LVP)	<i>28882</i>	<i>Bo</i>
XVA18700-RH AB-374-J-08	RH PUMP A DISCHARGE SAMPLE VALVE	<i>closed</i>	N/A		CLOSED	<i>R</i>	<i>Bo</i>
XVT08725B-RH AB-374-K-08	RH PUMP B DISCHARGE SAMPLE ISOL VALVE	<i>closed</i>	N/A		CLOSED (LVP)	<i>28882</i>	<i>Bo</i>
XVA18701-RH AB-374-K-08	RH PUMP B DISCHARGE SAMPLE VALVE	<i>closed</i>	N/A		CLOSED	<i>R</i>	<i>Bo</i>

Justification for Discrepancies:

N/A 010309

1
Shift Supervisor Date

TRAIN A VALVE DATA SHEET

COMPONENT	TEST DIRECTION	REFERENCE STROKE TIME (SEC)	MINIMUM ALLOWED STROKE TIME (SEC)	MINIMUM LIMITING STROKE TIME (SEC)	MEASURED STROKE TIME (SEC)	MAXIMUM LIMITING STROKE TIME (SEC)	MAXIMUM ALLOWED STROKE TIME (SEC)	ACCEPTANCE SEC 8.0 MET		RPI / LOCAL (1)
								YES	NO	
XVG08706A-RH	OPEN	8.6	N/A	6.5	9.0	10.7	15.0	✓		N/A
FCV00602A-RH	OPEN	5.2	N/A	3.9	8.5	6.5	10.0	✓		N/A
	CLOSED	5.2	N/A	3.9	5.4	6.5	10.0	✓		N/A
XVG08809A-SI	CLOSED	13.7	N/A	11.7	13.8	15.7	20.0	✓		N/A

NOTE 1: Perform RPI Verification going into each Refuel Outage.

COMPONENT	TRAVEL VERIFICATION (CLOSED)	DIFFERENTIAL PRESSURE (DOWNSTREAM - UPSTREAM = dP)			ACCEPTANCE CRITERIA		
		DOWNSTREAM	UPSTREAM	dP	ACCEPTABLE	SECT 8.0 MET	
					dP	YES	NO
XVC08716A-RH	PRESSURE	178.36	44.38	133.98	≥90	✓	

IPT00600A Cal. Due Date 03 04 09

IPT00600B Cal. Due Date 05 23 09

SR0 A2
KEY

STP-205.004
ATTACHMENT IVA
PAGE 1 OF 1
REVISION 6
STTS# 0813375-001

TRAIN A VALVE DATA SHEET FOR XVC08958A-SI CLOSURE

RHR PP A static inlet pressure - Elevation Correction = DOWNSTREAM PRESSURE for XVC08958A-SI

66.94 psig - 10 psig = 56.94 psig DOWNSTREAM PRESSURE for XVC08958A-SI

VCT LEVEL CHANGE

	TIME	VCT LEVEL%	PLANT INSTRUMENTATION	
			ID NUMBER	CAL DUE
START	0150	47	ILT00115	042509
STOP	0200	47		

VCT LEVEL Delta% = VCT START LEVEL - VCT STOP LEVEL = 0 Delta%

COMPONENT NUMBER	DOWNSTREAM PRESSURE (PSIG)	UPSTREAM PRESSURE (PSIG) (1)	DIFFERENTIAL PRESSURE (PSID)	ACCEPTANCE CRITERIA		
				ACCEPTABLE	SECT 8.0 MET	
					YES	NO
XVC08958A-SI	56.94	28.5	28.44	dP ≥ 7 Delta % ≤ 3%	✓	

NOTE 1: Pressure is calculated with the RWST level at 100% which is the most limiting condition.

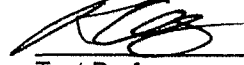
XPP0031A, Residual Heat Removal Pump
Group A Test Data Sheet

TEST QUANTITY	DATA		RANGES OF IST QUANTITIES				INSTALLED PLANT INSTRUMENT	
	MEASURED	REFERENCE	ACCEPTABLE	ALERT RANGE	REQUIRED ACTION RANGE		ID NUMBER	CAL DUE DATE
					LOW	HIGH		
Q - FLOW (GPM)	1020	1010-1030					IFI00602A	05/009
Pd - PUMP DISCHARGE PRESSURE (PSIG)	175	175.0						
Pi - PUMP INLET PRESSURE (PSIG)	48	42.0						
dP - DIFFERENTIAL PRESSURE (PSID)	129	133.0	128.0 - ≤ 146.3		<128	>146.3		
VIBRATION (IN/SEC)								
XPP0031A 1V (MOV) (0 degrees)	.095	0.090	≤ 0.216	> 0.216 to ≤ 0.518		> 0.518		
XPP0031A 2H (MOH) (90 degrees)	.379	0.108	≤ 0.259	> 0.259 to ≤ 0.622		> 0.622		
XPP0031A 3A (MOA)	.066	0.046	≤ 0.110	> 0.110 to ≤ 0.264		> 0.264		
XPP0031A 7V (PIV)	.042	0.038	≤ 0.091	> 0.091 to ≤ 0.218		> 0.218		
XPP0031A 8H (PIH)	.048	0.045	≤ 0.108	> 0.108 to ≤ 0.259		> 0.259		
XPP0031A 9A (PIA)	.037	0.055	≤ 0.132	> 0.132 to ≤ 0.316		> 0.316		

Chg
A

Chg
C

All Section 8.0 Acceptance Criteria for this test has been satisfactorily met.

 10/03/09
Test Performer Date

NOTE 6.3

Valve position indication verification shall be verified in both the open and closed positions regardless of the safety functions performed by the valve.

- 6.3 Perform local verification of valve position indication of designated valves as follows:
- 6.3.1 Station a qualified valve operator at the valve.
 - 6.3.2 When the valve is stroked, verify Main Control Board position indication reflects accurate local valve position.
 - * 6.3.3 Place a checkmark in the RPI/LOCAL column on Attachment IIIA or IIIB as applicable.

7.0 DATA REQUIREMENTS

- 7.1 All required data will be entered on all Attachments.

*8.0 ACCEPTANCE CRITERIA

8.1 Pump Acceptance Criteria

- 8.1.1 If Test Quantities fall in the ACCEPTABLE RANGE, the pump is considered operable in accordance with Technical Specification 4.0.5, 4.5.2.f and 4.5.3.1.
- 8.1.2 If Test Quantities fall within the ALERT RANGE, the following corrective actions will be taken:
 - A. The frequency of testing specified shall be doubled until the cause of the deviation is determined and the condition corrected. The pump is still considered operable.
 - B. The instruments involved may be recalibrated and the test rerun.
 - C. Attachment II of GTP-301, Inservice Testing of Pumps Third Ten Year Interval, will be completed and attached to the Re-test STTS.
 - D. Write a CER.

8.1.3 If deviations exceed the REQUIRED ACTION RANGE, take the following actions:

- A. The pump shall be declared inoperable and action taken per Technical Specifications 4.0.5, 3.4.1.3, 3.4.1.4.1, 3.4.1.4.2, 3.5.2, 3.5.3, 3.9.7.1, and 3.9.7.2 as applicable.
- B. The pump will not be returned to service until the condition has been corrected and a satisfactory Inservice Test has been conducted.
- C. The instruments involved may be recalibrated and the test rerun.
- D. Attachment II of GTP-301, Inservice Testing of Pumps Third Ten Year Interval, will be completed and attached to the Re-test STTS.
- E. Write a CER.

8.2 Power Operated Valve Acceptance Criteria

8.2.1 The valve is considered operable in accordance with Technical Specification 4.0.5 when both of the following conditions are satisfied:

- A. The MEASURED STROKE TIME is less than or equal to the MAXIMUM LIMITING STROKE TIME.
- B. The MEASURED STROKE TIME is greater than or equal to the MINIMUM LIMITING STROKE TIME.

8.2.2 A valve shall be immediately retested one time and documented in accordance with GTP-302 Attachment I, Evaluation/Corrective Action For Power Operated Valves, or declared inoperable in accordance with Technical Specifications 4.0.5, 3.4.1.3, 3.4.1.4.1, 3.4.1.4.2, 3.5.2, 3.5.3, 3.9.7.1, and 3.9.7.2 as applicable, when either of the following conditions exist:

- A. The MEASURED STROKE TIME is greater than the MAXIMUM LIMITING STROKE TIME and less than or equal to the MAXIMUM ALLOWED STROKE TIME.
- B. The MEASURED STROKE TIME is less than the MINIMUM LIMITING STROKE TIME and greater than or equal to the MINIMUM ALLOWED STROKE TIME.

8.2.3 A valve shall be declared inoperable and action taken per Technical Specifications 4.0.5, 3.4.1.3, 3.4.1.4.1, 3.4.1.4.2, 3.5.2, 3.5.3, 3.9.7.1, and 3.9.7.2 as applicable when any of the following conditions exist:

- A. The MEASURED STROKE TIME is greater than the MAXIMUM ALLOWED STROKE TIME.

- B. The MEASURED STROKE TIME is less than the MINIMUM ALLOWED STROKE TIME.
 - C. Valve stem or disc for power operated valves fails to exhibit the required change in position.
 - D. The valve fails to meet the acceptance criteria of Step 8.2.1 after retesting in accordance with Step 8.2.2.
- 8.2.4 For local verification of valve position indication (RPI/LOCAL), Main Control Board position indication matches local valve position.
- 8.3 Check Valve Acceptance Criteria
- 8.3.1 XVC08958A(B)-SI shall be considered operable in the closed direction in accordance with Technical Specification 4.0.5 by exhibiting a minimum differential pressure of seven (7) psid or a VCT level decrease of less than or equal to three percent (3%) over a ten minute interval.
- A. If either the pressure differential requirement or VCT level requirement is not met, a Test Deficiency should be written and the cause should be investigated and corrected on a priority basis. The check valve is still considered operable.
 - B. If both criteria, pressure differential and VCT level, cannot be met, the valve shall be declared inoperable in accordance with Technical Specification 4.0.5, 3.4.1.4.1, and 3.4.1.4.2 as applicable.
- 8.3.2 XVC08716A(B)-RH shall be considered operable in the closed position in accordance with Technical Specification 4.0.5 by exhibiting a differential pressure of greater than or equal to 90 psid.
- A. If the required differential pressure is not obtained, the valve shall be declared inoperable in accordance with Technical Specifications 4.0.5, 3.4.1.3, 3.4.1.4.1, 3.4.1.4.2, 3.5.2, 3.5.3, 3.9.7.1 and 3.9.7.2 as required.
 - B. An evaluation shall be performed to determine the effects of the deficiency.

VC Summer Nuclear Station	WORK ORDER STEP	WO Step: 0813375-00
Type: STTSR3	Status: Ready to Approve	Page 1 of 2

Equipment Information

EQ ID: XPP0031A	EQ Name: RESIDUAL HEAT REMOVAL PUMP A			
Safety Class: c2	Mech: SR	Elect: NA	Seismic: s1	Environ: *
Location: AB-374-J-08 AB374-17	Room: AB374-17		System: RH	Train: A
EQ Description: PUMP & RETROFIT KIT (NEW PUMP SEAL & BEARING & COUPLING) ORIGINAL PO 546-1893, ORIGINAL SPEC: 677125, NEW SPEC: 411A33				

Detailed Work Information

Procedure: STP0205.004-XPP0031A	Planned by:
Instructions: RHR A PUMP & VALVE OPERABILITY TEST	

Impact Section

EOOS	EOOS	This activity impacts EOOS risk.
PJB	Pre-Job Brief	This activity requires a Pre-Job Brief.
RM	Reactivity Management	This activity impacts Reactivity Management
S/RWP	S/RWP	-0001
T/S	Technical Specifications	This activity impacts Technical Specifications.

Maintenance Rule Section

MRT	Maintenance Rule	MRT - WORK NORMAL WORK HOURS
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Lockout-Tagout Section

LOTO Required: No	Tagout ID:	Tagout Name:
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Scheduling Section



Priority: 3- Schedule at next available system week within 12 week	FEG: 176AOAZM	Freq: EVERY 84 DAYS
Schedule Start Date: 12/18/2008	Due Date: 12/15/2008	End Date: 01/05/2009
Classification: Repetitive Tasks - High Value - Tech Spec, Category 1 or 2 PM's		
Outage Required:		

Trades Section

Trade Name	Crew	Min Workers	Duration
TEST UNIT	OT	2	3.00

Completion Section

Completed By: <i>RA</i>	Date: 01/03/09	Actual Hours: 3.00
Completion Remarks:		

	WO Step: 0813375-001	
Page 1 of 2	12/1/2008 11:18	

VC Summer Nuclear Station	WORK ORDER STEP	WO Step: 0813375-00
Type: STTSR3	Status: Ready to Approve	Page 2 of :

Approval Route Slip	Comment	Reference	Date
DAVID STONE			11/03/08

Test Participant Section

Badge ID	Involvement	Date

Test Deficiency Section

Test Deficiency Description:		
Action Taken:		
Responsible Supervisor/Date:		Shift Supervisor/Date:
Test Failure: Yes/No	Test Spec Failure: Yes/No	
R&R #:	CR #:	W.O. #:

Post Test Reviews

Test Performer	(S/U) <i>[Signature]</i>	1010309
S/S	S/U	/
Responsible Sup	S/U	/
	S/U	/
	S/U	/
	S/U	/
Completed By: _____ History Date: _____ Time: _____		

STP-205.004
 ATTACHMENT IA
 PAGE 1 OF 1
 REVISION 6
 STTS# 0813375-001
 CHANGE D

TRAIN A FIELD STANDARD INSTALLATION AND REMOVAL

XPP0031A, RESIDUAL HEAT REMOVAL PUMP A

INSTALLATION LOCATION	REQUIRED RANGE	REFERENCE OR EXPECTED READING	FS NUMBER	CAL DUE DATE	AS FOUND	REQUIRED POSITION	POSITIONERS INITIALS	VERIFIERS INITIALS
IPT00600A-TC-RH Pd AB-374-J-08	0 - 300 PSIG (1)	190	5231	011809	closed capped	CLOSED/ CAPPED	R	Jo
IPI00601A-TC-RH Pi AB-374-J-08	0 - 100 PSIG (1)	58	5234	021909	closed capped	CLOSED/ CAPPED	R	Jo
IPT00600B-TC-RH Pd (RHR PUMP B) AB-374-K-08	0 - 300 PSIG (1)	190	5387	031209	closed capped	CLOSED/ CAPPED	R	Jo

NOTE 1: If gage ranges are not available, a gage whose full scale range is not greater than 3 times the reference reading may be substituted.

TEST EQUIPMENT

FS NUMBER	DESCRIPTION	CAL DUE DATE
5079	VIBRATION MONITOR	022209
4940	VIBRATION PROBE	031409

ACCEPTABLE INSTRUMENT ACCURACY

QUANTITY	PERCENT
PRESSURE	± 0.5
FLOW RATE	± 2
SPEED	± 2
VIBRATION	± 5
DIFFERENTIAL PRESSURE	± 0.5

TRAIN A COMPONENT LINEUP
(MCB)

	COMPONENT NUMBER	COMPONENT DESCRIPTION	AS FOUND	TEST POSITION	POSITIONERS INITIALS	REQUIRED POSITION	POSITIONERS INITIALS	VERIFIERS INITIALS
	MVG-8701A	RCS LP A TO PUMP A	<i>closed/off</i>	N/A		CLOSED/OFF	<i>R</i>	<i>2</i>
	MVG-8702A	RCS LP A TO PUMP A	<i>closed/off</i>	N/A		CLOSED/OFF	<i>R</i>	<i>2</i>
	MVG-8812A	RHR SUMP A TO RHR PP A	<i>closed</i>	CLOSED	<i>R</i>	CLOSED	<i>R</i>	<i>2</i>
	MVG-8809A	RWST TO RHR PP A	<i>open</i>	N/A		OPEN	<i>R</i>	<i>2</i>
	MVB-9503A	CC TO RHR HX A	<i>open</i>	N/A		OPEN	<i>R</i>	<i>2</i>
C01 →	MVG-8888A	RHR LP A TO COLD LEGS	<i>open</i>	N/A		OPEN	<i>R</i>	<i>2</i>
C02 →	MVG-8887A	RHR LP A TO HOT LEGS	<i>open</i>	N/A		OPEN	<i>R</i>	<i>2</i>
C02 →	HCV-603A	A OUTLET	<i>open</i>	N/A		OPEN	<i>R</i>	<i>2</i>
	FCV-605A	A BYP	<i>closed</i>	N/A		CLOSED	<i>R</i>	<i>2</i>
	MVG-8706A	RHR LP A TO CHG PP	<i>closed</i>	CLOSED	<i>R</i>	CLOSED	<i>R</i>	<i>2</i>
C02 →	MVG-8887B	RHR LP B TO HOT LEGS	<i>open</i>	N/A		OPEN	<i>R</i>	<i>2</i>
C02 →	MVG-8889	RHR LP A & B TO HOT LEGS	<i>closed</i>	CLOSED	<i>R</i>	CLOSED	<i>R</i>	<i>2</i>
	MVG-602A	PUMP A MINI FLOW	<i>Auto/open</i>	OPEN	<i>R</i>	AUTO/OPEN	<i>R</i>	<i>2</i>
	SWITCH	TRAIN A PWR LCKOUT	<i>off</i>	OFF	<i>R</i>	OFF	<i>R</i>	<i>2</i>
	SWITCH	RX COOL SYS MU MODE SELECT	<i>Auto</i>	N/A		AUTO	<i>R</i>	<i>2</i>

TRAIN A COMPONENT LINEUP
 (MCB)

COMPONENT NUMBER	COMPONENT DESCRIPTION	AS FOUND	TEST POSITION	POSITIONERS INITIALS	REQUIRED POSITION	POSITIONERS INITIALS	VERIFIERS INITIALS
MVB-9503B	CC TO RHR HX B	<i>closed</i>	N/A		CLOSED	<i>R</i>	<i>Bo</i>
FCV-605B	B BYP	<i>closed</i>	N/A		CLOSED	<i>R</i>	<i>Bo</i>
SWITCH	XPP-0031A PUMP A	<i>AFTER STOP</i>	N/A		AFTER STOP	<i>R</i>	<i>Bo</i>
SWITCH	XPP-0031B PUMP B	<i>AFTER STOP</i>	N/A		AFTER STOP	<i>R</i>	<i>Bo</i>

Step 5.9.1 The required Initial Conditions for this test have been satisfied.

R 1010309
 Initials Date

Step 5.9.2 The Precautions listed in Section 2.0 have been reviewed with the necessary personnel involved in the performance of this test.

R 1010309
 Initials Date

TRAIN A COMPONENT LINEUP

COMPONENT NUMBER	COMPONENT DESCRIPTION	AS FOUND	TEST POSITION	POSITIONERS INITIALS	REQUIRED POSITION	POSITIONERS INITIALS	VERIFIERS INITIALS
XMC1DA2Y 18AD AB-412-L-08	RHR PP A MINIFLOW FCV0602A XVT0602A-RH	<i>closed</i>	OPEN	<i>R</i>	CLOSED	<i>R</i>	<i>Bo</i>
XVT08725A-RH AB-374-J-08	RH PUMP A DISCHARGE SAMPLE ISOL VALVE	<i>closed</i>	N/A		CLOSED (LVP)	<i>28882</i>	<i>Bo</i>
XVA18700-RH AB-374-J-08	RH PUMP A DISCHARGE SAMPLE VALVE	<i>closed</i>	N/A		CLOSED	<i>R</i>	<i>Bo</i>
XVT08725B-RH AB-374-K-08	RH PUMP B DISCHARGE SAMPLE ISOL VALVE	<i>closed</i>	N/A		CLOSED (LVP)	<i>28882</i>	<i>Bo</i>
XVA18701-RH AB-374-K-08	RH PUMP B DISCHARGE SAMPLE VALVE	<i>closed</i>	N/A		CLOSED	<i>R</i>	<i>Bo</i>

Justification for Discrepancies:

N/A 010309

1
 Shift Supervisor Date

TRAIN A VALVE DATA SHEET

COMPONENT	TEST DIRECTION	REFERENCE STROKE TIME (SEC)	MINIMUM ALLOWED STROKE TIME (SEC)	MINIMUM LIMITING STROKE TIME (SEC)	MEASURED STROKE TIME (SEC)	MAXIMUM LIMITING STROKE TIME (SEC)	MAXIMUM ALLOWED STROKE TIME (SEC)	ACCEPTANCE SEC 8.0 MET		RPI / LOCAL (1)
								YES	NO	
XVG08706A-RH	OPEN	8.6	N/A	6.5	9.0	10.7	15.0	✓		N/A
FCV00602A-RH	OPEN	5.2	N/A	3.9	8.5	6.5	10.0	✓		N/A
	CLOSED	5.2	N/A	3.9	5.4	6.5	10.0	✓		N/A
XVG08809A-SI	CLOSED	13.7	N/A	11.7	13.8	15.7	20.0	✓		N/A

NOTE 1: Perform RPI Verification going into each Refuel Outage.

COMPONENT	TRAVEL VERIFICATION (CLOSED)	DIFFERENTIAL PRESSURE (DOWNSTREAM - UPSTREAM = dP)			ACCEPTANCE CRITERIA		
		DOWNSTREAM	UPSTREAM	dP	ACCEPTABLE	SECT 8.0 MET	
					dP	YES	NO
XVC08716A-RH	PRESSURE	178.36	44.38	133.98	≥90	✓	

IPT00600A Cal. Due Date 03 04 09

IPT00600B Cal. Due Date 05 23 09

TRAIN A VALVE DATA SHEET FOR XVC08958A-SI CLOSURE

RHR PP A static inlet pressure - Elevation Correction = DOWNSTREAM PRESSURE for XVC08958A-SI

66.94 psig - 10 psig = 56.94 psig DOWNSTREAM PRESSURE for XVC08958A-SI

VCT LEVEL CHANGE

	TIME	VCT LEVEL%	PLANT INSTRUMENTATION	
			ID NUMBER	CAL DUE
START	0150	47	ILT00115	042509
STOP	0200	47		

VCT LEVEL Delta% = VCT START LEVEL - VCT STOP LEVEL = 0 Delta%

COMPONENT NUMBER	DOWNSTREAM PRESSURE (PSIG)	UPSTREAM PRESSURE (PSIG) (1)	DIFFERENTIAL PRESSURE (PSID)	ACCEPTANCE CRITERIA		
				ACCEPTABLE	SECT 8.0 MET	
					YES	NO
XVC08958A-SI	56.94	28.5	28.44	dP ≥ 7 Delta % ≤ 3%	✓	

NOTE 1: Pressure is calculated with the RWST level at 100% which is the most limiting condition.


XPP0031A, Residual Heat Removal Pump
Group A Test Data Sheet

TEST QUANTITY	DATA		RANGES OF IST QUANTITIES				INSTALLED PLANT INSTRUMENT	
	MEASURED	REFERENCE	ACCEPTABLE	ALERT RANGE	REQUIRED ACTION RANGE		ID NUMBER	CAL DUE DATE
					LOW	HIGH		
Q - FLOW (GPM)	1020	1010-1030					IFI00602A	05/10/09
Pd - PUMP DISCHARGE PRESSURE (PSIG)	175	175.0						
Pi - PUMP INLET PRESSURE (PSIG)	48	42.0						
dP - DIFFERENTIAL PRESSURE (PSID)	129	133.0	128.0 - ≤ 146.3		<128	>146.3		
VIBRATION (IN/SEC)								
XPP0031A 1V (MOV) (0 degrees)	.095	0.090	≤ 0.216	> 0.216 to ≤ 0.518		> 0.518		
XPP0031A 2H (MOH) (90 degrees)	.379	0.108	≤ 0.259	> 0.259 to ≤ 0.622		> 0.622		
XPP0031A 3A (MOA)	.066	0.046	≤ 0.110	> 0.110 to ≤ 0.264		> 0.264		
XPP0031A 7V (PIV)	.042	0.038	≤ 0.091	> 0.091 to ≤ 0.218		> 0.218		
XPP0031A 8H (PIH)	.048	0.045	≤ 0.108	> 0.108 to ≤ 0.259		> 0.259		
XPP0031A 9A (PIA)	.037	0.055	≤ 0.132	> 0.132 to ≤ 0.316		> 0.316		

Chg
A

Chg
C

All Section 8.0 Acceptance Criteria for this test has been satisfactorily met.


Test Performer
Date 10/03/09

V.C. SUMMER NUCLEAR STATION JOB PERFORMANCE MEASURE

***JPM NO: 09 RO/SRO
A3***

***DETERMINE STAY TIME FOR A JOB AT RHR HEAT
EXCHANGER 'A'***

APPROVAL:

APPROVAL DATE:

REV NO: 0

CANDIDATE:

EXAMINER:

THIS JPM IS NOT APPROVED

TASK:

343-029-03-03

Assess exposure limits of personnel for assigned duties

TASK STANDARD:

Based upon a 25 mrem accumulated dose alarm on the Electronic Dosimeter from RWP 08-00013, and a 240 mrem per hour dose rate as determined from Survey Map Q802 for AB 12-06 RHR HEAT EXCHANGER A, applicant will be allowed to work for a Maximum of 6.25 minutes before receiving an accumulated dose alarm on his ED. Acceptable Stay Time Calculation can range from 6 to 6.25 minutes.

PREFERRED EVALUATION LOCATION

CLASSROOM

PREFERRED EVALUATION METHOD

PERFORM

REFERENCES:

HPP-0403

RADIOLOGICAL CONTROLS FOR NUCLEAR WORK A
REVISION 10

HPP-0151

USE OF THE RADIATION WORK PERMIT AND STAND
RADIATION WORK PERMIT, REVISION 8

HPP-153

ADMINISTRATIVE EXPOSURE LIMITS

TOOLS:SURVEY MAPS
RWPs**EVALUATION TIME**

10

TIME CRITICAL

NO

10CFR55: 55.45(a)10

TIME START:

TIME FINISH:

PERFORMANCE TIME:

PERFORMANCE RATING:

SAT:

UNSAT:

EXAMINER:

SIGNATURE

DATE

INSTRUCTIONS TO OPERATOR

READ TO OPERATOR:

WHEN I TELL YOU TO BEGIN, YOU ARE TO PERFORM THE ACTIONS AS DIRECTED IN THE INITIATING CUES. I WILL DESCRIBE THE GENERAL CONDITIONS UNDER WHICH THIS TASK IS TO BE PERFORMED AND PROVIDE THE NECESSARY TOOLS WITH WHICH TO PERFORM THIS TASK. BEFORE STARTING, I WILL EXPLAIN THE INITIAL CONDITIONS, WHICH STEPS TO SIMULATE OR DISCUSS, AND PROVIDE INITIATING CUES. WHEN YOU COMPLETE THE TASK SUCCESSFULLY, THE OBJECTIVE FOR THIS JOB PERFORMANCE MEASURE WILL BE SATISFIED.

SAFETY CONSIDERATIONS: NONE

INITIAL CONDITION: The plant is in Mode 1.
 A-1 Maintenance Week

INITIATING CUES: You have been directed to Danger Tag XVT08718A-RH HIGH ROOT TO IFT0605A & IFS0602A, AND XVT08719A-RH LOW ROOT TO IFT0605A & IFS0602A in RHR HX room 'A'. Using the Surveys, Radiation Work Permits (RWPs), and assuming all exposure is accumulated at the highest On Contact Radiation Exposure rate for the work to be performed, determine the maximum allowable stay time for the work to be performed prior to you Electronic Dosimeter alarming. Show all calculations.

HAND JPM BRIEFING SHEET TO OPERATOR AT THIS TIME!

JPM BRIEFING SHEET

OPERATOR INSTRUCTIONS:

SAFETY CONSIDERATIONS: NONE

INITIAL CONDITION: The plant is in Mode 1.
A-1 Maintenance Week

INITIATING CUES: You have been directed to Danger Tag XVT08718A-RH HIGH ROOT TO IFT0605A & IFS0602A, AND XVT08719A-RH LOW ROOT TO IFT0605A & IFS0602A in RHR HX room 'A'. Using the Surveys, Radiation Work Permits (RWPs), and assuming all exposure is accumulated at the highest On Contact Radiation Exposure rate for the work to be performed, determine the maximum allowable stay time for the work to be performed prior to you Electronic Dosimeter alarming. Show all calculations.

**HAND THIS PAPER BACK TO YOUR
EVALUATOR WHEN YOU FEEL THAT YOU
HAVE SATISFACTORILY COMPLETED THE
ASSIGNED TASK.**

STEPS

STEP: 1

CUES:

Evaluator Note:

Steps can be performed in any order.

There is no "margin for error" built into the calculation values because all numbers will come out even.

CR SEQ

Yes Yes Reviews Survey Maps to determine the dose rate in the area where the work will be performed.

STEP STANDARD:

Reviews survey maps and selects AB 12-06 RHR HEAT EXCHANGER 'A', survey # Q802 and determines from survey map that the "On Contact" dose rate between valves XVT08718A and XVT08719A is 240 mrem per hour.

COMMENTS:

SAT

UNSAT

STEP: 2

CUES:

Comment:

This can be determined by reviewing the applicable RWP's and determining which RWP to utilize or, can be determined by noting the S/RWP # on the associated Survey Map.

CR SEQ

Yes Yes Applicant reviews all RWPs and selects RWP for task to be performed.

STEP STANDARD:

Selects RWP 08-00013 ROUTINE HEALTH PHYSICS AND MAINTENANCE ACTIVITIES TO INCLUDE VALVE LINEUPS IN HI DOSE AREAS IE. LHRA AND HRA.

COMMENTS:

SAT

UNSAT

STEP: 3

CUES:

CR SEQ

Yes Yes Determines Electronic Dosimeter Limits

STEP STANDARD:

From RWP 08-00013:

Dose Rate alarm 300 mr/hr

Dose Limit 25 mr

COMMENTS:

SAT

UNSAT

STEP: 4

CUES:

CR SEQ

Yes Yes Determines ON CONTACT DOSE RATE:

STEP STANDARD:

From Survey map of RHR HX room 'A'
determines that the Highest ON
CONTACT reading is 240 mr/hr
between the valves to be tagged.

COMMENTS:

SAT

UNSAT

STEP: 5

CUES:

Evaluator Note:

After the applicant reports the maximum stay time: Evaluation on this JPM is complete.

CR SEQ

Yes Yes Calculate maximum stay time.

STEP STANDARD:

Total Permitted Dose ÷ Total Dose Rate:
Total Permitted Dose 25 mrem from
RWP 08-013

Total Dose Rate 240 mrem / Hr = 240
mrem/hr ÷ 60 minutes
= 4mrem/min

25 mrem ÷ 4mrem / min = 6.25 minutes

A range of from 6 to 6.25 mins is
acceptable if the candidate rounds down
to the nearest whole minute.

COMMENTS:

SAT

UNSAT

Examiner ends JPM at this point.

JPM SETUP SHEET

JPM NO: 09 RO/SRO A3

DESCRIPTION: DETERMINE STAY TIME FOR A JOB AT RHR HEAT EXCHANGER 'A'

IC SET:

INSTRUCTIONS:

COMMENTS:

RO / SRO A3 KEY Stay Time Calculation:

Total Permitted Dose \div Total Dose Rate:

Total Permitted Dose 25 mrem from RWP 08-013

Total Dose Rate 240 mrem / Hr = 240 mrem/hr \div 60 minutes = 4mrem/min

25 mrem \div 4mrem / min = 6.25 minutes

A range of from 6 to 6.25 minutes is acceptable if the candidate rounds down to the nearest whole minute.

V. C. SUMMER NUCLEAR STATION
RADIATION WORK PERMIT

RWP/SEGMENT NO. 08-00015/003

OUTAGE NO

JOB CODE NO. 15-00

WORK DESCRIPTION: ROUTINE HEALTH PHYSICS & MAINTENANCE ACTIVITIES TO INCLUDE
VALVE LINEUPS IN LOCKED HIGH RADIATION AREAS

SYSTEM

COMPONENT ID NA

LOCATION CODE NA

NRC TASK CATEGORY 2

DESCRIPTION NOT APPLICABLE

DESCRIPTION Various locations

DESCRIPTION ROUTINE MAINTENANCE

WORK GROUP SUPERVISOR TODD ELLISON

PHONE 4976

ALL WORK GROUPS AUTHORIZED WITH HEALTH PHYSICS APPROVAL

ORIGINATOR RUSSELL C. OWENS

DATE 17-AUG-2007

LAST UPDATED BY WILLIAM A. SMITH

DATE 18-SEP-2008

DESCRIPTION OF ACTIVITY		DOSE RATE mREM/HR	EST MAN- HRS	EST MAN- REM
1	PERFORM SURVEILLANCE/MINOR MAINTENANCE IN LHRA'S (TO INCLUDE VALVE LINEUPS)	2.50	25	0.063
2	HEALTH PHYSICS SUPPORT	2.00	10	0.020
TOTALS			35	0.083

ACTIVITY NO	PROTECTIVE REQUIREMENTS	ACTIVITY NO	PROTECTIVE REQUIREMENTS
1, 2, ,	CONTINUOUS COVERAGE	1, 2, ,	FULL PC'S
1, 2, ,	ELECTRONIC DOSIMETER (ED)	1, 2, ,	LABCOAT, BOOTIES, AND GLOVE

SPECIAL INSTRUCTIONS: _____ ADDITIONAL INSTRUCTIONS ATTACHED? Y ___ N ___

ED SETTINGS ARE 25 MR / 1000 MR/HR

RESPIRATORY PROTECTION NOT REQUIRED BECAUSE THE PROBABILITY / POTENTIAL
OF UPTAKES OF AIRBORNE RADIOACTIVITY WILL BE LOW / LOW

DRESS REQUIREMENTS (IE. FULL PC'S VS LABCOAT, BOOTIES AND GLOVE) PER THE DUTY
HP SHIFT LEADER

NO PC'S REQUIRED IN NON CONTAMINATED AREAS

EVALUATE THE NEED FOR CHANGING THE ED SETTINGS BASED UPON THE GIVEN TASK/JOB

RADIOLOGICAL CONDITIONS
EXPECTED _____ ACTUAL _____

DOSE RATES: HIGHEST CONTACT _____ GENERAL AREA _____

CONTAMINATION LEVELS _____

SPECIAL CONDITIONS _____
(REFER TO MOST RECENT SURVEYS)

V. C. SUMMER NUCLEAR STATION
RADIATION WORK PERMIT

RWP/SEGMENT NO. 08-00015/003

OUTAGE NO

JOB CODE NO. 15-00

AUTHORIZATION TO BEGIN WORK

HEALTH PHYSICS SUPERVISOR/_____
DESIGNATE PRINTED NAME SIGNATURE DATE/TIME _____

THIS SEGMENT OF THE RWP IS COMPLETE AND ALL ASSOCIATED ATTACHMENTS
AND SURVEYS ARE COMPLETE AND ATTACHED:

HEALTH PHYSICS SUPERVISOR/_____
DESIGNATE PRINTED NAME SIGNATURE DATE/TIME _____

PAGE _____ OF _____

V. C. SUMMER NUCLEAR STATION
RADIATION WORK PERMIT

RWP/SEGMENT NO. 08-00013/003

OUTAGE NO

JOB CODE NO. 15-00

WORK DESCRIPTION: ROUTINE HEALTH PHYSICS AND MAINTENANCE ACTIVITIES TO INCLUDE VALVE LINEUPS IN HIGH RADIATION AREAS

SYSTEM

COMPONENT ID NA

DESCRIPTION NOT APPLICABLE

LOCATION CODE NA

DESCRIPTION Various locations

NRC TASK CATEGORY 2

DESCRIPTION ROUTINE MAINTENANCE

WORK GROUP SUPERVISOR JOHN HUNSICKER

PHONE 4515

ALL WORK GROUPS AUTHORIZED WITH HEALTH PHYSICS APPROVAL

ORIGINATOR RUSSELL C. OWENS

DATE 17-AUG-2007

LAST UPDATED BY WILLIAM A. SMITH

DATE 18-MAR-2008

DESCRIPTION OF ACTIVITY		DOSE RATE mREM/HR	EST MAN- HRS	EST MAN- REM
1	PERFORM SURVEILLANCE/MINOR MAINTENANCE IN HRA'S (TO INCLUDE VALVE LINEUPS)	0.98	350	0.342
2	HEALTH PHYSICS SUPPORT	0.59	46	0.027
TOTALS			396	0.369

ACTIVITY NO	PROTECTIVE REQUIREMENTS	ACTIVITY NO	PROTECTIVE REQUIREMENTS
1, 2, ,	INTERMITTENT COVERAGE	1, 2, ,	FULL PC'S
1, 2, ,	ELECTRONIC DOSIMETER (ED)	1, 2, ,	LABCOAT, BOOTIES, AND GLOVE

SPECIAL INSTRUCTIONS: ADDITIONAL INSTRUCTIONS ATTACHED? Y ☐ N ☐

ED SETTINGS ARE (25 MR / 300 MR/HR)

RESPIRATORY PROTECTION NOT REQUIRED BECAUSE THE PROBABILITY / POTENTIAL OF UPTAKES OF AIRBORNE RADIOACTIVITY WILL BE LOW / LOW

DRESS REQUIREMENTS (IE. FULL PC'S VS LABCOAT, BOOTIES AND GLOVE) PER THE DUTY HP SHIFT LEADER

NO PC'S REQUIRED IN NON CONTAMINATED AREAS

RADIOLOGICAL CONDITIONS	
EXPECTED	ACTUAL
DOSE RATES:HIGHEST CONTACT	GENERAL AREA
CONTAMINATION LEVELS	
SPECIAL CONDITIONS	

(REFER TO MOST RECENT SURVEYS)

V. C. SUMMER NUCLEAR STATION
RADIATION WORK PERMIT

RWP/SEGMENT NO. 08-00013/003

OUTAGE NO

JOB CODE NO. 15-00

AUTHORIZATION TO BEGIN WORK

HEALTH PHYSICS SUPERVISOR/	_____	DATE/TIME	_____
DESIGNATE	PRINTED NAME	SIGNATURE	

THIS SEGMENT OF THE RWP IS COMPLETE AND ALL ASSOCIATED ATTACHMENTS
AND SURVEYS ARE COMPLETE AND ATTACHED:

HEALTH PHYSICS SUPERVISOR/	_____	DATE/TIME	_____
DESIGNATE	PRINTED NAME	SIGNATURE	

PAGE _____ OF _____

V. C. SUMMER NUCLEAR STATION
RADIATION WORK PERMIT

RWP/SEGMENT NO. 08-00010/002

OUTAGE NO

JOB CODE NO. 15-00

WORK DESCRIPTION: SCHEDULED SYSTEM WALKDOWNS BY ENG, QC, MECH, ELECT. I&C, AND HP

SYSTEM

COMPONENT ID NA

DESCRIPTION NOT APPLICABLE

LOCATION CODE NA

DESCRIPTION Various locations

NRC TASK CATEGORY 1

DESCRIPTION REACTOR OPERATIONS & SURVEILLANCE

WORK GROUP SUPERVISOR LARRY BENNET

PHONE 4500

ALL WORK GROUPS AUTHORIZED WITH HEALTH PHYSICS APPROVAL

ORIGINATOR RUSSELL C. OWENS

DATE 17-AUG-2007

LAST UPDATED BY WILLIAM A. SMITH

DATE 28-JAN-2008

DESCRIPTION OF ACTIVITY		DOSE RATE mREM/HR	EST MAN- HRS	EST MAN- REM
1	PERFORM WALKDOWNS	1.35	35	0.047
2	HEALTH PHYSICS SUPPORT	0.67	10	0.007
TOTALS			45	0.054

ACTIVITY NO	PROTECTIVE REQUIREMENTS	ACTIVITY NO	PROTECTIVE REQUIREMENTS
1, 2, ,	CONTINUOUS COVERAGE	1, 2, ,	INTERMITTENT COVERAGE
1, 2, ,	FULL PC'S	1, 2, ,	ELECTRONIC DOSIMETER (ED)
1, 2, ,	LABCOAT, BOOTIES, AND GLOVE	, , ,	

SPECIAL INSTRUCTIONS: ADDITIONAL INSTRUCTIONS ATTACHED? Y ☐ N ☐
ED SETTINGS ARE 10 MR / 300 MR/HR

RESPIRATORY PROTECTION NOT REQUIRED BECAUSE THE PROBABILITY/
POTENTIAL OF AN UPTAKE OF AIRBORNE RADIOACTIVITY WILL BE LOW/LOW

JOB COVERAGE (IE. CONTINUOUS VS INTERMITTENT) PER THE DUTY HP SHIFT LEADER

DRESS REQUIREMENTS (IE. FULL PC'S VS LABCOAT, BOOTIES AND GLOVE) PER THE DUTY
HP SHIFT LEADER

NO PC'S REQUIRED IN NON CONTAMINATED AREAS

RADIOLOGICAL CONDITIONS
EXPECTED _____ ACTUAL _____
DOSE RATES: HIGHEST CONTACT _____ GENERAL AREA _____
CONTAMINATION LEVELS _____
SPECIAL CONDITIONS _____
(REFER TO MOST RECENT SURVEYS)

V. C. SUMMER NUCLEAR STATION
RADIATION WORK PERMIT

RWP/SEGMENT NO. 08-00010/002

OUTAGE NO

JOB CODE NO. 15-00

AUTHORIZATION TO BEGIN WORK

HEALTH PHYSICS SUPERVISOR/_____
DESIGNATE PRINTED NAME SIGNATURE DATE/TIME _____

THIS SEGMENT OF THE RWP IS COMPLETE AND ALL ASSOCIATED ATTACHMENTS
AND SURVEYS ARE COMPLETE AND ATTACHED:

HEALTH PHYSICS SUPERVISOR/_____
DESIGNATE PRINTED NAME SIGNATURE DATE/TIME _____

PAGE _____ OF _____

V. C. SUMMER NUCLEAR STATION
RADIATION WORK PERMIT

WPP/SEGMENT NO. 08-00011/002

OUTAGE NO

JOB CODE NO. 15-00

WORK DESCRIPTION: RHR VENTING, VALVE LINE-UP, AND SURVEILLANCE

SYSTEM

COMPONENT ID NA

LOCATION CODE NA

NRC TASK CATEGORY 2

DESCRIPTION NOT APPLICABLE

DESCRIPTION Various locations

DESCRIPTION ROUTINE MAINTENANCE

WORK GROUP SUPERVISOR SHIFT SUPERVISOR PHONE 0226

ALL WORK GROUPS AUTHORIZED WITH HEALTH PHYSICS APPROVAL

ORIGINATOR RUSSELL C. OWENS

DATE 17-AUG-2007

LAST UPDATED BY WILLIAM A. SMITH

DATE 28-JAN-2008

DESCRIPTION OF ACTIVITY		DOSE RATE mREM/HR	EST MAN- HRS	EST MAN- REM
1	ALL ACTIVITIES ASSOCIATED WITH RHR VENTING	1.83	100	0.183
2	HP SUPPORT	2.02	50	0.101
TOTALS			150	0.284

ACTIVITY NO	PROTECTIVE REQUIREMENTS	ACTIVITY NO	PROTECTIVE REQUIREMENTS
1, 2, ,	CONTINUOUS COVERAGE	1, 2, ,	INTERMITTENT COVERAGE
1, 2, ,	FULL PC'S	1, 2, ,	ELECTRONIC DOSIMETER (ED)
1, 2, ,	LABCOAT, BOOTIES, AND GLOVE	, , ,	

SPECIAL INSTRUCTIONS: ADDITIONAL INSTRUCTIONS ATTACHED? Y ☐ N ☐

ED SETTING ARE 50 MR / 300 MR/HR

RESPIRATORY PROTECTION NOT REQUIRED BECAUSE THE PROBABILITY / POTENTIAL OF UPTAKES OF AIRBORNE RADIOACTIVITY WILL BE LOW / LOW

JOB COVERAGE (IE. CONTINUOUS VS INTERMITTENT) PER THE DUTY HP SHIFT LEADER

DRESS REQUIREMENTS (IE. FULL PC'S VS LABCOAT, BOOTIES AND GLOVE) PER THE DUTY HP SHIFT LEADER

NO PC'S REQUIRED IN NON CONTAMINATED AREAS

RADIOLOGICAL CONDITIONS

EXPECTED _____ ACTUAL _____

DOSE RATES: HIGHEST CONTACT _____ GENERAL AREA _____

CONTAMINATION LEVELS _____

SPECIAL CONDITIONS _____

(REFER TO MOST RECENT SURVEYS)

V. C. SUMMER NUCLEAR STATION
RADIATION WORK PERMIT

RWP/SEGMENT NO. 08-00011/002

OUTAGE NO

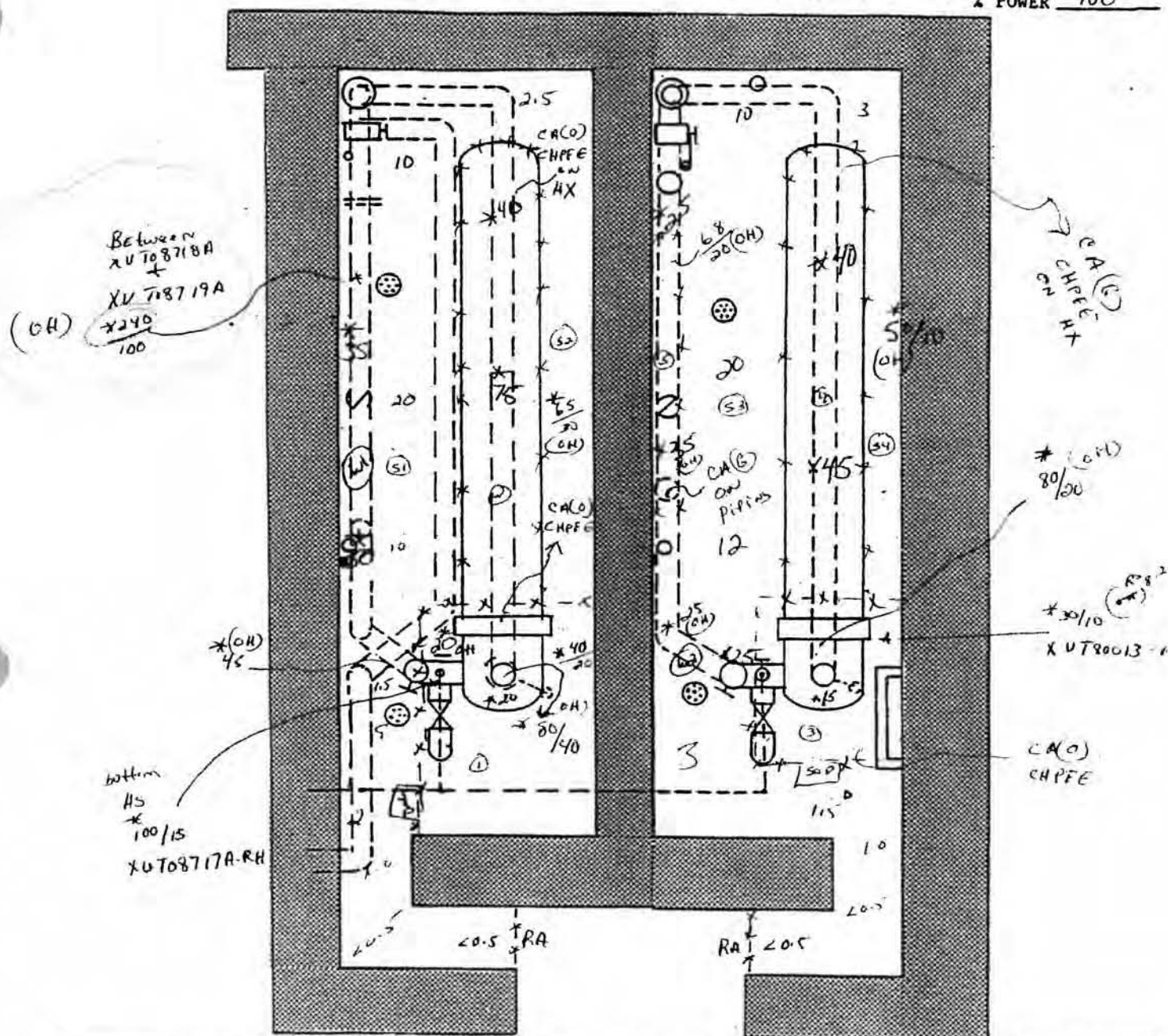
JOB CODE NO. 15-00

AUTHORIZATION TO BEGIN WORK

HEALTH PHYSICS SUPERVISOR/ _____ DATE/TIME _____
DESIGNATE PRINTED NAME SIGNATURE

THIS SEGMENT OF THE RWP IS COMPLETE AND ALL ASSOCIATED ATTACHMENTS
AND SURVEYS ARE COMPLETE AND ATTACHED:
HEALTH PHYSICS SUPERVISOR/ _____ DATE/TIME _____
DESIGNATE PRINTED NAME SIGNATURE

PAGE _____ OF _____

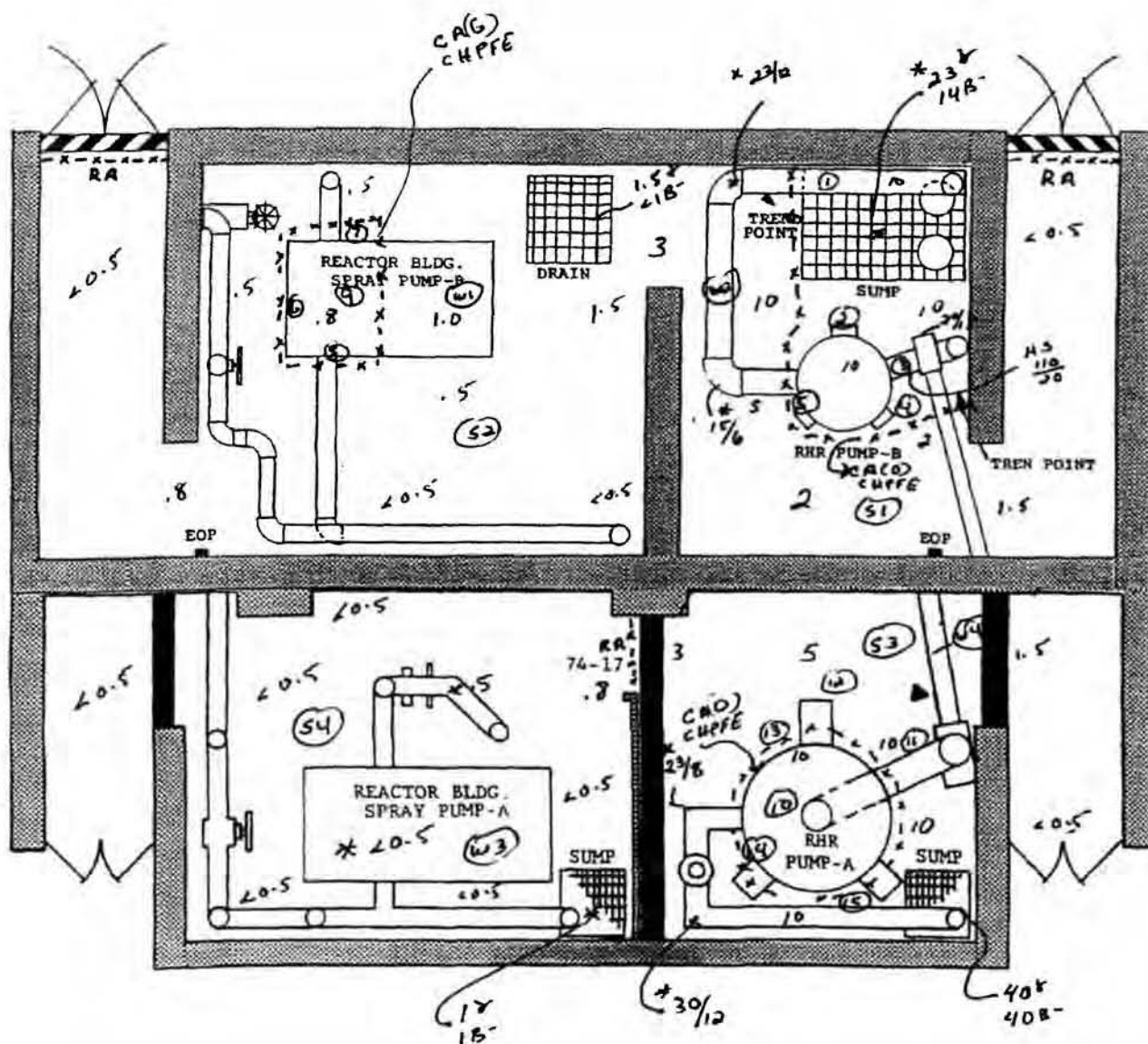


CONTAMINATION IN DPM/100 CM ² :				COUNTER: Rm 14	SER.# 4500	INST. TYPE: Ro-20	SER.# 3161
1	1K	9	17	COUNTER:	SER.#	INST. TYPE: Telepoleser	# 015
2	1K	10	18	COMMENTS: Bkg = 100 cpm		SURVEYED BY: R. Saunders	
3	2K	11	19	Sweep & wipes = Bkg		TIME: 09:15 DATE: 8-16-48	
4	4K	12	20			REVIEWED BY: R. Saunders	
5	4K	13	21			TIME: 1230 DATE: 8-16-48	
6		14	22				
7		15	23	HS = Hot spot			
8		16	24	OH = over head		R. Saunders	

* DENOTES CONTACT READINGS, ALL OTHERS IN mR/hr UNLESS OTHERWISE NOTED.

Survey #:	8-8039
S/RWP#:	08-01
% Rx Power:	100

AB 374-16/17
A & B RHR PUMPS



Contamination in DPM/100cm ²				Counter: Rm14 Ser.# 3475	Inst. Type: RO-20	Ser.# 4747
1	<1K	9	<1K	17	Counter: M50 Ser.# 963	Inst. Type: — Ser.# —
2	↑	10	1K	18	Rm14 Ser.# 445	Surveyed By: D. Scott
3		11	<200	19	Bkg = 80 CPM	R. Saunders
4		12	↓	20	Bkg = 100 cpm	R. Saunders
5		13	<200	21	Sweep & wipes = BKG	Time: 11:30 Date: 8-22-08
6		14	<1K	22	Dose Received =	Reviewed By: [Signature] Date: 8-21-08
7		15	<200	23		
8	<1K	16	NA	24		

* Denotes Contact Readings — All Readings are in MR/HR unless otherwise noted.

* Denotes Contact Readings - All Readings are in MR/HR unless otherwise noted.

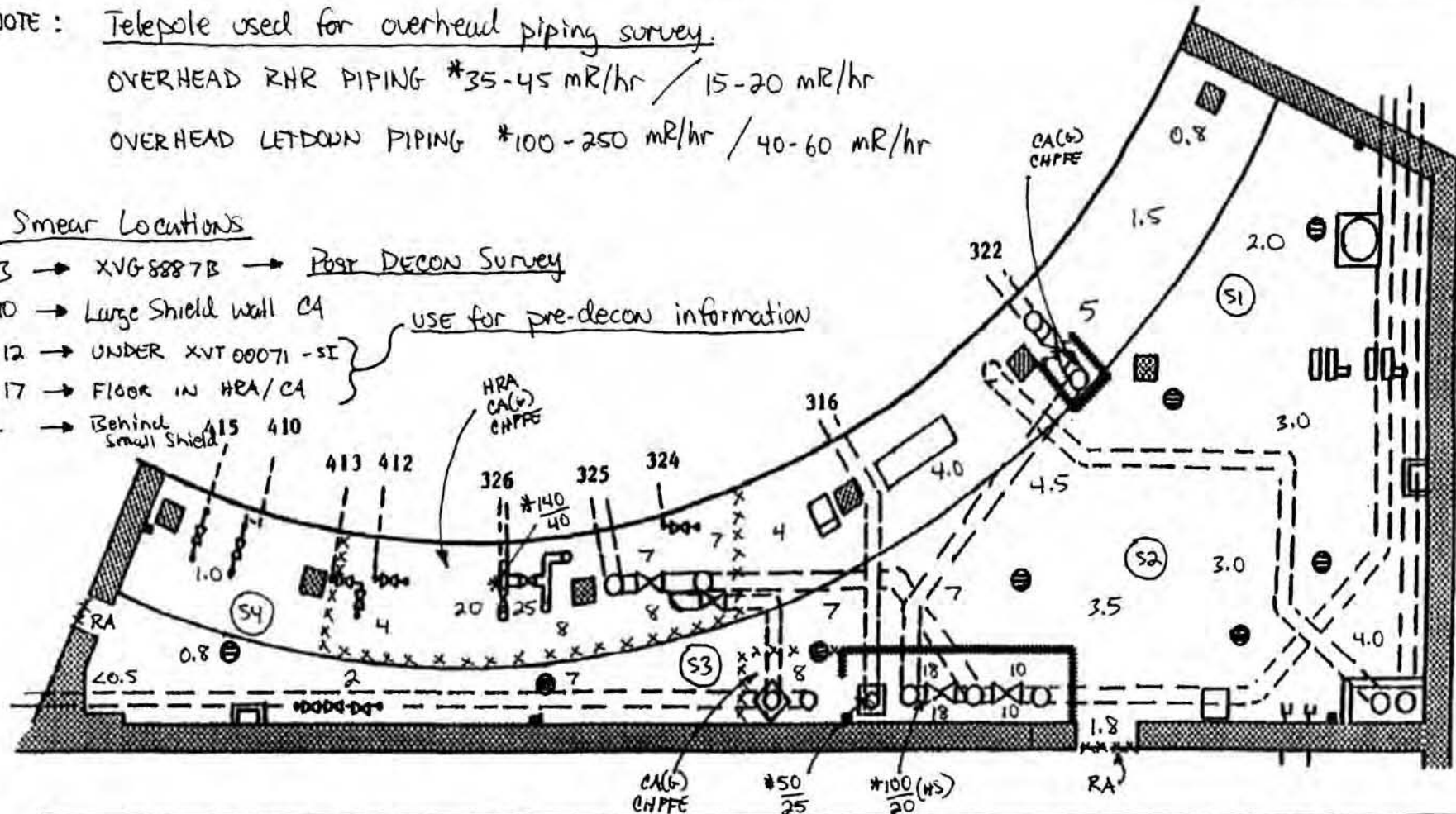
AB 412-01PA
WEST PENETRATION

Survey #: M-6021,441
S/RWP #: 08-01
% Rx Power: 100

NOTE: Telepole used for overhead piping survey.
OVERHEAD RHR PIPING *35-45 mR/hr / 15-20 mR/hr
OVERHEAD LETDOWN PIPING *100-250 mR/hr / 40-60 mR/hr

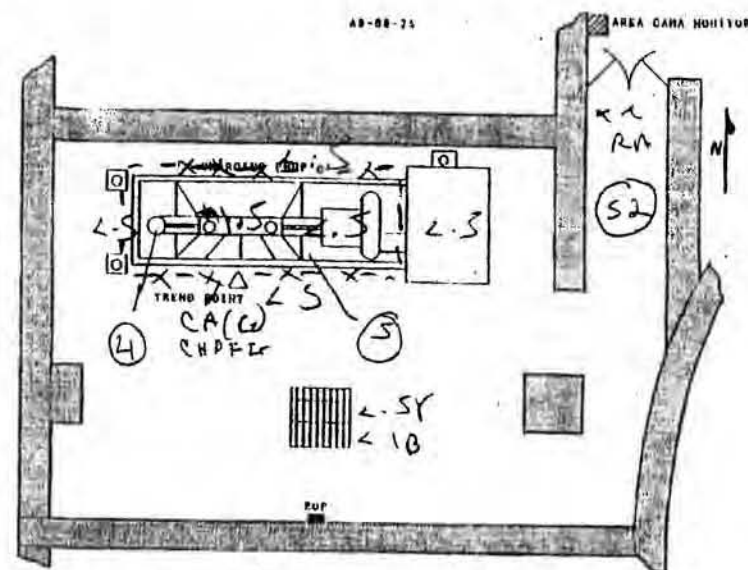
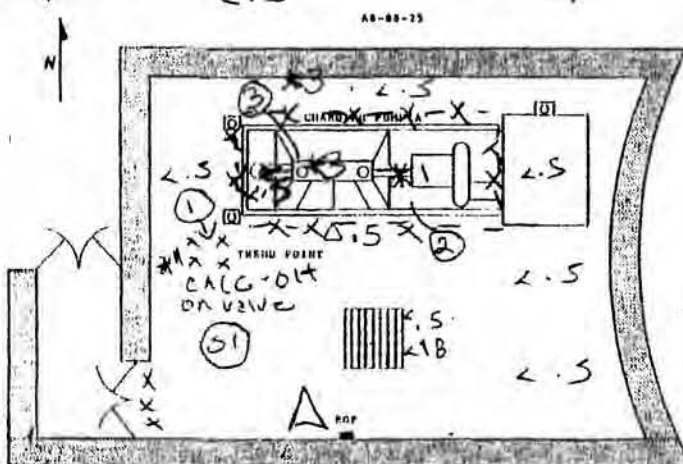
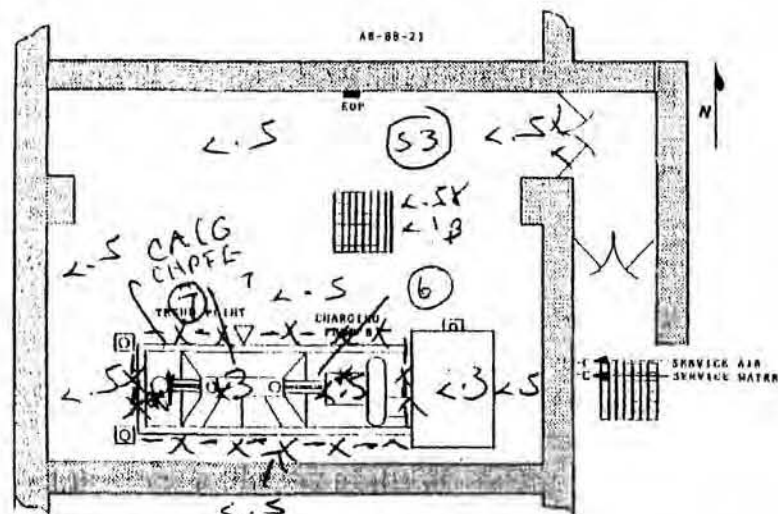
Smear Locations

- 1-3 → XVG-8887B → Post DECON Survey
4-10 → Large Shield wall C4
11-12 → UNDER XVT00071-SI } USE for pre-decon information
13-17 → FLOOR IN HRA/C4
18 → Behind Small Shield



Contamination in DPM/100cm ²						Counter: RM14	Ser.# 4500	Inst. Type: 12020	Ser.# 4747
1	2K	9	<1K	17	<1K	Counter: -	Ser.# -	Inst. Type: tele pole	Ser.# 6600-043
2	9K	10	<1K	18	3K			Surveyed By: W PRICE	
3	3K	11	3K	19	N/A	Bkg = 100	CPM		
4	2K	12	5K	20		SWEEPS = BKG		Time: 0915	Date: 8-19-08
5	2K	13	<1K	21		Smear #2 Sent for α Quant		Reviewed By: KAUCK	
6	<1K	14	<1K	22		Tracking # 2412			
7	<1K	15	<1K	23		(NS) = HOT SPOT (XVT00046-SI)		Time: 0950	Date: 08-19-08
8	<1K	16	<1K	24		Dose Received = 4 mR			

* Denotes Contact Readings - All Readings are in MR/HR unless otherwise noted.



465
 SURVEY // 08-01
 SWP/RWP// 100
 % POWER

4. <1K
 5. <1K

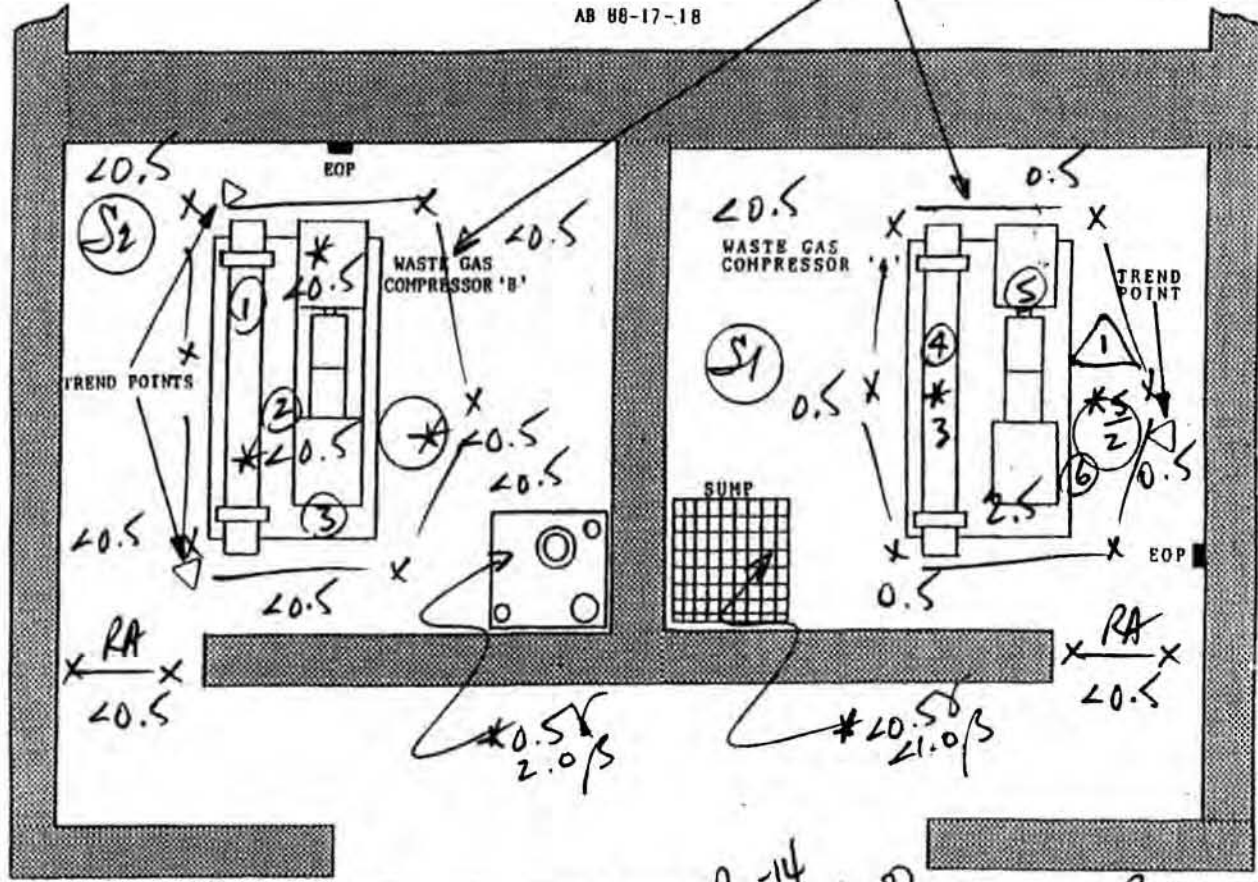
CONTAMINATION IN DPM/100 CM ² :							COUNTER: RM/UCR.# 465	INST. TYPE: R020SER.# 3161
1	<1K	8	13	22	29		COUNTER: N/A SER.# N/A	INST. TYPE: N/A SER.# N/A
2	1K	9	16	23	30		COMMENTS: BKG = 150	SURVEYED BY: J. Spruders/g. Rauden
3	<1K	10	17	24	31		SWEEPS = BKG	TIME: 1700 DATE: 8-28-88
4	N	11	18	25	32			REVIEWED BY: SHW/Bar/O
5	N	12	19	26	33	A		TIME: 1735 DATE: 8-28-88
6	A	13	20	27	34			
7	A	14	21	28	35			

* DENOTES CONTACT READINGS, ALL OTHERS IN mR/hr UNLESS OTHERWISE NOTED (Not a Gamma)

CA(G)
CHPFE

SURVEY # W-4090
S/RWPH 08-01
POWER 100

AB 08-17-18



CONTAMINATION IN DPM/100 CM ²							COUNTER	SER	INST. TYPE	SER
1	21K	8	15	22	29		COUNTER	SER	INST. TYPE	SER
2		9	16	23	30		COMMENTS:		SURVEYED BY	
3		10	17	24	31		BKG = 100 CPM		TIME: 1405	DATE: 08-23-08
4		11	18	25	32		SWEEP = 13K		REVIEWED BY	
5		12	19	26	33				TIME: 1415	DATE: 8-23-08
6		13	20	27	34					
7		14	21	28	35					

*DENOTES CONTACT READINGS, ALL OTHERS IN mR/hr UNLESS OTHERWISE NOTED (Beta/Gamma)

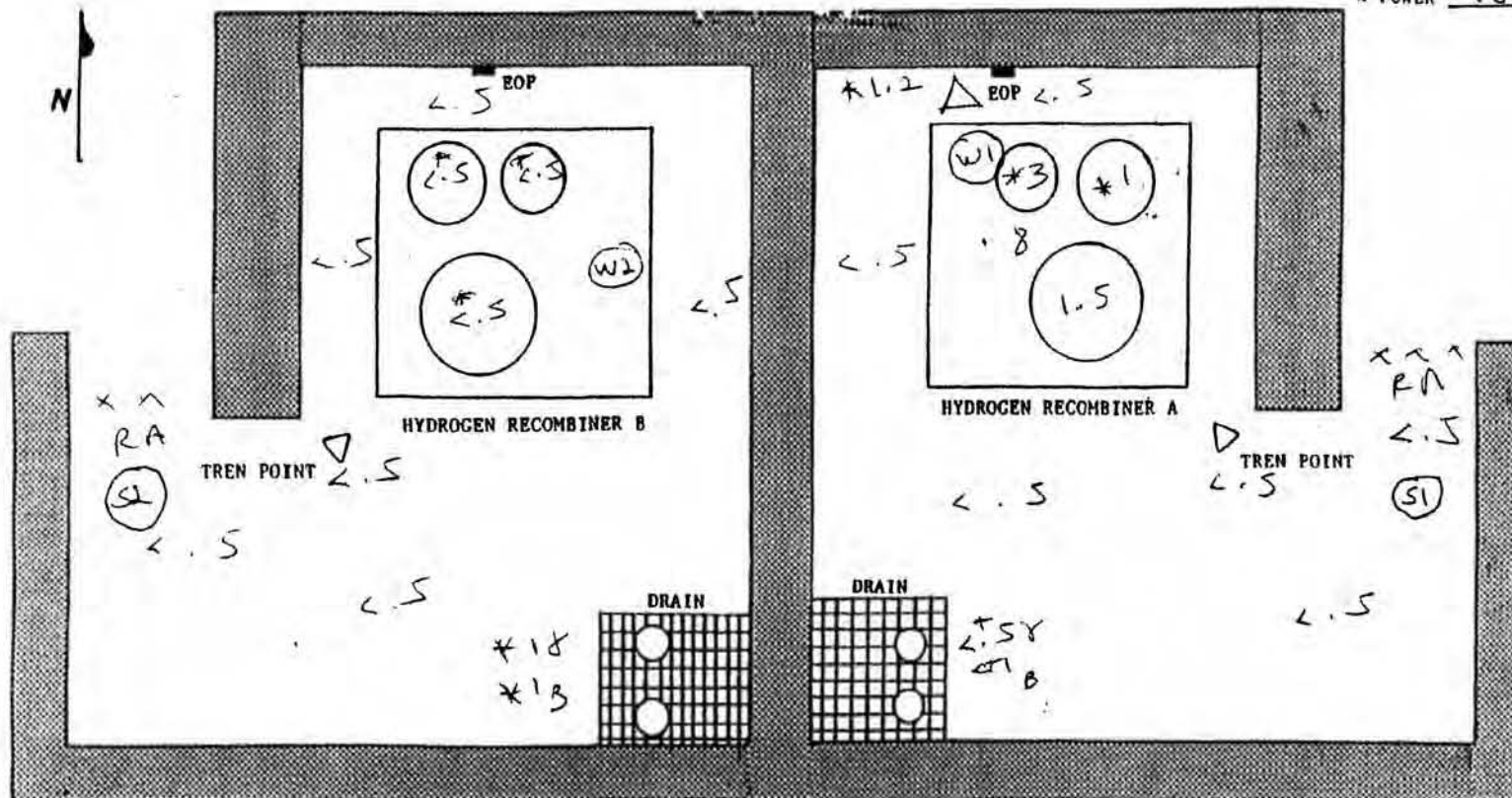
AB-88-14-15

SURVEY #

468

SWP/RWP# 08-01

X POWER 100



CONTAMINATION IN DPM/100 CM ²							COUNTER: RM/45	SER# 445	INST. TYPE: R620	SER# 3161
1	8	15	22	29			COUNTER:	SER#	INST. TYPE:	SER#
2	9	16	23	30			COMMENTS: BKG-150		SURVEYED BY: J. Saunders	
3	10	17	24	31			Sweeps & Wipes		TIME: 1645	DATE: 8-20-08
4	11	18	25	32			= BKG		REVIEWED BY: SR151/Healy	
5	12	19	26	33					TIME: 1730	DATE: 8-23-08
6	13	20	27	34						
7	14	21	28	35						

*DENOTES CONTACT READINGS, ALL OTHERS IN mR/hr UNLESS OTHERWISE NOTED (Beta/Gamma)

V. C. SUMMER NUCLEAR STATION
RADIATION WORK PERMIT

RWP/SEGMENT NO. 08-00010/002

OUTAGE NO

JOB CODE NO. 15-00

WORK DESCRIPTION: SCHEDULED SYSTEM WALKDOWNS BY ENG, QC, MECH, ELECT. I&C, AND HP

SYSTEM

COMPONENT ID NA

DESCRIPTION NOT APPLICABLE

LOCATION CODE NA

DESCRIPTION Various locations

NRC TASK CATEGORY 1

DESCRIPTION REACTOR OPERATIONS & SURVEILLANCE

WORK GROUP SUPERVISOR LARRY BENNET

PHONE 4500

ALL WORK GROUPS AUTHORIZED WITH HEALTH PHYSICS APPROVAL

ORIGINATOR RUSSELL C. OWENS

DATE 17-AUG-2007

LAST UPDATED BY WILLIAM A. SMITH

DATE 28-JAN-2008

DESCRIPTION OF ACTIVITY		DOSE RATE mREM/HR	EST MAN- HRS	EST MAN- REM
1	PERFORM WALKDOWNS	1.35	35	0.047
2	HEALTH PHYSICS SUPPORT	0.67	10	0.007
TOTALS			45	0.054

ACTIVITY NO	PROTECTIVE REQUIREMENTS	ACTIVITY NO	PROTECTIVE REQUIREMENTS
1, 2, ,	CONTINUOUS COVERAGE	1, 2, ,	INTERMITTENT COVERAGE
1, 2, ,	FULL PC'S	1, 2, ,	ELECTRONIC DOSIMETER (ED)
1, 2, ,	LABCOAT, BOOTIES, AND GLOVE	, , ,	

SPECIAL INSTRUCTIONS: ADDITIONAL INSTRUCTIONS ATTACHED? Y ☐ N ☐

ED SETTINGS ARE 10 MR / 300 MR/HR

RESPIRATORY PROTECTION NOT REQUIRED BECAUSE THE PROBABILITY/
POTENTIAL OF AN UPTAKE OF AIRBORNE RADIOACTIVITY WILL BE LOW/LOW

JOB COVERAGE (IE. CONTINUOUS VS INTERMITTENT) PER THE DUTY HP SHIFT LEADER

DRESS REQUIREMENTS (IE. FULL PC'S VS LABCOAT, BOOTIES AND GLOVE) PER THE DUTY HP SHIFT LEADER

NO PC'S REQUIRED IN NON CONTAMINATED AREAS

RADIOLOGICAL CONDITIONS

EXPECTED _____ ACTUAL _____

DOSE RATES: HIGHEST CONTACT _____ GENERAL AREA _____

CONTAMINATION LEVELS _____

SPECIAL CONDITIONS _____

(REFER TO MOST RECENT SURVEYS)

V. C. SUMMER NUCLEAR STATION
RADIATION WORK PERMIT

RWP/SEGMENT NO. 08-00010/002

OUTAGE NO

JOB CODE NO. 15-00

AUTHORIZATION TO BEGIN WORK

HEALTH PHYSICS SUPERVISOR/_____
DESIGNATE PRINTED NAME SIGNATURE DATE/TIME _____

THIS SEGMENT OF THE RWP IS COMPLETE AND ALL ASSOCIATED ATTACHMENTS
AND SURVEYS ARE COMPLETE AND ATTACHED:

HEALTH PHYSICS SUPERVISOR/_____
DESIGNATE PRINTED NAME SIGNATURE DATE/TIME _____

PAGE _____ OF _____

V. C. SUMMER NUCLEAR STATION
RADIATION WORK PERMIT

RWP/SEGMENT NO. 08-00011/002

OUTAGE NO

JOB CODE NO. 15-00

WORK DESCRIPTION: RHR VENTING, VALVE LINE-UP, AND SURVEILLANCE

SYSTEM

COMPONENT ID NA

DESCRIPTION NOT APPLICABLE

LOCATION CODE NA

DESCRIPTION Various locations

NRC TASK CATEGORY 2

DESCRIPTION ROUTINE MAINTENANCE

WORK GROUP SUPERVISOR SHIFT SUPERVISOR PHONE 0226

ALL WORK GROUPS AUTHORIZED WITH HEALTH PHYSICS APPROVAL

ORIGINATOR RUSSELL C. OWENS

DATE 17-AUG-2007

LAST UPDATED BY WILLIAM A. SMITH

DATE 28-JAN-2008

DESCRIPTION OF ACTIVITY		DOSE RATE mREM/HR	EST MAN- HRS	EST MAN- REM
1	ALL ACTIVITIES ASSOCIATED WITH RHR VENTING	1.83	100	0.183
2	HP SUPPORT	2.02	50	0.101
TOTALS			150	0.284

ACTIVITY NO	PROTECTIVE REQUIREMENTS	ACTIVITY NO	PROTECTIVE REQUIREMENTS
1, 2, ,	CONTINUOUS COVERAGE	1, 2, ,	INTERMITTENT COVERAGE
1, 2, ,	FULL PC'S	1, 2, ,	ELECTRONIC DOSIMETER (ED)
1, 2, ,	LABCOAT, BOOTIES, AND GLOVE	, , ,	

SPECIAL INSTRUCTIONS: ADDITIONAL INSTRUCTIONS ATTACHED? Y ☐ N ☐
ED SETTING ARE 50 MR / 300 MR/HR

RESPIRATORY PROTECTION NOT REQUIRED BECAUSE THE PROBABILITY / POTENTIAL OF UPTAKES OF AIRBORNE RADIOACTIVITY WILL BE LOW / LOW

JOB COVERAGE (IE. CONTINUOUS VS INTERMITTENT) PER THE DUTY HP SHIFT LEADER

DRESS REQUIREMENTS (IE. FULL PC'S VS LABCOAT, BOOTIES AND GLOVE) PER THE DUTY HP SHIFT LEADER

NO PC'S REQUIRED IN NON CONTAMINATED AREAS

RADIOLOGICAL CONDITIONS	
EXPECTED	ACTUAL
DOSE RATES:HIGHEST CONTACT	GENERAL AREA
CONTAMINATION LEVELS	
SPECIAL CONDITIONS	(REFER TO MOST RECENT SURVEYS)

V. C. SUMMER NUCLEAR STATION
RADIATION WORK PERMIT

RWP/SEGMENT NO. 08-00011/002

OUTAGE NO

JOB CODE NO. 15-00

AUTHORIZATION TO BEGIN WORK

HEALTH PHYSICS SUPERVISOR/	_____	DATE/TIME _____
DESIGNATE	PRINTED NAME	SIGNATURE

THIS SEGMENT OF THE RWP IS COMPLETE AND ALL ASSOCIATED ATTACHMENTS
AND SURVEYS ARE COMPLETE AND ATTACHED:

HEALTH PHYSICS SUPERVISOR/	_____	DATE/TIME _____
DESIGNATE	PRINTED NAME	SIGNATURE

PAGE _____ OF _____

V. C. SUMMER NUCLEAR STATION
RADIATION WORK PERMIT

RWP/SEGMENT NO. 08-00013/003

OUTAGE NO

JOB CODE NO. 15-00

WORK DESCRIPTION: ROUTINE HEALTH PHYSICS AND MAINTENANCE ACTIVITIES TO INCLUDE
VALVE LINEUPS IN HIGH RADIATION AREAS

SYSTEM

COMPONENT ID NA

DESCRIPTION NOT APPLICABLE

LOCATION CODE NA

DESCRIPTION Various locations

NRC TASK CATEGORY 2

DESCRIPTION ROUTINE MAINTENANCE

WORK GROUP SUPERVISOR JOHN HUNSICKER

PHONE 4515

ALL WORK GROUPS AUTHORIZED WITH HEALTH PHYSICS APPROVAL

ORIGINATOR RUSSELL C. OWENS

DATE 17-AUG-2007

LAST UPDATED BY WILLIAM A. SMITH

DATE 18-MAR-2008

DESCRIPTION OF ACTIVITY		DOSE RATE mREM/HR	EST MAN- HRS	EST MAN- REM
1	PERFORM SURVEILLANCE/MINOR MAINTENANCE IN HRA'S (TO INCLUDE VALVE LINEUPS)	0.98	350	0.342
2	HEALTH PHYSICS SUPPORT	0.59	46	0.027
TOTALS			396	0.369

ACTIVITY NO	PROTECTIVE REQUIREMENTS	ACTIVITY NO	PROTECTIVE REQUIREMENTS
1, 2, ,	INTERMITTENT COVERAGE	1, 2, ,	FULL PC'S
1, 2, ,	ELECTRONIC DOSIMETER (ED)	1, 2, ,	LABCOAT, BOOTIES, AND GLOVE

SPECIAL INSTRUCTIONS: ADDITIONAL INSTRUCTIONS ATTACHED? Y ☐ N ☐

ED SETTINGS ARE 25 MR / 300 MR/HR

RESPIRATORY PROTECTION NOT REQUIRED BECAUSE THE PROBABILITY / POTENTIAL
OF UPTAKES OF AIRBORNE RADIOACTIVITY WILL BE LOW / LOW

DRESS REQUIREMENTS (IE. FULL PC'S VS LABCOAT, BOOTIES AND GLOVE) PER THE DUTY
HP SHIFT LEADER

NO PC'S REQUIRED IN NON CONTAMINATED AREAS

RADIOLOGICAL CONDITIONS

EXPECTED _____ ACTUAL _____

DOSE RATES: HIGHEST CONTACT _____ GENERAL AREA _____

CONTAMINATION LEVELS _____

SPECIAL CONDITIONS _____

(REFER TO MOST RECENT SURVEYS)

V. C. SUMMER NUCLEAR STATION
RADIATION WORK PERMIT

RWP/SEGMENT NO. 08-00013/003

OUTAGE NO

JOB CODE NO. 15-00

AUTHORIZATION TO BEGIN WORK

HEALTH PHYSICS SUPERVISOR/	_____	DATE/TIME	_____
DESIGNATE	PRINTED NAME	SIGNATURE	

THIS SEGMENT OF THE RWP IS COMPLETE AND ALL ASSOCIATED ATTACHMENTS
AND SURVEYS ARE COMPLETE AND ATTACHED:

HEALTH PHYSICS SUPERVISOR/	_____	DATE/TIME	_____
DESIGNATE	PRINTED NAME	SIGNATURE	

PAGE _____ OF _____

V. C. SUMMER NUCLEAR STATION
RADIATION WORK PERMIT

RWP/SEGMENT NO. 08-00015/003

OUTAGE NO

JOB CODE NO. 15-00

WORK DESCRIPTION: ROUTINE HEALTH PHYSICS & MAINTENANCE ACTIVITIES TO INCLUDE
VALVE LINEUPS IN LOCKED HIGH RADIATION AREAS

SYSTEM

COMPONENT ID NA

DESCRIPTION NOT APPLICABLE

LOCATION CODE NA

DESCRIPTION Various locations

NRC TASK CATEGORY 2

DESCRIPTION ROUTINE MAINTENANCE

WORK GROUP SUPERVISOR TODD ELLISON

PHONE 4976

ALL WORK GROUPS AUTHORIZED WITH HEALTH PHYSICS APPROVAL

ORIGINATOR RUSSELL C. OWENS

DATE 17-AUG-2007

LAST UPDATED BY WILLIAM A. SMITH

DATE 18-SEP-2008

DESCRIPTION OF ACTIVITY		DOSE RATE mREM/HR	EST MAN- HRS	EST MAN- REM
1	PERFORM SURVEILLANCE/MINOR MAINTENANCE IN LHRA'S (TO INCLUDE VALVE LINEUPS)	2.50	25	0.063
2	HEALTH PHYSICS SUPPORT	2.00	10	0.020
TOTALS			35	0.083

ACTIVITY NO	PROTECTIVE REQUIREMENTS	ACTIVITY NO	PROTECTIVE REQUIREMENTS
1, 2, ,	CONTINUOUS COVERAGE	1, 2, ,	FULL PC'S
1, 2, ,	ELECTRONIC DOSIMETER (ED)	1, 2, ,	LABCOAT, BOOTIES, AND GLOVE

SPECIAL INSTRUCTIONS: ADDITIONAL INSTRUCTIONS ATTACHED? Y ☐ N ☐

ED SETTINGS ARE 25 MR / 1000 MR/HR

RESPIRATORY PROTECTION NOT REQUIRED BECAUSE THE PROBABILITY / POTENTIAL
OF UPTAKES OF AIRBORNE RADIOACTIVITY WILL BE LOW / LOW

DRESS REQUIREMENTS (IE. FULL PC'S VS LABCOAT, BOOTIES AND GLOVE) PER THE DUTY
HP SHIFT LEADER

NO PC'S REQUIRED IN NON CONTAMINATED AREAS

EVALUATE THE NEED FOR CHANGING THE ED SETTINGS BASED UPON THE GIVEN TASK/JOB

RADIOLOGICAL CONDITIONS
EXPECTED _____ ACTUAL _____
DOSE RATES: HIGHEST CONTACT _____ GENERAL AREA _____
CONTAMINATION LEVELS _____
SPECIAL CONDITIONS _____
(REFER TO MOST RECENT SURVEYS)

V. C. SUMMER NUCLEAR STATION
RADIATION WORK PERMIT

RWP/SEGMENT NO. 08-00015/003

OUTAGE NO

JOB CODE NO. 15-00

AUTHORIZATION TO BEGIN WORK

HEALTH PHYSICS SUPERVISOR/	_____	DATE/TIME	_____
DESIGNATE	PRINTED NAME	SIGNATURE	

THIS SEGMENT OF THE RWP IS COMPLETE AND ALL ASSOCIATED ATTACHMENTS
AND SURVEYS ARE COMPLETE AND ATTACHED:

HEALTH PHYSICS SUPERVISOR/	_____	DATE/TIME	_____
DESIGNATE	PRINTED NAME	SIGNATURE	

PAGE _____ OF _____

CA(G)
CA/PFE

SURVEY #

W-4090

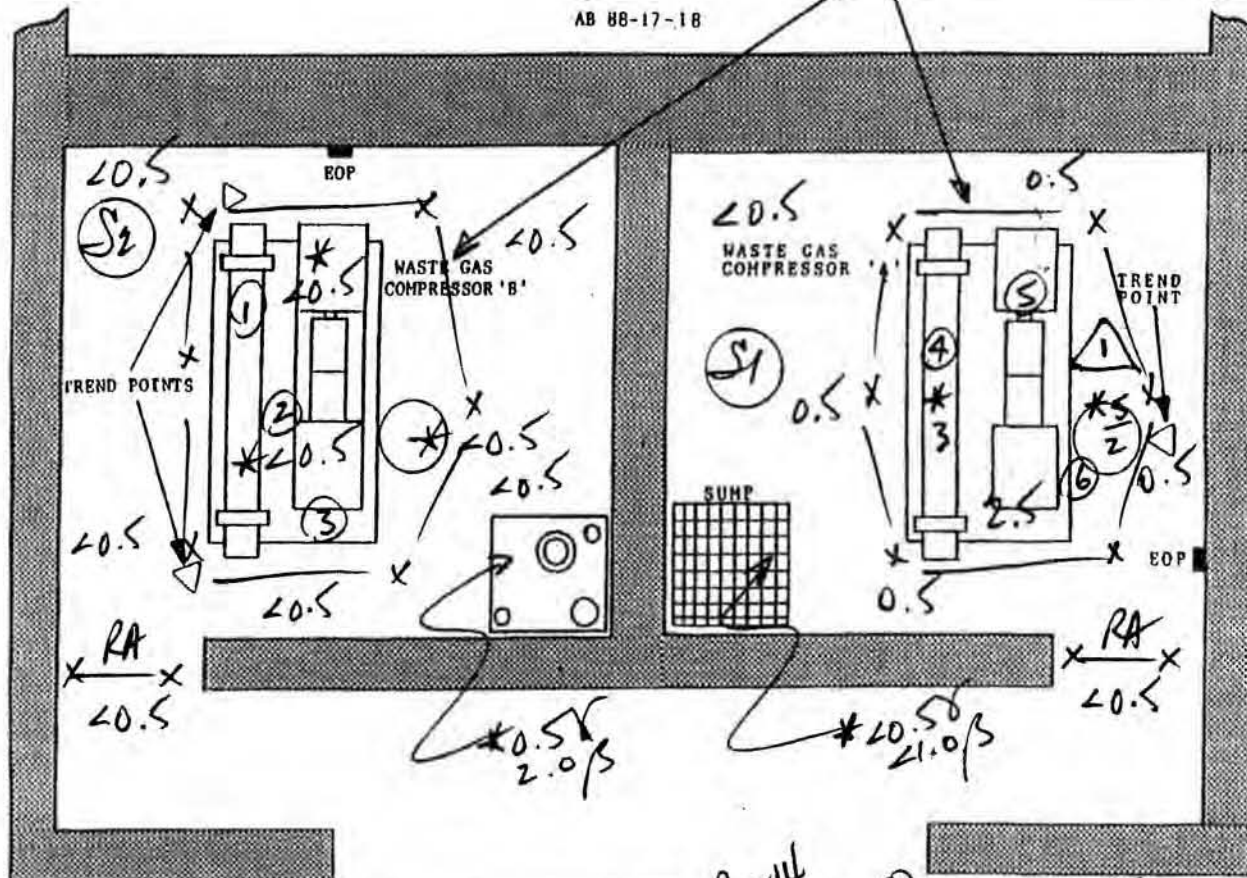
S/RWPI

08-01

% POWER

100

AB 88-17-18



CONTAMINATION IN DPM/100 CM ²						COUNTER	SERIAL	INST. TYPE:	SERIAL
1	21K	8	15	22	29	COUNTER:	SERIAL	INST. TYPE:	SERIAL
2		9	16	23	30	COMMENTS:		SURVEYED BY:	
3		10	17	24	31	BKG = 100 CPM		TIME: 1405	DATE: 08-23-08
4		11	18	25	32	SWEEP = 13KGD		REVIEWED BY:	
5		12	19	26	33			TIME: 1415	DATE: 8-23-08
6		13	20	27	34				
7		14	21	28	35				

*DENOTES CONTACT READINGS, ALL OTHERS IN mR/hr UNLESS OTHERWISE NOTED (Beta/Gamma)

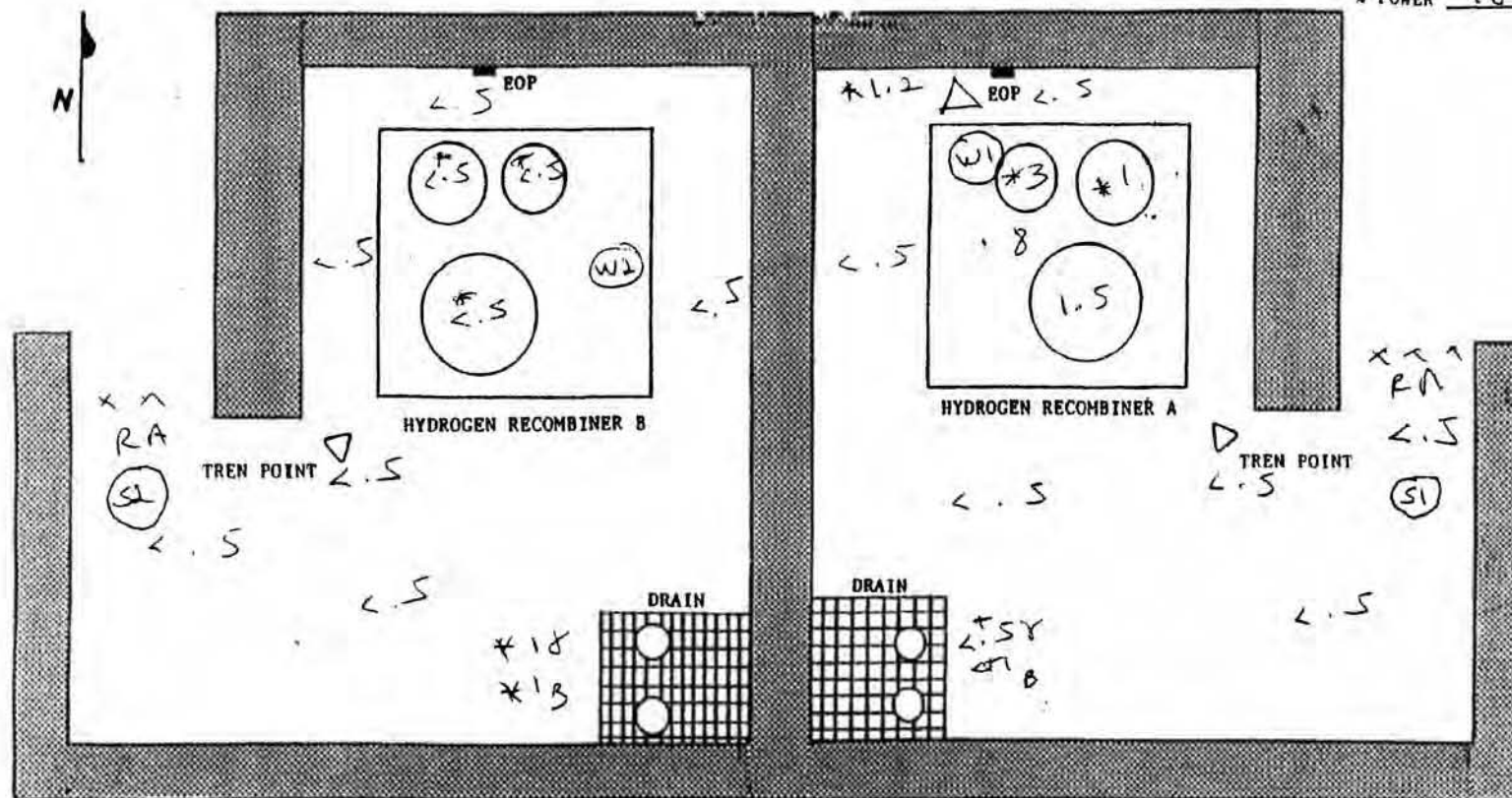
AB-88-14-15

SURVEY #

468

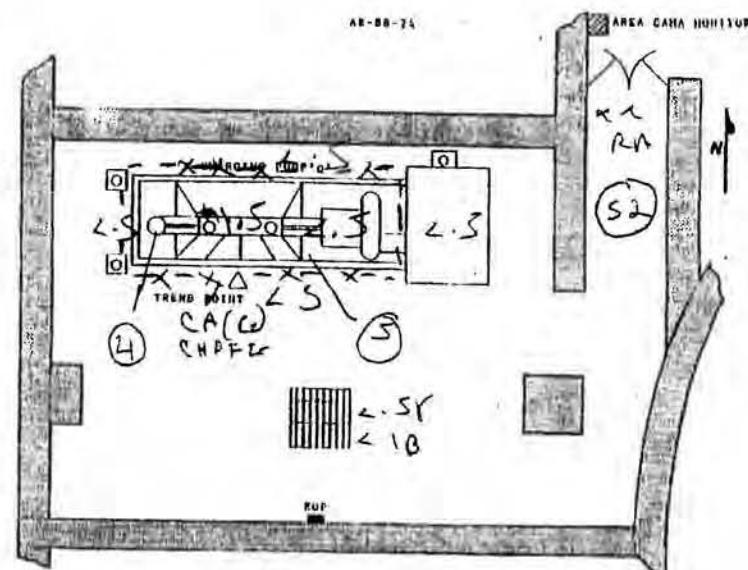
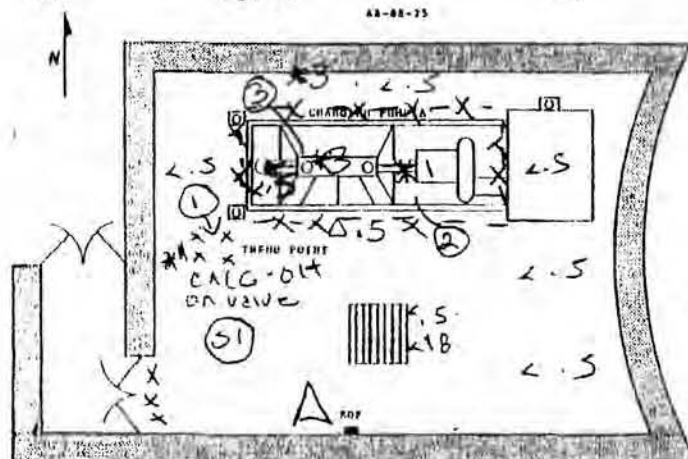
SWP/RWP# 08-01

X POWER 100



CONTAMINATION IN DPM/100 CM ²							COUNTER: RMHS	SERI 445	INST. TYPE: R620	SERI 3161
1	8	15	22	29			COUNTER:	SERI	INST. TYPE:	SERI
2	9	16	23	30			COMMENTS: BKG-150		SURVEYED BY: J. Saunders	
3	10	17	24	31			Sweeps & Wipes		TIME: 1645 DATE: 8-20-08	
4	11	18	25	32			= BKG		REVIEWED BY: SR151/Bene	
5	12	19	26	33					TIME: 1730 DATE: 8-25-08	
6	13	20	27	34						
7	14	21	28	35						

*DENOTES CONTACT READINGS, ALL OTHERS IN mR/hr UNLESS OTHERWISE NOTED (Beta/Gamma)



4. $\angle 1 \cong \angle 2$
5. $\angle 1 \cong \angle 2$

CONTAMINATION IN DPH/100 CM ² :						COUNTER: RM145 SER. # 445		INST. TYPE: R020 SER. # 3161	
1	<1K	8	15	22	29	COUNTER: N/A SER. # N/A	INST. TYPE: N/A SER. # N/A		
2	1K	9	16	23	30	COMMENTS: BKG = 150	SURVEYED BY: J. Spindler/g. Land		
3	<1K	10	17	24	31	SWEEPS = BKG	TIME: 1200 DATE: 8-24-58		
4		11	18	25	32		REVIEWED BY: Shes/Man/O		
5	N	12	19	26	33		TIME: 1235 DATE: 8-26-58		
6	A	13	20	27	34				
7		14	21	28	35				

* DENOTES CONTACT READINGS, ALL OTHERS IN mR/hr UNLESS OTHERWISE NOTED (Beta/Gamma)

AB 412-01PA
WEST PENETRATION

Survey #: M-6021,441
S/RWP#: 08-01
% Rx Power: 100

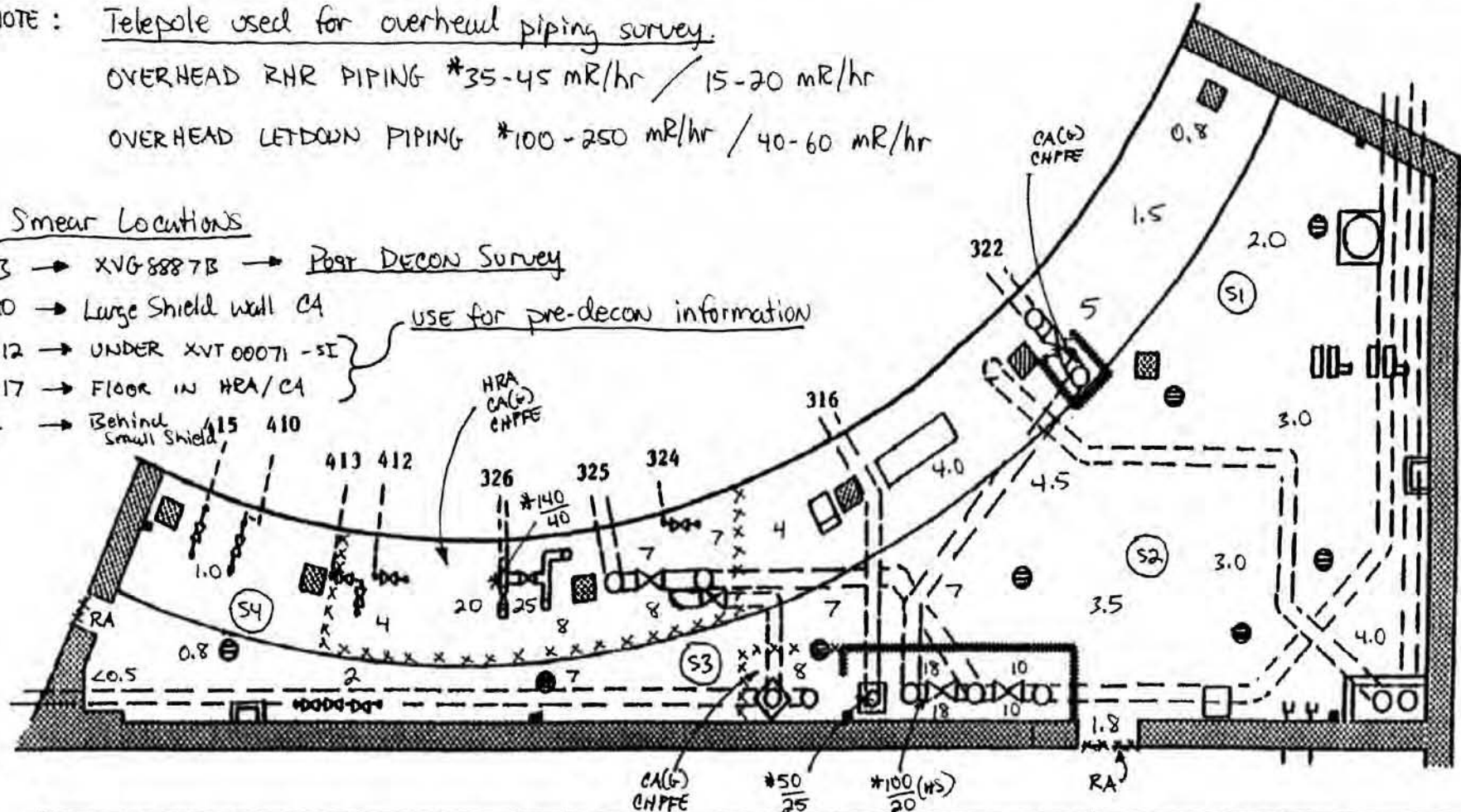
NOTE: Telepole used for overhead piping survey.

OVERHEAD RHR PIPING *35-45 mR/hr / 15-20 mR/hr

OVERHEAD LETDOWN PIPING *100-250 mR/hr / 40-60 mR/hr

Smear Locations

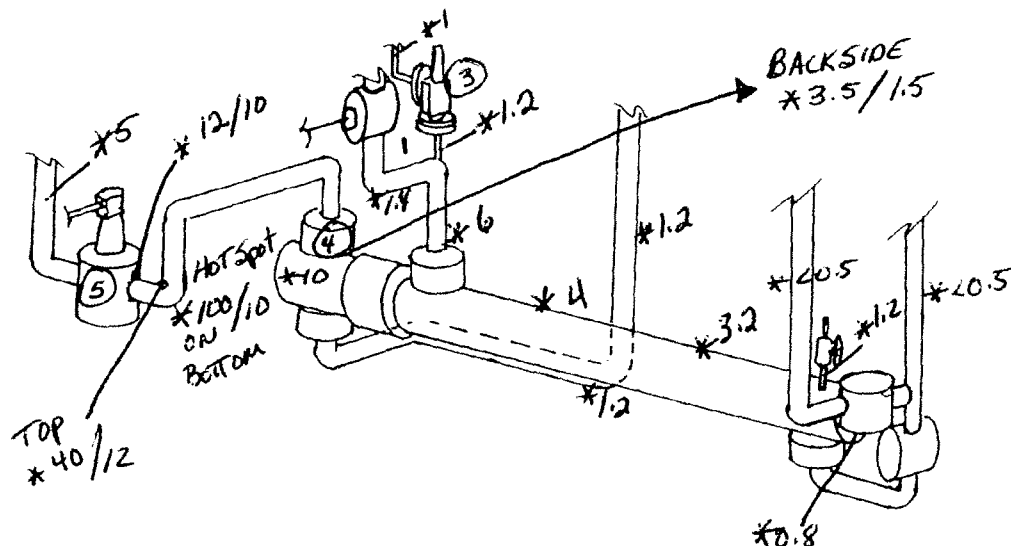
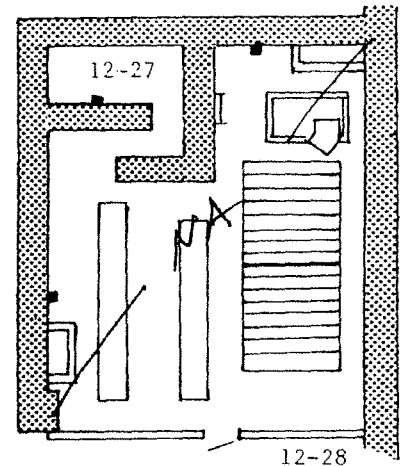
- 1-3 → XVG-8887B → Post DECON Survey
4-10 → Large Shield wall CA
11-12 → UNDER XVT00071-SI
13-17 → FLOOR IN HRA/CA
18 → Behind Small Shield
- USE for pre-decon information



Contamination in DPM/100cm ²						Counter: RM14	Ser# 4500	Inst. Type: J2020	Ser# 4747
1	2K	9	<1K	17	<1K	Counter: -	Ser# -	Inst. Type: tele pole	Ser# 6600-043
2	9K	10	<1K	18	3K	Bkg = 100	CPM	Surveyed By: W PRICE	
3	3K	11	3K	19	N/A	SWEEPS = 13K		Time: 0915	Date: 8-19-08
4	2K	12	5K	20		SMear #2 Sent for α quant		Reviewed By: J. RAUCH	
5	2K	13	<1K	21		TRUCKING # 2412		Time: 0950	Date: 08-19-08
6	<1K	14	<1K	22		(HS) = HOT SPOT (XVT00046-SI)			
7	<1K	15	<1K	23		Dose Received = 4 mR			
8	<1K	16	<1K	24					

* Denotes Contact Readings - All Readings are in MR/HR unless otherwise noted.

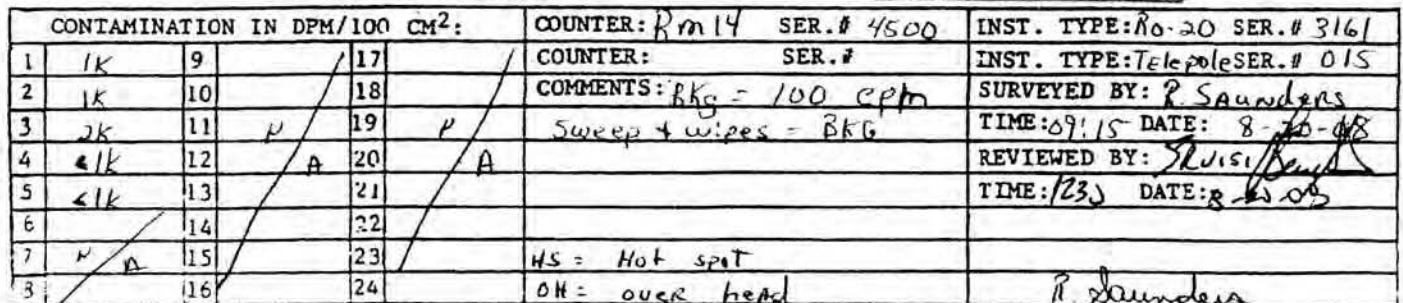
Survey #:	6006
S/RWP #:	08-01
% Rx Power:	100



Contamination in DPM/100cm ²				Counter: RM 14 Ser.# 4500		Inst. Type: R02 Ser.# 3137	
1	L200	9	17	Counter: R1c Ser.# 1		Inst. Type: N/A Ser.# N/A	
2	↓	10	18	Bkg. = 100 CPM		Surveyed By: Lisa Hall / J. Hall	
3		11	19	H.S. = Hot Spot		Time: 0945 Date: 8/8/08	
4	↓	12	20	O.H. = Overhead		Reviewed By: SHERIN / J. Hall	
5	L200	13	21	SWEEPS/WIRES = BKG		Time: 1250 Date: 8-8-08	
6		14	22	Dose Received = 0		mtd 8-8-08	
7	N/A	15	23				
8	N/A	16	24				

* Denotes Contact Readings - All Readings are in MR/HR unless otherwise noted.

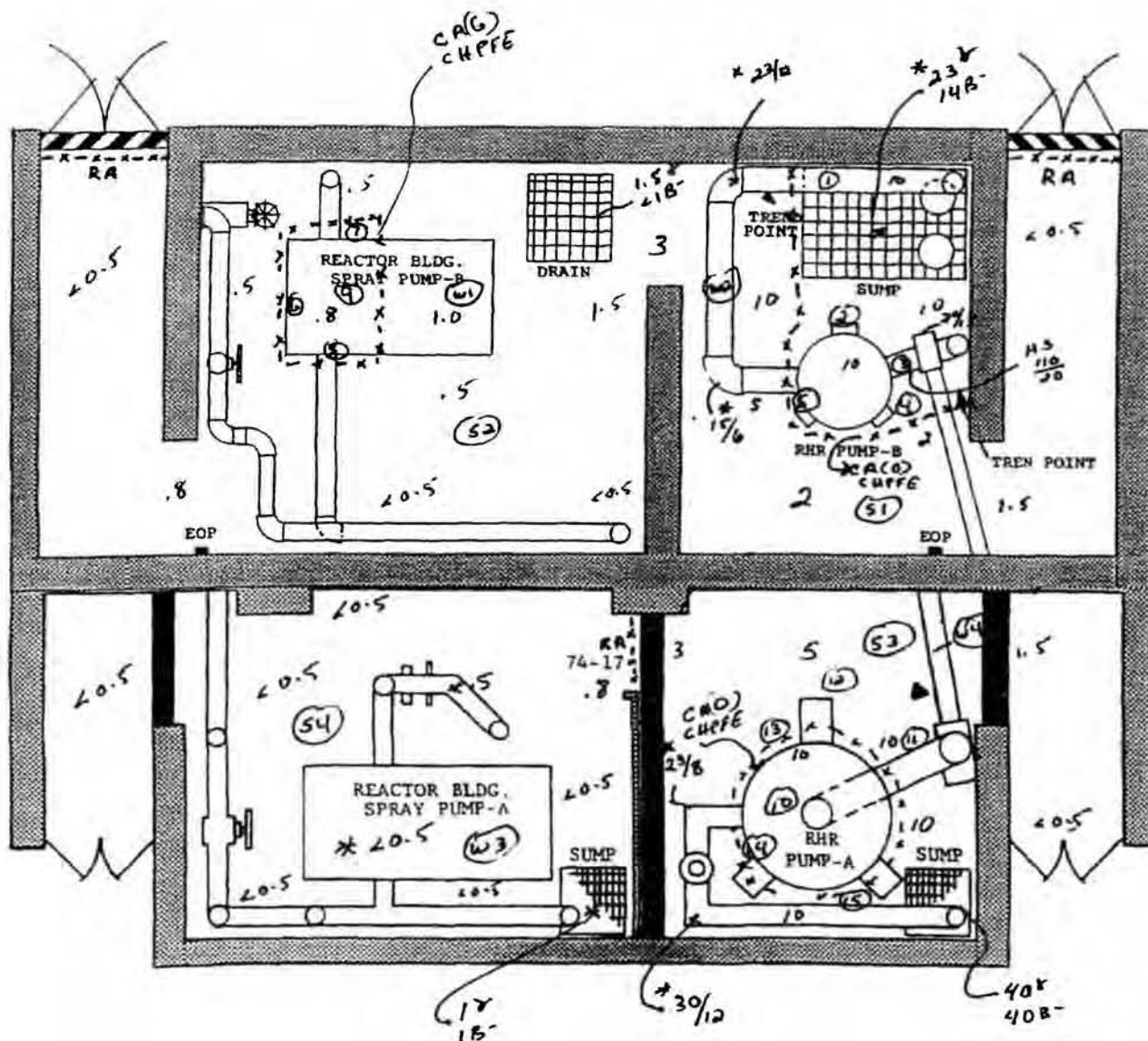
✓ POWER 100



* DENOTES CONTACT READINGS, ALL OTHERS IN mR/hr UNLESS OTHERWISE NOTED.

Survey #:	8-8039
S/RWP#:	08-01
% Rx Power:	100

AB 374-16/17
A & B RHR PUMPS



Contamination in DPM/100cm ²				Counter: Rm14 Ser.# 3475 ①	Inst. Type: R0-20 Ser.# 4747
1	<1K	9	<1K	17	Counter: M50 Ser.# 963
2	↑	10	1K	18	Rm14 Ser.# 445 ②
3		11	<200	19	Bkg = 80 CPM ①
4		12	↓	20	Bkg = 100 cpm ②
5		13	<200	21	Sweep & wipes = BKG
6		14	<1K	22	Dose Received =
7	↓	15	<200	23	
8	=1K	16	NA	24	

* Denotes Contact Readings - All Readings are in MR/HR unless otherwise noted.

V.C. SUMMER NUCLEAR STATION JOB PERFORMANCE MEASURE

JPM NO: 09 SRO A4

Classify an Emergency Event and complete the
Emergency Notification Form Within the Required
Time

APPROVAL:

APPROVAL DATE:

REV NO: 0

CANDIDATE: _____

EXAMINER: _____

SRO ONLY

THIS JPM IS NOT APPROVED

TIME CRITICAL JPM

TASK:

344-019-03-02

CLASSIFY EMERGENCY EVENTS REQUIRING EMERGENCY PLAN
IMPLEMENTATION

TASK STANDARD:

Correct EAL Determination and minimum required information on the Initial Notification Form; all
completed within the time critical requirements.

PREFERRED EVALUATION LOCATION

CLASSROOM

PREFERRED EVALUATION METHOD

SIMULATE

REFERENCES:

EPP-002

COMMUNICATION AND NOTIFICATION

EPP-001

ACTIVATION AND IMPLEMENTATION OF THE EMERGENCY

TOOLS:

EPP-001 ACTIVATION AND IMPLEMENTATION OF EMERGENCY
PLAN
EPP-002 COMMUNICATION AND NOTIFICATION

EVALUATION TIME

30

TIME CRITICAL

YES

10CFR55: 55.45(a)11

TIME START: _____

TIME FINISH: _____

PERFORMANCE TIME: _____

PERFORMANCE RATING:

SAT: _____

UNSAT: _____

EXAMINER: _____

SIGNATURE

DATE

INSTRUCTIONS TO OPERATOR

READ TO OPERATOR:

WHEN I TELL YOU TO BEGIN, YOU ARE TO PERFORM THE ACTIONS AS DIRECTED IN THE INITIATING CUES. I WILL DESCRIBE THE GENERAL CONDITIONS UNDER WHICH THIS TASK IS TO BE PERFORMED AND PROVIDE THE NECESSARY TOOLS WITH WHICH TO PERFORM THIS TASK. BEFORE STARTING, I WILL EXPLAIN THE INITIAL CONDITIONS, WHICH STEPS TO SIMULATE OR DISCUSS, AND PROVIDE INITIATING CUES. WHEN YOU COMPLETE THE TASK SUCCESSFULLY, THE OBJECTIVE FOR THIS JOB PERFORMANCE MEASURE WILL BE SATISFIED.


SAFETY CONSIDERATIONS: None

INITIAL CONDITION:

- 100% Power
- EDG 'B' is tagged out
- An Inadvertent Turbine trip occurs.
- The Reactor does not trip automatically or manually from the MCB hand switches.
- Reactor Trip Breakers cannot be manually opened.
- Safety Injection is actuated.
- A subsequent Loss of ALL Offsite Power occurs.
- DG 'A' output breaker fails to close.
- The EOF at the Nuclear Learning Center is available.
- Current wind direction is from 270 degrees.
- Current wind speed is 3 mph.
- * Current precipitation is none.
- Current stability class is Delta

INITIATING CUES: You are the Duty Shift Supervisor. Perform the duties of the Interim Emergency Director

THIS IS A TIME CRITICAL JPM!



HAND JPM BRIEFING SHEET TO OPERATOR AT THIS TIME!

JPM BRIEFING SHEET

OPERATOR INSTRUCTIONS:

SAFETY CONSIDERATIONS: None

INITIAL CONDITION:

- 100% Power
- EDG 'B' is tagged out
- An Inadvertent Turbine trip occurs.
- The Reactor does not trip automatically or manually from the MCB hand switches.
- Reactor Trip Breakers cannot be manually opened.
- Safety Injection is actuated.
- A subsequent Loss of ALL Offsite Power occurs.
- DG 'A' output breaker fails to close.
- The EOF at the Nuclear Learning Center is available.
- Current wind direction is from 270 degrees.
- Current wind speed is 3 mph.
- * Current precipitation is none.
- Current stability class is Delta

INITIATING CUES: You are the Duty Shift Supervisor. Perform the duties of the Interim Emergency Director

**HAND THIS PAPER BACK TO YOUR
EVALUATOR WHEN YOU FEEL THAT YOU
HAVE SATISFACTORILY COMPLETED THE
ASSIGNED TASK.**

STEPS

STEP: 1

CUES:

CR SEQ

No Yes Locate the appropriate "EAL Topic" and "Initiating Condition" and turn to the referenced page in Attachment II of EPP-001

STEP STANDARD:

Applicant determines that Section E-ENGINEERED SAFETY FEATURE (Failure of Reactor to Trip) applies

COMMENTS:

SAT _____

UNSAT _____

STEP: 2

CUES:

CR SEQ

Yes Yes The Interim Emergency Director (IED)/Emergency Director (ED) shall:

Determine the EAL by comparing the verified plant parameters or conditions to the detection method for each initiating condition. This evaluation period should not exceed 15 minutes from the occurrence of the event.

STEP STANDARD:

Applicant makes declaration of GENERAL EMERGENCY Initiating Condition (431) 1. AND 2.c:

Transient requiring operation of shutdown systems with failure to trip which results in core damage or additional failure of core cooling and makeup systems which could lead to core melt.

1. Reactor remains critical after attempted trip.

AND

2.c Flow indicators on safety injection systems and RHR systems show zero flow with safety injection initiated.

Initiating Condition (431)

Time Critical portion is from accepting the task until the event is declared is 15 minutes

Time Critical Start Time: _____

Time Critical Stop Time: _____

COMMENTS:

SAT _____

UNSAT _____

STEP: 3

CUES:

CR SEQ

Yes Yes Declare the appropriate EAL classification. Perform additional actions in accordance with the Emergency Operating Procedures (EOP) and the appropriate Emergency Plan Procedures (EPP).

STEP STANDARD:

Applicant implements EPP-001.4 (GENERAL EMERGENCY):

COMMENTS:

SAT _____

UNSAT _____

STEP: 4

CUES:

CR SEQ

No Yes Determine the location to which non-essential personnel will be evacuated. (Refer to Attachment 4)

STEP STANDARD:

Applicant makes determination to evacuate non-essential personnel and Fairfield Pumped Storage Facility to their personal residence.

COMMENTS:

SAT _____

UNSAT _____

STEP: 5

CUES:

Simulate all actions until going to EPP-002, COMMUNICATION AND NOTIFICATION.

CR SEQ

No Yes Announce the emergency condition and site evacuation to all plant personnel over the plan paging system.

STEP STANDARD:

Applicant should make the following announcement.

Announces emergency condition over plant page:

Attention in the Plant. Attention in the Plant.

The station is in an GENERAL EMERGENCY Condition. The initiating event is (some general statement as to Initiating Condition 431). All Emergency Response Personnel report to your duty stations. All non-essential personnel evacuate the site. Proceed to Your Private Residence. All essential personnel in the Radiation Control Area assemble at the RCA Checkpoint. All personnel shall refrain from eating, drinking, smoking, or chewing until further notice.

Sounds Radiation Emergency Alarm

Repeats the previous announcement

Determines EOF will be utilized.

Proceeds to EPP-002

COMMENTS:

SAT

UNSAT

STEP: 6

CUES:

Acknowledge direction to activate the pager system.

CR SEQ

Yes Yes Upon initial declaration of an emergency classification, the Interim Emergency Director (IED) shall:

For an Alert or higher emergency classification, inform the Shift Communicator to activate the Pager System Statewide and Local group calls for the utility's Emergency Response Organization (ERO), designating whether the Emergency Operations Facility (EOF) or Backup EOF is to be used.

STEP STANDARD:

Applicant directs shift communicator to activate the pager system. (✓)

COMMENTS:

SAT _____

UNSAT _____

STEP: 7

CUES:

CR SEQ

Yes Yes Applicant completes lines 1 through 13 on Attachment I, Page 1, Nuclear Power Plant Emergency Notification Form, with all the available information. Direct the Shift Communicator to make the initial notification to the State and local governments.

STEP STANDARD:

Completes Attachment 1

Critical Elements:

Step 1 DRILL OR ACTUAL EVENT
Step 4 EMERGENCY
CLASSIFICATION: GENERAL
EMERGENCY
Step 4 BASED ON EAL #: 431
Step 4 EAL DESCRIPTION:
TRANSIENT REQUIRING OPERATION
OF SHUTDOWN SYSTEMS WITH
FAILURE TO TRIP WHICH RESULTS
IN CORE DAMAGE OR ADDITIONAL
FAILURE OF CORE COOLING AND
MAKEUP SYSTEM WHICH COULD
LEAD TO CORE MELT
Step 5 PROTECTIVE ACTION
RECOMMENDATIONS:
Step 5 EVACUATE: A-0; B-1; C-1
Step 5 SHELTER: A-1; D-1; E-1; F-1; A-
2; B-2; C-2; D-2; E-2; F-2
Step 6 EMERGENCY RELEASE: NONE
Step 9 METEOROLOGICAL DATA:
Step 9 WIND DIRECTION FROM: 270
degrees
Step 9 WIND SPEED: 3 mph
Step 9 PRECIPITATION: None
Step 9 STABILITY CLASS: {D}
Step 10: DECLARATION;
DECLARATION TIME, TODAY's DATE

COMMENTS:

SAT _____

UNSAT _____

STEP: 8

CUES:

Evaluator Note: Mark the time that Attachment 1 is handed to the Shift Communicator _____.
This is the Critical STOP TIME.

Evaluator CUE: Acknowledges the request to make the initial notifications.

CR SEQ

Yes Yes Hands EPP-002, Attachment 1 to Shift Communicator and directs him/her to make Initial Notifications.

Time Critical Start Time: _____. Time of Declaration in Step 2

Time Critical Stop Time: _____. Time Attachment 1 given to Shift Communicator

STEP STANDARD:

Hands Attachment 1 to Shift Communicator in less than 15 minutes after the Event Declaration Time in JPM Step 2.

COMMENTS:

SAT

UNSAT _____

Examiner ends JPM at this point.

JPM SETUP SHEET

JPM NO: 09 SRO A4

DESCRIPTION: Classify an Emergency Event and complete the Emergency Notification Form
Within the Required Time

IC SET:

INSTRUCTIONS:

COMMENTS:

KEY

NUCLEAR POWER PLANT EMERGENCY NOTIFICATION FORM

1. ☒ DRILL OR ☒ ACTUAL EVENTMESSAGE # 0012. ☒ INITIAL ☐ FOLLOW-UP NOTIFICATION: TIME _____ DATE ____/____/____ AUTHENTICATION # _____3. SITE: V. C. Summer

Confirmation Phone # (____) _____

4. EMERGENCY CLASSIFICATION: ☐ UNUSUAL EVENT ☐ ALERT ☐ SITE AREA EMERGENCY ☒ GENERAL EMERGENCYBASED ON EAL # 431 EAL DESCRIPTION: TRANSIENT REQUIRING operation of Shutdown systems with failure to trip which results in core damage or Additional Failure of core cooling AND makeup system which could lead to CORE MELT.5. PROTECTIVE ACTION RECOMMENDATIONS: ☐ NONE☒ EVACUATE A-0, B-1, C-1☒ SHELTER A-1, D-1, E-1, F-1, A-2, B-2, C-2, D-2, E-2, F-2☐ CONSIDER THE USE OF KI (POTASSIUM IODIDE) IN ACCORDANCE WITH STATE PLANS AND POLICY.☐ OTHER _____6. EMERGENCY RELEASE: ☒ None ☐ Is Occurring ☐ Has Occurred7. RELEASE SIGNIFICANCE: ☒ Not applicable ☐ Within normal operating limits ☐ Above normal operating limits ☐ Under evaluation8. EVENT PROGNOSIS: ☐ Improving ☒ Stable OR ☒ Degrading9. METEOROLOGICAL DATA: Wind Direction* from 270 degrees Wind Speed* 3 mph

(*May not be available for Initial Notifications)

Precipitation* NONEStability Class* ☐ A ☐ B ☐ C ☒ D ☐ E ☐ F ☐ G10. ☒ DECLARATION ☐ TERMINATIONTime _____ Date ____/____/____
Declaration Time CURRENT DATE11. AFFECTED UNIT(S): ☒ 2 ☐ 3 ☐ All12. UNIT STATUS:
(Unaffected Unit(s) Status Not Required for Initial Notifications)☒ U1 0 % Power Shutdown at Time 0930 Date ____/____/____
☐ U2 _____ % Power Shutdown at Time _____ Date ____/____/____
☐ U3 _____ % Power Shutdown at Time _____ Date ____/____/____13. REMARKS: NO Additional REMARKS N/A OR LEFT BLANK

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

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

14. RELEASE CHARACTERIZATION: TYPE: ☐ Elevated ☐ Mixed ☐ Ground UNITS: ☐ Ci ☐ Ci/sec ☐ μ Ci/sec

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

FORM: ☒ Airborne Start Time _____ Date ____/____/____ Stop Time _____ Date ____/____/____☐ Liquid Start Time _____ Date ____/____/____ Stop Time _____ Date ____/____/____

15. PROJECTION PARAMETERS: Projection period: _____ Hours Estimated Release Duration _____ Hours

Projection performed: Time _____ Date ____/____/____

16. PROJECTED DOSE: DISTANCE TEDE (mrem) Adult Thyroid CDE (mrem)

Site boundary _____
2 Miles _____
5 Miles _____
10 Miles _____

17. APPROVED

BY: Rusty Ellis Title CRS

NOTIFIED RECEIVED

BY: _____ BY: _____

TIME Form APPROVED

Time 0955 Date ____/____/____

CURRENT DATE

Time _____ Date ____/____/____

SOUTH CAROLINA ELECTRIC & GAS COMPANY

VIRGIL C. SUMMER NUCLEAR STATION

NUCLEAR OPERATIONS

NUCLEAR OPERATIONS

COPY NO. _____

EMERGENCY PLAN PROCEDURE

EPP-001

ACTIVATION AND IMPLEMENTATION OF
EMERGENCY PLAN

REVISION 29

SAFETY RELATED

RECORD OF CHANGES

CHANGE LETTER	TYPE CHANGE	APPROVAL DATE	CANCELLATION DATE	CHANGE LETTER	TYPE CHANGE	APPROVAL DATE	CANCELLATION DATE
A	P	2/13/08					
B	P	5/23/08					

INFORMATION USE

Procedure may Be Performed From Memory.
User Retains Accountability For Proper Performance.

DOCUMENT REVIEW FORM

Page 1 of 1

Document Identification								
Originators Name: Leonard Bouknight				Ext: 54089		Mail Code: 507		
Date: 05/05/08		Document No.: EPP-001		Revision No.: 29		Change Letter: B		
Title: Activation and Implementation of Emergency Plan						<input checked="" type="checkbox"/> SR <input type="checkbox"/> QR <input type="checkbox"/> NNS		
Development Process: Permanent: (check one) <input checked="" type="checkbox"/> Normal Rev/Chg or <input type="checkbox"/> Editorial Correction <input type="checkbox"/> Temporary Approval								
Description: Revise Section 4 2								
Reason/Basis for Change: Clarify guidance that all Detection Methods must be met to declare and Emergency Action Level. Ref. CR-08-00916 Action # 02								
Is the SCOPE of the procedure affected by this change? NO <input checked="" type="checkbox"/> YES <input type="checkbox"/>								
Temporary Approval						Final approval required by: (30 days)		
QR		DC&R (Person Notified)		SS		Date		
Document Reviewers (Enclosure C)								
Required	Position	Type/Print Name	Comments Yes/No	*Additional	Position	Type/Print Name	Comments Yes/No	
	QR	T. McCullough	<input type="checkbox"/> <input checked="" type="checkbox"/>					<input type="checkbox"/> <input type="checkbox"/>
	NR <i>dw</i>		<input type="checkbox"/> <input type="checkbox"/>					<input type="checkbox"/> <input type="checkbox"/>
			<input type="checkbox"/> <input type="checkbox"/>					<input type="checkbox"/> <input type="checkbox"/>
			<input type="checkbox"/> <input type="checkbox"/>					<input type="checkbox"/> <input type="checkbox"/>
			<input type="checkbox"/> <input type="checkbox"/>					<input type="checkbox"/> <input type="checkbox"/>
Concurrence <i>[Signature]</i> 5/11/08 Supervisor/Date				Comment Due Date 5/25/08				
Pre-implementation Actions								
All Comments Resolved <input checked="" type="checkbox"/> Yes				<i>Leonard Bouknight</i> 05-22-08 <small>Originator/Date</small>				
Commitments Addressed per SAP-0630 <input checked="" type="checkbox"/> NA				<input type="checkbox"/> Yes, P/CAP # _____ <input type="checkbox"/> MLSA <small>Initial/Date</small>				
50.59 Applicability/Review Completed (SAP-0107) <input checked="" type="checkbox"/> NA				<input type="checkbox"/> Yes, Attached				
Pre-implementation Training Completed <input checked="" type="checkbox"/> NA				<input type="checkbox"/> Yes				
Training required after implementation <input checked="" type="checkbox"/> NA				<input type="checkbox"/> Yes, CR # _____				
PSRC Review Completed <input checked="" type="checkbox"/> NA				<input type="checkbox"/> Yes, Mtg. No. _____				
NSRC Review Completed <input checked="" type="checkbox"/> NA				<input type="checkbox"/> Yes, Mtg. No. _____				
CHAMPS Update Required <input checked="" type="checkbox"/> NA				<input type="checkbox"/> Yes Planner Notified _____ <small>Initial/Date</small>				
<i>[Signature]</i> 5/22/08 Supervisor/Date				<i>[Signature]</i> 5/23/08 Approval Authority/Date				

* Failure by the "Additional Reviewers" to provide comments within 5 working days following the comment due date may be considered as "No Comment"

DOCUMENT REVIEW FORM

Page 1 of ____

Document Identification							
Originators Name: Leonard Bouknight				Ext: 54089		Mail Code: 507	
Date: 01/03/08		Document No.: EPP-001		Revision No.: 29		Change Letter: A	
Title: Activation and Implementation of Emergency Plan						<input checked="" type="checkbox"/> SR <input type="checkbox"/> QR <input type="checkbox"/> NNS	
Development Process: Permanent: (check one) <input checked="" type="checkbox"/> Normal Rev/Chg or <input type="checkbox"/> Editorial Correction <input type="checkbox"/> Temporary Approval							
Description: Attachment II- Restored Diesel Building and Intermediate Building to Detection Method							
Reason/Basis for Change: Restore Detection Method to ^{as per 02-21-08} approved EAL							
Is the SCOPE of the procedure affected by this change? NO <input checked="" type="checkbox"/> YES <input type="checkbox"/>							
Temporary Approval						Final approval required by: (30 days)	
QR		DC&R (Person Notified)		SS		Date	
Document Reviewers (Enclosure C)							
Required	Position	Type/Print Name	Comments Yes/No	*Additional	Position	Type/Print Name	Comments Yes/No
	QR	McLoughlin	<input type="checkbox"/> <input checked="" type="checkbox"/>				<input type="checkbox"/> <input type="checkbox"/>
	NL	A. C. 6b	<input checked="" type="checkbox"/> <input type="checkbox"/>				<input type="checkbox"/> <input type="checkbox"/>
			<input type="checkbox"/> <input type="checkbox"/>				<input type="checkbox"/> <input type="checkbox"/>
			<input type="checkbox"/> <input type="checkbox"/>				<input type="checkbox"/> <input type="checkbox"/>
			<input type="checkbox"/> <input type="checkbox"/>				<input type="checkbox"/> <input type="checkbox"/>
Concurrence: <u>[Signature]</u> 1/4/08 Supervisor/Date				Comment Due Date: <u>1/18/08</u>			
Pre-implementation Actions							
All Comments Resolved				<input checked="" type="checkbox"/> Yes <u>[Signature]</u> 2/6/08 <small>Originator/Date</small>			
Commitments Addressed per SAP-0630				<input checked="" type="checkbox"/> NA <input type="checkbox"/> Yes, P/CAP # _____ <input type="checkbox"/> MLSA <small>Initial/Date</small>			
50 59 Applicability/Review Completed (SAP-0107)				<input checked="" type="checkbox"/> NA <input type="checkbox"/> Yes, Attached			
Pre-implementation Training Completed				<input checked="" type="checkbox"/> NA <input type="checkbox"/> Yes			
Training required after implementation				<input checked="" type="checkbox"/> NA <input type="checkbox"/> Yes, CR # _____			
PSRC Review Completed				<input checked="" type="checkbox"/> NA <input type="checkbox"/> Yes, Mtg No _____			
NSRC Review Completed				<input checked="" type="checkbox"/> NA <input type="checkbox"/> Yes, Mtg No _____			
CHAMPS Update Required				<input checked="" type="checkbox"/> NA <input type="checkbox"/> Yes, Planner Notified _____ <small>Initial/Date</small>			
<u>[Signature]</u> 2/6/08 Supervisor/Date				<u>[Signature]</u> 2/13/08 Approval Authority/Date			

* Failure by the "Additional Reviewers" to provide comments within 5 working days following the comment due date may be considered as "No Comment".

DOCUMENT REVIEW FORM

Page 1 of 1

Document Identification								
Originators Name: Bob Williamson				Ext: 54464		Mail Code: 507		
Date: 8/24/07		Document No.: EPP-001		Revision No.: 29		Change Letter:		
Title: ACTIVATION AND IMPLEMENTATION OF EMERGENCY PLAN						<input checked="" type="checkbox"/> SR <input type="checkbox"/> QR <input type="checkbox"/> NNS		
Development Process: Permanent: (check one) <input checked="" type="checkbox"/> Normal Rev/Chg or <input type="checkbox"/> Editorial Correction <input type="checkbox"/> Temporary Approval								
Description: Revision of Attachment II based on the review done IAW RIS 2007-01								
Reason/Basis for Change: RIS 2007-01								
Is the SCOPE of the procedure affected by this change? NO <input checked="" type="checkbox"/> YES <input type="checkbox"/>								
Temporary Approval						Final approval required by: (30 days)		
QR		DC&R (Person Notified)		SS		Date		
Document Reviewers (Enclosure C)								
Required	Position	Type/Print Name	Comments Yes/No	*Additional	Position	Type/Print Name	Comments Yes/No	
	QR	McCullough	<input checked="" type="checkbox"/> <input type="checkbox"/>					<input type="checkbox"/> <input type="checkbox"/>
			<input type="checkbox"/> <input type="checkbox"/>					<input type="checkbox"/> <input type="checkbox"/>
			<input type="checkbox"/> <input type="checkbox"/>					<input type="checkbox"/> <input type="checkbox"/>
			<input type="checkbox"/> <input type="checkbox"/>					<input type="checkbox"/> <input type="checkbox"/>
			<input type="checkbox"/> <input type="checkbox"/>					<input type="checkbox"/> <input type="checkbox"/>
Concurrence: <u>[Signature]</u> 8/27/07 Supervisor/Date				Comment Due Date 8/29/07				
Pre- implementation Actions								
All Comments Resolved				<input checked="" type="checkbox"/> Yes	<u>[Signature]</u> 8/27/07 Originator/Date			
Commitments Addressed per SAP-0630				<input checked="" type="checkbox"/> NA	<input type="checkbox"/> Yes, P/CAP # _____ <input type="checkbox"/> MLSA Initial/Date			
50.59 Applicability/Review Completed (SAP-0107)				<input checked="" type="checkbox"/> NA	<input type="checkbox"/> Yes, Attached			
Pre-implementation Training Completed				<input type="checkbox"/> NA	<input checked="" type="checkbox"/> Yes <u>CR</u>			
Training required after implementation				<input checked="" type="checkbox"/> NA	<input type="checkbox"/> Yes, <u>CR</u> # _____			
PSRC Review Completed				<input checked="" type="checkbox"/> NA	<input type="checkbox"/> Yes, Mtg. No. _____			
NSRC Review Completed				<input checked="" type="checkbox"/> NA	<input type="checkbox"/> Yes, Mtg. No. _____			
Other: <u>CHAMPS Update Required</u>				<input checked="" type="checkbox"/> NA	<input type="checkbox"/> Yes <u>Planner Notified</u> Initial/Date <u> </u>			
<u>[Signature]</u> 8/25/07 Supervisor/Date				<u>[Signature]</u> 8/30/07 Approval Authority/Date				

* Failure by the "Additional Reviewers" to provide comments within 5 working days following the comment due date may be considered as "No Comment".

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ATTACHMENTS

ATTACHMENT I - Emergency Action Level Cross Reference Guide

ATTACHMENT II - Emergency Action Levels

1.0 PURPOSE AND SCOPE

- 1.1 To define the Emergency Action Levels (EALs) that will activate and implement the Emergency Plan and to provide a means of classifying the emergency.
- 1.2 Changes and revisions to this procedure must ensure compliance with the requirements of 10CFR50.54.q, 10CFR50 Appendix B, and SAP-630. A 10CFR50.59 review is not required.

2.0 REFERENCES

- 2.1 Virgil C. Summer Nuclear Station FSAR, Appendix 13A, "South Carolina Electric and Gas Company Virgil C. Summer Nuclear Station Radiation Emergency Plan".
- 2.2 NUREG-0654, Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants.
- 2.3 10CFR50, Appendix E.
- 2.4 10CFR50.54 (x) and (y), Applicability of License Conditions and Technical Specifications in an Emergency.

C03 →

3.0 DEFINITIONS

- 3.1 NOTIFICATION OF UNUSUAL EVENT - Events are in process or have occurred which indicate a potential degradation in the level of safety of the plant or indicate a security threat to facility protection has been initiated. No releases of radioactive material requiring offsite response or monitoring are expected unless further degradation of safety systems occurs.
- 3.2 ALERT - Events are in process, or have occurred, which involve an actual or potential substantial degradation of the level of safety of the plant or a security event that involves probable life threatening risk to site personnel or damage to site equipment because of hostile action. Any releases are expected to be small fractions of the EPA Protective Action Guideline exposure levels.

- 3.3 SITE AREA EMERGENCY - Events are in process or have occurred which involve actual or likely major failures of plant functions needed for protection of the public or hostile actions that result in intentional damage or malicious acts; (1) toward site personnel or equipment that could lead to the likely failure of or; (2) that prevent effective access to equipment needed for the protection of the public. Any releases are not expected to result in exposure levels which exceed EPA Protective Action Guidelines exposure levels beyond the site boundary.
- 3.4 GENERAL EMERGENCY - Events are in process or have occurred which involve actual or imminent substantial core degradation or melting with potential for loss of containment integrity or hostile actions that result in an actual loss of physical control of the facility. Releases can be reasonably expected to exceed EPA Protective Action Guideline exposure levels offsite for more than the immediate site area.
- 3.5 HOSTILE ACTION – An act toward a nuclear power plant or its personnel that includes the use of violent force to destroy equipment, take hostages, and/or intimidates the licensee to achieve an end. This includes attack by air, land or water using guns, explosives, projectiles, vehicles or other devices used to deliver destructive force. Other acts that satisfy the overall intent may be included. Hostile Action should not be construed to include acts of civil disobedience or felonious acts that are not part of a concerted attack on the plant. Non-terrorism-based EALs should be used to address such activities, (e.g., violent acts between individuals in the owner controlled area.
- 3.6 HOSTILE FORCE – One or more individuals who are engaged in a determined assault, overtly or by stealth and deception, equipped with suitable weapons capable of killing, maiming or causing destruction.
- 3.7 OWNER CONTROL AREA – The area between the Vehicle Barrier System and the Protected Area Barrier.

4.0 CONDITIONS AND PREREQUISITES

- 4.1 The Emergency Plan shall be implemented whenever an "Initiating Condition" (as identified in Attachment II) has occurred.

NOTE 4.2

The implementation of any specific Emergency Plan Procedure (except this procedure) does not necessarily implement the Emergency Plan, but may do so at the discretion of the IED/ED. For example: a small chlorine leak would implement the toxic release procedure but not necessitate implementation of the Emergency Plan, whereas a large release with the potential of affecting the level of safety of the plant would implement the toxic release procedure and the Emergency Plan due to the declaration of a NUE.

- 4.2 The "Initiating Condition" and "Detection Method" shall be used to determine the applicable Emergency Action Level (EAL). All Detection Methods must be met prior to declaring an EAL.
- 4.3 The 3 digit number in parenthesis associated with EALs on Attachment II is only used for quick reference by VCS personnel.

Chg.
B

NOTE 4.4

When the plant is in a security related event, deviation from the guidance in the Emergency Plan Procedures is allowed when the safety of plant personnel and/or plant equipment must be considered. EPP-027 must be implemented for Security-related events.

- 4.4 The Duty Shift Supervisor must concur with any actions that depart from a license condition or technical specification in an emergency when such actions are immediately needed to protect the public health and safety (Reference 2.4).
- 4.5 Attachment I provides a cross reference for the EAL Classification and should only be used as a guide to locate the "EAL Topic" and the "Initiating Condition" in Attachment II, Emergency Action Levels.

5.0 PROCEDURE

- 5.1 Upon recognition of an abnormal plant or site condition, the observer shall notify the Duty Shift Supervisor of the potential emergency plan condition.

NOTE 5.2

When the TSC is activated, the ED is responsible for determining the appropriate EAL and emergency classification.

- 5.2 The Interim Emergency Director (IED)/Emergency Director (ED) shall:

- A. Using Attachment I for guidance, locate the appropriate "EAL Topic" and "Initiating Condition" and turn to the referenced page in Attachment II.
- B. Determine the EAL by comparing the verified plant parameters or conditions to the detection method for each initiating condition. This evaluation period should not exceed 15 minutes from the occurrence of the event.
- C. Declare the appropriate EAL classification. Perform additional actions in accordance with the Emergency Operating Procedures (EOP) and the appropriate Emergency Plan Procedures (EPP).

Notification of Unusual Event	- EPP-001.1
Alert	- EPP-001.2
Site Area Emergency	- EPP-001.3
General Emergency	- EPP-001.4

- D. When the plant is in a security related event, deviation from the guidance in the Emergency Plan Procedures is allowed when the safety of plant personnel and/or plant equipment must be considered. EPP-027 must be implemented for Security-related events.

5.3 Undeclared or Misclassified Events

- C01→ A. When it is discovered that an event or condition had existed which met the criteria for Emergency Plan activation but no emergency had been declared and the basis for the EAL classification no longer exists, the IED/ED shall ensure that an ENS notification to the NRC and ESSX notification to the State and local governments is made within one hour of the discovery of the undeclared or misclassified event. No "after-the-fact" emergency declaration is necessary.

6.0 RECORDS

- 6.1 There are no records generated by this procedure.

7.0 REVISION SUMMARY

- 7.1 Complete revision Attachment II to incorporate changes made IAW RIS 2007-01.
- 7.2 Revision 29 Change A includes the following:
 - 7.2.1 Revised Attachment II to reflect the EAL Detection Method change to EAL #392A in Revision 55 of the Radiation Emergency Plan.

EMERGENCY ACTION LEVEL CROSS REFERENCE GUIDE

**NOTE: This Attachment is not to be used for EAL Classification.
Refer to Attachment II.**

<u>EAL TOPIC</u>	<u>PAGE</u>
A. Reactor Coolant System Leakage or LOCA	
1. RCS Leakage	1
2. LOCA.....	2, 3
3. Failure of Pressurizer or Steam Generator Safety or Relief Valve to Reseat	2
4. Loss of Fission Product Barriers.....	3
B. Steam Generator Tube Leak or Rupture	4
C. Secondary System	
1. Main Steam Line Break or Secondary System Depressurization	5
2. Stuck Open Steam Generator Safety or Relief Valve	5
3. Loss of Heat Sink	6
4. Turbine or Generator Failure	7
D. Nuclear Fuel	
1. Fuel Damage	8
2. Fuel Handling Accident.....	9
E. Engineered Safety Feature (Failure of Reactor to Trip).....	10
F. Loss of Station Power	
1. Station AC Power	11
2. Station DC Power	12
G. Radiological Effluents	13,14
H. Fire	15
I. Security.....	16
J. Natural Phenomenon	
1. Earthquake	17
2. Tornado or Wind.....	18
3. Hurricane	18

EMERGENCY ACTION LEVEL CROSS REFERENCE GUIDE

**NOTE: This Attachment is not to be used for EAL Classification.
Refer to Attachment II.**

<u>EAL TOPIC</u>	<u>PAGE</u>
K. Manmade Phenomenon	
1. Aircraft Crash.....	19
2. Train Derailment.....	19
3. Missile Impacts or Explosion	20
4. Toxic or Flammable Gas	21
L. Loss of RHR at Half Pipe Operations	22
M. Loss of Plant Annunciators	23
N. Control Room Evacuation.....	23
O. Emergency Director Discretion	24
P. Other	
1. Loss of Communications	25
2. Loss of Functions for Cold Shutdown	25
3. Loss of Functions for Hot Shutdown.....	25

EMERGENCY ACTION LEVELS
REACTOR COOLANT SYSTEM LEAKAGE OR LOCA (1 of 3)

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
<p>INITIATING CONDITION (101) RCS LEAKAGE</p> <p><u>Detection Method:</u> ANY of the following exceeded (1 OR 2 OR 3):</p> <p>-----</p> <p>1. Unidentified Leakage greater than 10 gpm.</p> <p>----- <u>OR</u> -----</p> <p>2. Pressure Boundary Leakage greater than 10 gpm.</p> <p>----- <u>OR</u> -----</p> <p>2. Identified Leakage greater than 25 gpm.</p> <p>-----</p>	<p>INITIATING CONDITION (201) REACTOR COOLANT LEAKAGE RATE EXCEEDS 50 GALLONS PER MINUTE</p> <p><u>Detection Method:</u> Evaluation of the following to determine leakage rate:</p> <p>-----</p> <p>Note: This excludes SG Tube Leakage. (See Specific Table for SG Tube Leakage)</p> <p>1. Excessive Makeup to the Volume Control Tank.</p> <p>2. IPCS CHG_{NET}</p> <p>3. STP-114.002, Operational Leak Test.</p>	<p>INITIATING CONDITION (301) KNOWN LOCA GREATER THAN CHARGING PUMP CAPACITY</p> <p><u>Detection Method:</u> 1. <u>ALL</u> of the following:</p> <p>a. Pressurizer low pressure reactor trip. b. Pressurizer low pressure safety injection signal. c. High Reactor Building pressure. d. High Reactor Building Sump level. e. Abnormal radiation levels as indicated on RM-A2 (if unisolated) OR RM-G5, OR RM-G7 OR RM-G18. f. Reactor Building Cooling Units Drain Flow High.</p>	<p>INITIATING CONDITION (401) SMALL AND LARGE LOCA'S WITH FAILURE OF ECCS TO PERFORM LEADING TO SEVERE CORE DEGRADATION OR MELT. ULTIMATE FAILURE OF REACTOR BUILDING POSSIBLE FOR MELTDOWN SEQUENCES</p> <p><u>Detection Method:</u> 1. Safety Injection signal with reactor trip.</p> <p>AND</p> <p>2. <u>EITHER</u> of the following:</p> <p>a. Status lamps indicate safety injection system and RHR pumps not running.</p> <p>OR</p> <p>b. Flow indicators for safety injection systems read zero.</p> <p>AND</p> <p>3. RMG-5, AND RMG-7, AND RMG-18 High Alarms.</p> <p>AND</p> <p>4. RM-A2 High Range Alarm (if unisolated).</p>

EMERGENCY ACTION LEVELS
REACTOR COOLANT SYSTEM LEAKAGE OR LOCA (2 OF 3)

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
<p>INITIATING CONDITION (102) FAILURE OF A PRESSURIZER OR STEAM GENERATOR SAFETY OR RELIEF VALVE TO RESEAT (EXCEEDING NORMAL WEEPAGE)</p> <p><u>Detection Method:</u></p> <p>Pressurizer or Steam Generator Safety or Relief Valve opens and then fails to reseat as indicated by:</p> <p><u>EITHER 1 OR 2 OR 3:</u></p> <p>-----OR-----</p> <p>1. Valid open indication on <u>ANY</u> of the following: <u>EITHER</u> (a <u>OR</u> b <u>OR</u> c)</p> <p>a) Unisolable Pressurizer Relief Valve</p> <p><u>OR</u></p> <p>b) Pressurizer Safety Valve</p> <p><u>OR</u></p> <p>c) Valid Acoustical Monitor Indication</p> <p>-----OR-----</p> <p>2. Valid open indication on <u>EITHER</u> of the following:</p> <p>a.) Unisolable Steam Generator Relief Valve.</p> <p><u>OR</u></p> <p>b.) Stuck open Steam Generator Safety Valve.</p> <p>-----OR-----</p> <p>3. Excess feedwater flow to and steam flow from the affected Steam Generator.</p>			<p>INITIATING CONDITION (402) SMALL LOCA AND INITIALLY SUCCESSFUL ECCS. SUBSEQUENT FAILURE OF REACTOR BUILDING HEAT REMOVAL SYSTEMS OVER SEVERAL HOURS COULD LEAD TO CORE MELT AND POSSIBLE FAILURE OF THE REACTOR BUILDING</p> <p><u>Detection Method:</u></p> <p>1. a. Pressurizer low pressure reactor trip.</p> <p>AND</p> <p>b. Pressurizer low pressure safety injection signal.</p> <p>AND</p> <p>2. a. RHR flow indicators show zero flow after shift to RHR is attempted.</p> <p>AND</p> <p>b. RHR flow indicators continue to show zero flow for greater than 2 hours.</p> <p>AND</p> <p>c. RCS temperature rising.</p> <p>AND</p> <p>3. Reactor Building spray and Reactor Building air handling system fail to function.</p>

**EMERGENCY ACTION LEVELS
REACTOR COOLANT SYSTEM LEAKAGE OR LOCA (3 OF 3)**

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
			<p>INITIATING CONDITION (403) LOSS OF TWO OF THREE FISSION PRODUCT BARRIERS WITH POTENTIAL LOSS OF THE THIRD BARRIER (E.G., LOSS OF FUEL INTEGRITY AND PRIMARY COOLANT BOUNDARY AND HIGH POTENTIAL FOR RADIOACTIVITY RELEASE FROM CONTAINMENT)</p> <p><u>Detection Method:</u></p> <ol style="list-style-type: none"> 1. a. Primary coolant dose equivalent I-131 activity $\geq 300 \mu\text{Ci/ml}$. OR b. RM-L1 High Range Alarm (if unisolated). AND c. LOCA in progress. AND d. Reactor Building pressure > 30 psig for at least 2 minutes. OR 2. a. Primary coolant dose equivalent I-131 activity $\geq 300 \mu\text{Ci/ml}$. OR b. RM-L1 High Range Alarm (If unisolated). AND c. Breach of containment integrity. AND d. <u>EITHER</u> of the following: <ol style="list-style-type: none"> 1) RCS leakage greater than Technical Specification allowable. 2) RCS pressure > 2335 psig. OR 3. a. LOCA as identified in Site Area Emergency(301) AND b. Breach of containment integrity. AND c. <u>EITHER</u> of the following: <ol style="list-style-type: none"> 1) Dose Equivalent 1-131 activity > 1 $\mu\text{Ci/ml}$ in primary coolant. OR 2) Core Exit temperature > 700° F.

**EMERGENCY ACTION LEVELS
STEAM GENERATOR TUBE LEAK OR RUPTURE**

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
INITIATING CONDITION (103) EXCEEDING TECHNICAL SPECIFICATION PRIMARY TO SECONDARY LEAK RATE LIMIT <u>Detection Method:</u> Primary to Secondary Leak Rate Exceeds Technical Specification 3.4.6.2 Limits: Greater than 150 gallons per day from any one Steam Generator. -----	INITIATING CONDITION (203) RAPID FAILURE OF SEVERAL STEAM GENERATOR TUBES (e.g., SEVERAL HUNDRED GALLONS PER MINUTE PRIMARY-TO-SECONDARY LEAK RATE) <u>Detection Method:</u> 1. <u>ALL</u> of the following: a. Pressurizer low pressure alarm. b. Reactor trip. c. Pressurizer low level alarm. d. RM-A9 high alarm (if unisolated). e. Steam generator water level rapidly increasing in one or more steam generator(s), falling in the others. f. RM-L3, OR RM-L7, OR RM-L10 high alarms (if unisolated). g. Possible lifting of steam generator PORV's and/or safety valves.	INITIATING CONDITION (302) RAPID FAILURE OF SEVERAL STEAM GENERATOR TUBES (SEVERAL HUNDRED GPM PRIMARY-TO-SECONDARY LEAK RATE) WITH LOSS OF OFFSITE POWER <u>Detection Method:</u> 1. a. Pressurizer low pressure alarm and reactor trip. OR b. Pressurizer level rapidly decreasing. AND 2. <u>ALL</u> of the following: a. Pressurizer low-level alarm. b. RM-A9 High Alarm (if unisolated). c. Undervoltage alarms on 1DA and 1DB. d. Steam Generator water level rapidly increasing in one or more steam generators, falling in the others. e. RM-L3 OR RM-L7 OR RM-L10 high alarm (if unisolated). f. Possible lifting of steam generator PORV's and/or safety valves.	
	ALERT INITIATING CONDITION (202) RAPID GROSS FAILURE OF ONE STEAM GENERATOR TUBE WITH LOSS OF OFFSITE POWER <u>Detection Method:</u> 1. <u>ALL</u> of the following: a. Pressurizer low pressure alarm. b. Reactor trip. c. Pressurizer low level alarm. d. RM-A9 high alarm (if unisolated). e. Pressurizer low pressure safety injection signal. f. Undervoltage alarms on 1DA and 1DB. g. RM-L3, OR RM-L7, OR RM-L10 high alarms (if unisolated).		

**EMERGENCY ACTION LEVELS
MAIN STEAM LINE BREAKS OR SECONDARY DEPRESSURIZATION**

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
INITIATING CONDITION (104) RAPID SECONDARY SYSTEM DEPRESSURIZATION <u>Detection Method:</u> 1. Increased steam flow. AND 2. Reduced RCS temperature and pressure. AND 3. Observation of break or steam dump, relief or safety-valve inadvertently opened.	INITIATING CONDITION (204) MAJOR STEAM LINE BREAK (e.g., GREATER THAN 6 INCHES EQUIVALENT DIAMETER) WITH A SIGNIFICANT (E.G., GREATER THAN 10 GPM) PRIMARY-TO-SECONDARY LEAK RATE <u>Detection Method:</u> 1. <u>ALL</u> of the following: a. Rapidly decreasing reactor coolant Tav _g . b. Rapidly decreasing pressurizer pressure. c. Rapidly decreasing pressurizer level. d. RM-L3, OR RM-L7, OR RM-L10 high alarms (if unisolated). AND 2. a. <u>ALL</u> of the following: 1) Steam line differential pressure safety injection signal. 2) High Reactor Building pressure alarm. 3) RM-A2 high alarm for rupture in Reactor Building (if unisolated). OR b. <u>EITHER</u> 1) High steam flow and Lo-Lo Tav _g . 2) Low steam pressure safety injection signal for rupture downstream of MSIV's.	INITIATING CONDITION (303) MAJOR STEAM LINE BREAK WITH GREATER THAN 50 GALLONS PER MINUTE PRIMARY-TO-SECONDARY LEAKAGE AND INDICATION OF FUEL DAMAGE <u>Detection Method:</u> 1. Rapidly decreasing reactor coolant Tav _g / pressurizer pressure and pressurizer level. AND (Either 2 or 3) 2. a. Steam line differential pressure safety injection signal. AND b. High Reactor Building pressure alarm. AND c. RM-A2 high alarm (if unisolated). AND d. Failed Fuel Monitor (RM-L1) Alarm for rupture in Reactor Building (if unisolated). OR e. Primary coolant dose equivalent I-131 activity $\geq 300 \mu\text{Ci/ml}$. OR 3. a. High steam flow. AND b. <u>EITHER</u> of the following: 1) Lo-Lo Tav _g . 2) Low steam pressure safety injection signal. AND c. RM-A9 high alarm (if unisolated). AND d. Failed Fuel Monitor (RM-L1) high alarm (if unisolated). OR e. Primary coolant dose equivalent I-131 activity $\geq 300 \mu\text{Ci/ml}$.	

EMERGENCY ACTION LEVELS
LOSS OF HEAT SINK

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
		SEE INITIATING CONDITION 301 (REACTOR COOLANT SYSTEM LOCA)	<p>INITIATING CONDITION (411) TRANSIENT INITIATED BY LOSS OF FEEDWATER AND CONDENSATE SYSTEMS (PRINCIPAL HEAT REMOVAL SYSTEM) FOLLOWED BY FAILURE OF EMERGENCY FEEDWATER SYSTEM FOR EXTENDED PERIOD. CORE MELTING POSSIBLE IN SEVERAL HOURS. ULTIMATE FAILURE OF REACTOR BUILDING POSSIBLE IF CORE MELTS</p> <p><u>Detection Method:</u></p> <p>1. a. Reactor trip.</p> <p>AND</p> <p>b. Decreasing wide-range steam generator levels toward off-scale low on all steam generators.</p> <p>AND</p> <p>2. a. Emergency feedwater flow indicators indicate zero flow 2 min. after required.</p> <p>OR</p> <p>b. Status lamps indicate emergency feedwater pumps not running 2 min. after required.</p> <p>AND</p> <p>3. Emergency feedwater cannot be restored within 30 min.</p>

EMERGENCY ACTION LEVELS
 TURBINE OR GENERATOR FAILURE

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
INITIATING CONDITION (105) OTHER HAZARDS BEING EXPERIENCED OR PROJECTED WHICH HAVE THE POTENTIAL FOR ENDANGERING THE FACILITY TURBINE-GENERATOR ROTATING COMPONENT FAILURE CAUSING RAPID PLANT SHUTDOWN <u>Detection Method:</u> 1. Turbine trip and observation of turbine malfunction or failure.	INITIATING CONDITION (292) OTHER HAZARDS BEING EXPERIENCED OR PROJECTED WHICH HAVE A SIGNIFICANT POTENTIAL FOR AFFECTING PLANT SAFETY TURBINE TRIP AND OBSERVATION OF PENETRATION OF CASING <u>Detection Method:</u> 1. Turbine generator failure causing casing penetration.		

EMERGENCY ACTION LEVELS
FUEL

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
<p>INITIATING CONDITION (108) FUEL DAMAGE INDICATION</p> <p><u>Detection Method:</u></p> <p><u>ALL</u> of the following (1 AND 2):</p> <p>1. RM-L1 High Range Alarm,</p> <p style="text-align: center;">AND</p> <p>2. Primary coolant dose equivalent I-131 activity $\geq 30 \mu\text{Ci/ml}$.</p>	<p>INITIATING CONDITION (221) POSSIBLE FUEL DAMAGE</p> <p><u>Detection Method:</u></p> <p>1. Primary coolant sample indicates equivalent I-131 concentration $> 300 \mu\text{Ci/ml}$.</p> <p style="text-align: center;">OR</p> <p>2. a. Failed Fuel Monitor High Range alarm RM-L1 (if unisolated).</p> <p style="text-align: center;">AND</p> <p>b. Laboratory analysis which indicates <u>EITHER</u> of the following:</p> <p>1) Increase in failed fuel of 1 percent in 30 min.</p> <p>2) A total failed fuel of 5%.</p>	<p>INITIATING CONDITION (321) DEGRADED CORE WITH POSSIBLE LOSS OF COOLABLE GEOMETRY</p> <p><u>Detection Method:</u></p> <p>1. Valid readings on in core thermocouples above 700°F.</p> <p style="text-align: center;">AND</p> <p>2. a. T_{hot} and T_{cold} rapidly diverging (ΔT rapidly increasing).</p> <p style="text-align: center;">OR</p> <p>b. No ΔT across core.</p> <p style="text-align: center;">AND</p> <p>3. RM-L1 High Range Alarm off scale (greater than 10^6 cpm) (if unisolated).</p>	

EMERGENCY ACTION LEVELS
FUEL HANDLING

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
	<p>INITIATING CONDITION (222) FUEL HANDLING ACCIDENT WITH RELEASE OF RADIOACTIVITY TO REACTOR OR FUEL HANDLING BUILDING</p> <p><u>Detection Method:</u></p> <ol style="list-style-type: none"> 1. Observation of damage to spent fuel assembly. <p>AND</p> <ol style="list-style-type: none"> 2. <u>EITHER</u> of the following: <ol style="list-style-type: none"> a. RM-A2 high alarm and/or RMG-17A, 17B high alarm after accident in Reactor Building. <p>OR</p> <ol style="list-style-type: none"> b. RM-A6 high alarm OR RMG-8 high alarm; after accident in Fuel Handling Building. 	<p>INITIATING CONDITION (322) MAJOR DAMAGE TO MORE THAN ONE SPENT FUEL ASSEMBLY IN REACTOR BUILDING OR FUEL HANDLING BUILDING LEADING TO CLAD RUPTURE (e.g., LARGE OBJECT DAMAGES FUEL OR WATER LOSS BELOW FUEL LEVEL)</p> <p><u>Detection Method:</u></p> <ol style="list-style-type: none"> 1. Observations of major damage to more than one spent fuel assembly. <p>OR</p> <ol style="list-style-type: none"> 2. a. Spent fuel pool water below fuel level. <p>AND</p> <ol style="list-style-type: none"> b. <u>EITHER</u> of the following: <ol style="list-style-type: none"> 1) RM-A2 and/or RMG-17A, 17B high alarm for accident in Reactor Building. <p>OR</p> <ol style="list-style-type: none"> 2) RM-A6 and/or RMG-8 high alarm for accident in Fuel Handling Building. 	

EMERGENCY ACTION LEVELS
ENGINEERED SAFETY FEATURE (FAILURE OF REACTOR TO TRIP)

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
	<p>INITIATING CONDITION (231) FAILURE OF THE REACTOR PROTECTION SYSTEM TO INITIATE AND COMPLETE A TRIP WHICH BRINGS THE REACTOR SUBCRITICAL</p> <p><u>Detection Method:</u></p> <p><u>ALL</u> of the following (1 <u>AND</u> 2):</p> <p>-----</p> <p>1. An automatic reactor trip fails when required,</p> <p>-----<u>AND</u>-----</p> <p>2. A manual reactor trip from either MCB handswitch <u>is successful</u>.</p>	<p>INITIATING CONDITION (331) TRANSIENT REQUIRING OPERATION OF SHUTDOWN SYSTEMS WITH FAILURE TO TRIP (CONTINUED GENERATION, NO FUEL DAMAGE EVIDENT)</p> <p><u>Detection Method:</u></p> <p><u>ALL</u> of the following (1 and 2):</p> <p>1. An automatic Reactor trip fails when required.</p> <p>AND</p> <p>2. Reactor remains critical after attempted manual trip from MCB handswitches.</p>	<p>INITIATING CONDITION (431) TRANSIENT REQUIRING OPERATION OF SHUTDOWN SYSTEMS WITH FAILURE TO TRIP WHICH RESULTS IN CORE DAMAGE OR ADDITIONAL FAILURE OF CORE COOLING AND MAKEUP SYSTEMS WHICH COULD LEAD TO CORE MELT</p> <p><u>Detection Method:</u></p> <p>1. Reactor remains critical after attempted trip.</p> <p>AND</p> <p>2. <u>ANY</u> of the following:</p> <p>a. RM-L1 High Range Alarm (if unisolated).</p> <p>OR</p> <p>b. Primary coolant dose equivalent I-131 activity >300 $\mu\text{Ci/ml}$.</p> <p>OR</p> <p>c. Flow indicators on safety injection systems and RHR systems show zero flow with safety injection initiated.</p> <p>OR</p> <p>d. Status lights show safety injection systems and RHR pumps not running with safety injection initiated.</p>

EMERGENCY ACTION LEVELS
LOSS OF STATION AC POWER

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
<p>INITIATING CONDITION (107) TOTAL LOSS OF OFFSITE POWER OR LOSS OF ONSITE AC POWER CAPABILITY</p> <p><u>Detection Method:</u></p> <p><u>ANY</u> of the following (1 or 2):</p> <ol style="list-style-type: none"> 1. a. Undervoltage alarms on 1DA and 1DB buses. <p style="text-align: center;">OR</p> <ol style="list-style-type: none"> 2. a. Loss of 115KV ESF Potential lights. <p style="text-align: center;">AND</p> <ol style="list-style-type: none"> b. Loss of 230KV ESF Potential lights. 	<p>INITIATING CONDITION (241) LOSS OF OFFSITE POWER <u>AND</u> LOSS OF ALL ONSITE AC POWER FOR MORE THAN 5 MINUTES</p> <p><u>Detection Method:</u></p> <p><u>ALL</u> of the following (1 AND 2 AND 3): Lost for a period of greater than 5 minutes.</p> <ol style="list-style-type: none"> 1. Undervoltage alarms on 1 DA and 1DB buses. <p style="text-align: center;">AND</p> <ol style="list-style-type: none"> 2. Loss of 115KV ESF Potential lights. <p style="text-align: center;">AND</p> <ol style="list-style-type: none"> 3. Loss of 230KV ESF Potential lights. 	<p>INITIATING CONDITION (341) LOSS OF OFFSITE POWER <u>AND</u> LOSS OF ONSITE AC POWER FOR MORE THAN 15 MINUTES</p> <p><u>Detection Method:</u></p> <p><u>ALL</u> of the following (1 <u>AND</u> 2 <u>AND</u> 3): Lost for a period greater than 15 minutes.</p> <ol style="list-style-type: none"> 1. Undervoltage alarms on 1DA and 1DB buses. <p style="text-align: center;">AND</p> <ol style="list-style-type: none"> 2. Loss of 115KV ESF Potential Lights. <p style="text-align: center;">AND</p> <ol style="list-style-type: none"> 3. Loss of 230KV ESF Potential Lights. 	<p>INITIATING CONDITION (441) FAILURE OF OFFSITE <u>AND</u> ONSITE POWER ALONG WITH TOTAL LOSS OF EMERGENCY FEEDWATER MAKEUP CAPABILITY FOR SEVERAL HOURS. COULD LEAD TO EVENTUAL CORE MELT AND POSSIBLE FAILURE OF THE REACTOR BUILDING.</p> <p><u>Detection Method:</u></p> <ol style="list-style-type: none"> 1. Undervoltage alarms on 1DA and 1DB buses for greater than 2 hours. <p style="text-align: center;">AND</p> <ol style="list-style-type: none"> 2. Steam driven Emergency Feedwater pump fails to start.

EMERGENCY ACTION LEVELS
 LOSS OF STATION DC POWER

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
	<p>INITIATING CONDITION (242) LOSS OF ALL ONSITE DC POWER FOR A PERIOD GREATER THAN 5 MINUTES</p> <p><u>Detection Method:</u></p> <p><u>ALL</u> of the following (1 <u>AND</u> 2 <u>AND</u> 3): Lost for a period of from 5 to 15 minutes</p> <p>-----</p> <p>1. DC bus undervoltage alarms on all ESF buses, -----<u>AND</u>-----</p> <p>2. 480V ESF Channel A <u>OR</u> B Loss of DC Alarm. -----<u>AND</u>-----</p> <p>3. DG A <u>OR</u> B Loss of DC Alarm.</p>	<p>INITIATING CONDITION (342) LOSS OF ALL VITAL ONSITE DC POWER FOR MORE THAN 15 MINUTES</p> <p><u>Detection Method:</u></p> <p><u>ALL</u> of the following (1 <u>AND</u> 2 <u>AND</u> 3): Lost for a period greater than 15 minutes</p> <p>-----</p> <p>1. DC bus undervoltage alarms on all ESF buses, -----<u>AND</u>-----</p> <p>2. 480V ESF Channel A <u>OR</u> B Loss of DC Alarm, -----<u>AND</u>-----</p> <p>3. DG A <u>OR</u> B Loss of DC Alarm.</p>	

EMERGENCY ACTION LEVELS
RADIOLOGICAL EFFLUENTS (1 OF 2)

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
<p>INITIATING CONDITION (108) GASEOUS EFFLUENT INSTANTANEOUS RELEASE RATE TECHNICAL SPECIFICATION LIMITS EXCEEDED FOR 1 HOUR (APPENDIX B TABLE II, COLUMN 1 10CFR20)</p> <p><u>Detection Method:</u></p> <p>1. <u>ANY</u> of the following gaseous effluent monitors in valid alarm mode for more than 1 hr.:</p> <ul style="list-style-type: none"> a. RM-A3 b. RM-A4 c. RM-A9 d. RM-A10 e. RM-A13 <p>(due to radioactivity releases to the environment).</p>	<p>INITIATING CONDITION (261) SUSTAINED HIGH RADIATION LEVELS OR HIGH AIRBORNE CONTAMINATION WHICH INDICATES A SEVERE DEGRADATION IN THE CONTROL OF RADIOACTIVE MATERIALS (e.g., INCREASE BY A FACTOR OF 1000 IN DIRECT RADIATION READINGS)</p> <p><u>Detection Method:</u></p> <p>1. <u>ANY</u> of the following valid RMG readings for more than 15 minutes:</p> <ul style="list-style-type: none"> a. RM-G 2-4, 8-13, or 16; greater than 2.5 R/hr. b. RM-G 7, 17A, 17B, or 18 greater than 100 R/hr. c. RM-G 1; greater than 1 R/hr. <p>OR</p> <p>2. Unexpected plant area iodine or particulate airborne concentration greater than 1000 DAC (as per 10CFR20 Appendix B, Table 1).</p>	<p>INITIATING CONDITION (361) RADIATION MONITORS DETECT LEVELS CORRESPONDING TO GREATER THAN 50 MREM/HR WHOLE BODY FOR 0.5 HR. OR GREATER THAN 500 MREM/HR WHOLE BODY FOR 2 MIN. (OR FIVE TIMES THESE LEVELS TO THE THYROID) AT THE EXCLUSION AREA BOUNDARY FOR ADVERSE METEOROLOGY (PASQUILL F STABILITY, 1 M/SEC WIND VELOCITY).</p> <p>1. <u>ANY</u> of the following valid Atmospheric Radiation Monitor readings:</p> <ul style="list-style-type: none"> a. RM-A3, RM-A4, RM-A9, RM-A10, RM-A13 readings and analysis shows equivalent I-131 release rate greater than: <ul style="list-style-type: none"> 1) 1.14 Ci/hr for 0.5 hr. <p>OR</p> <ul style="list-style-type: none"> b. RM-A3, RM-A4, RM-A9, RM-A10, RM-A13 readings and analysis shows equivalent Xe-133 release rate greater than: <ul style="list-style-type: none"> 1) 489 Ci/hr for 0.5 hr. <p>OR</p> <ul style="list-style-type: none"> 2) 11.4 Ci/hr for 2 minutes. 2) 4890 Ci/hr for 2 min. 	<p>INITIATING CONDITION (461) EFFLUENT MONITORS DETECT LEVELS CORRESPONDING TO 1 REM TEDE (WHOLE BODY) <u>OR</u> 5 REM CDE (THYROID) AT THE EXCLUSION AREA BOUNDARY UNDER ACTUAL METEOROLOGICAL CONDITIONS.</p> <p><u>Detection Method:</u></p> <p><u>ALL</u> of the following (1 <u>AND</u> 2):</p> <p>-----</p> <p>1. Radiation Monitor levels exceed those specified for Site Area Emergency,</p> <p><u>AND</u></p> <p>2. Calculation on Dose Assessment Forms indicates levels exceeding 1 Rem TEDE (whole body) or 5 Rem CDE (thyroid) at the exclusion area boundary using radiation monitor readings and effluent stream flow rates (measured or assumed) for actual meteorological conditions; or using field measurements.</p>

EMERGENCY ACTION LEVELS
RADIOLOGICAL EFFLUENTS (2 OF 2)

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
<p>INITIATING CONDITION (109) LIQUID EFFLUENT CONCENTRATIONS TECHNICAL SPECIFICATIONS LIMITS EXCEEDED FOR 15 MINUTES (APPENDIX B TABLE II COLUMN 1 10CFR20)</p> <p><u>Detection Method:</u></p> <p>1. <u>ANY</u> of the following valid liquid effluent monitor readings for longer than 15 min. which are greater than:</p> <p>a. RM-L5 or RM-L9 high alarm setpoint established in discharge permit and isolation valve fails to close.</p> <p>OR</p> <p>b. RM-L3, RM-L7 or RM-L10 while steam generator blowdown is directed to the nuclear blowdown system and isolation valves fail to close (due to radioactivity releases to the environment).</p>	<p>INITIATING CONDITION (262) RADIOLOGICAL EFFLUENT RELEASE RATE EXCEEDING 10 TIMES TECHNICAL SPECIFICATION INSTANTANEOUS LIMITS</p> <p><u>Detection Method:</u></p> <p><u>ANY</u> of the following valid radiation monitor readings for longer than 15 minutes (1 <u>OR</u> 2 <u>OR</u> 3 <u>OR</u> 4 <u>OR</u> 5):</p> <p>1. RM-A3 (Gas) is off scale high.</p> <p>----- <u>OR</u> -----</p> <p>2. RM-A3 (Iodine) is off scale high.</p> <p>----- <u>OR</u> -----</p> <p>3. RM-A4 (Gas) exceeds 40 times high alarm setpoint.</p> <p>----- <u>OR</u> -----</p> <p>4. RM-A4 (Iodine) exceeds 10 times high alarm setpoint.</p> <p>----- <u>OR</u> -----</p> <p>5. RM-L5, RM-L7, or RM-L9 exceeds 10 times high alarm setpoint <u>and</u> isolation valve(s) fail to close.</p>	<p>INITIATING CONDITION (362) DOSE RATES LISTED BELOW ARE PROJECTED BASED ON GAMMA RADIATION MONITOR (RMG) READINGS AND/OR OTHER PLANT PARAMETERS OR ARE MEASURED AT THE EXCLUSION AREA BOUNDARY</p> <p><u>Detection Method:</u></p> <p><u>EITHER</u> 1 <u>OR</u> 2 <u>OR</u> 3:</p> <p>1. Reactor Building leak rate results in calculated dose rate at exclusion area boundary greater than <u>EITHER</u> (a <u>OR</u> b):</p> <p>a. 50 mrem/hr whole body for 0.5 hour.</p> <p>OR</p> <p>b. 500 mrem/hr whole body for 2 minutes.</p> <p>----- <u>OR</u> -----</p> <p>2. Radiation Monitoring Teams measure dose rates at one mile or greater from the plant at greater than <u>EITHER</u> (a <u>OR</u> b):</p> <p>a. 50 mrem/hr for 0.5 hour.</p> <p>OR</p> <p>b. Greater than 500 mrem/hr for 2 minutes (beta + gamma)</p> <p>----- <u>OR</u> -----</p> <p>3. Radiation Monitoring Teams measure thyroid dose rates (equivalent I-131 concentrations) at one mile or greater from the plant at greater than <u>EITHER</u> (a or b):</p> <p>a. 250 mrem/hr (1.3×10^{-7} μCi/cc) for 0.5 hour. <u>OR</u></p> <p>b. 2500 mrem/hr (1.3×10^{-6} μCi/cc) for 2 minutes.</p>	

EMERGENCY ACTION LEVELS
FIRE

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
<p>INITIATING CONDITION (110) FIRE WITHIN THE PROTECTED AREA OR THE SWITCHYARD LASTING MORE THAN 15 MINUTES</p> <p><u>Detection Method:</u></p> <p>Observation of Fire lasting more than 15 minutes within:</p> <p>EITHER 1 <u>OR</u> 2:</p> <p>-----</p> <p>1. Protected Area</p> <p>-----<u>OR</u>-----</p> <p>2. Switchyard</p>	<p>INITIATING CONDITION (271) FIRE POTENTIALLY AFFECTING SAFETY SYSTEMS.</p> <p><u>Detection Method:</u></p> <p>1. Observation of a fire that has the potential for rendering a safety system inoperable per the Technical Specifications.</p> <p>-----<u>OR</u>-----</p> <p>2. Implementation of FEP 1.0</p>	<p>INITIATING CONDITION (371) FIRE AFFECTING SAFETY TRAINS OR FUNCTIONS</p> <p><u>Detection Method:</u></p> <p>Observation of a fire that renders both trains of a safety system or function inoperable per the Technical Specifications.</p>	

EMERGENCY ACTION LEVELS
SECURITY

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
INITIATING CONDITION (111) 1. SECURITY THREAT OR ATTEMPTED ENTRY OR ATTEMPTED SABOTAGE ----- OR ----- 2. A CREDIBLE SITE SPECIFIC SECURITY THREAT NOTIFICATION ----- OR ----- 3. A VALID NOTIFICATION FROM NRC PROVIDING INFORMATION ON AN AIRCRAFT THREAT.	INITIATING CONDITION (281) 1. ONGOING SECURITY COMPROMISE ----- OR ----- 2. A VALIDATED NOTIFICATION FROM NRC OF AN AIRLINER ATTACK THREAT LESS THAN 30 MINUTES AWAY. ----- OR ----- 3. A NOTIFICATION FROM THE SITE SECURITY FORCE OF AN ARMED ATTACK, EXPLOSIVE ATTACK, AIRLINER IMPACT OR OTHER HOSTILE ACTION WITHIN THE OWNER CONTROLLED AREA.	INITIATING CONDITION (381) 1. SECURITY THREAT INVOLVING IMMINENT LOSS OF PHYSICAL CONTROL OF THE PLANT ----- OR ----- 2. A NOTIFICATION FROM THE SITE SECURITY FORCE OF AN ARMED ATTACK, EXPLOSIVE ATTACK, AIRLINER IMPACT OR OTHER HOSTILE ACTION IS OCCURRING OR HAS OCCURRED WITHIN THE PROTECTED AREA	INITIATING CONDITION (481) A HOSTILE FORCE HAS TAKEN CONTROL OF PLANT EQUIPMENT SUCH THAT PLANT PERSONNEL ARE UNABLE TO OPERATE EQUIPMENT REQUIRED TO MAINTAIN SAFETY FUNCTIONS
<u>Detection Method:</u> Report to the Control Room by Security, observer or NRC. See EPP-027 for additional guidance.	<u>Detection Method:</u> Report to the Control Room by Security, observer or NRC. See EPP-027 for additional guidance.	<u>Detection Method:</u> Report to the Control Room by Security or observer. See EPP-027 for additional guidance.	<u>Detection Method:</u> Report to the Control Room by Security or observer. See EPP-027 for additional guidance.

EMERGENCY ACTION LEVELS
EARTHQUAKE

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
INITIATING CONDITION (112A) NATURAL EVENTS NEAR SITE Earthquake. <u>Detection Method:</u> 1. Seismic Recording System Start indication.	INITIATING CONDITION (291A) EARTHQUAKE GREATER THAN THE 2/3 OPERATING BASIS EARTHQUAKE LEVEL <u>Detection Method:</u> BOTH 1 AND 2 1. Seismic Event Annunciator 2/3 OBE exceeded (one or more yellow lights lit), <p style="text-align: center;">AND</p> 2. Confirmation of a seismic event through observation (felt or heard) in the Control Room.	INITIATING CONDITION (391A) EARTHQUAKE GREATER THAN OPERATING BASIS EARTHQUAKE LEVEL BEING EXPERIENCED OR PROJECTED WITH PLANT NOT IN COLD SHUTDOWN <u>Detection Method:</u> BOTH 1 AND 2 1. Observation of the event (felt or heard) lasting >2 seconds, <p style="text-align: center;">AND</p> 2. <u>EITHER</u> a <u>OR</u> b: a. RB Foundation Seismic Switch OBE exceeded. <p style="text-align: center;">OR</p> b. Seismic Event Annunciator OBE exceeded (one or more red lights lit).	

EMERGENCY ACTION LEVELS
TORNADO OR WIND

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
INITIATING CONDITION (112B) TORNADO ONSITE	INITIATING CONDITION (291B) TORNADO STRIKING FACILITY	INITIATING CONDITION (391B) SUSTAINED WINDS IN EXCESS OF 100 MILES PER HOUR ONSITE BEING EXPERIENCED OR PROJECTED WITH PLANT NOT IN COLD SHUTDOWN	
<u>Detection Method</u> 1. Observation of event within the Exclusion Area.	<u>Detection Method:</u> Observation of a Tornado within <u>EITHER</u> a <u>or</u> b: a) Protected Area OR b) Switchyard.	<u>Detection Method:</u> Sustained winds in excess of 100 mph onsite: As measured by <u>EITHER</u> a <u>or</u> b: a) Onsite meteorological instrumentation OR b) The National Weather Service.	

HURRICANE

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
INITIATING CONDITION (112C) HURRICANE ONSITE	INITIATING CONDITION (291C) SUSTAINED HURRICANE WINDS GREATER THAN 75 MILES PER HOUR NEAR SITE	INITIATING CONDITION (391C) SUSTAINED WINDS IN EXCESS OF 100 MILES PER HOUR ONSITE BEING EXPERIENCED OR PROJECTED WITH PLANT NOT IN COLD SHUTDOWN	
<u>Detection Method:</u> 1. Observation of event within the Exclusion Area.	<u>Detection Method:</u> Sustained winds in excess of 75 mph onsite due to a hurricane: As measured by <u>EITHER</u> a <u>or</u> b: a. Onsite meteorological instrumentation, ----- OR ----- b. The National Weather Service.	<u>Detection Method:</u> Sustained winds in excess of 100 mph onsite: As measured by <u>EITHER</u> a <u>or</u> b: a) Onsite meteorological instrumentation OR b) The National Weather Service.	

EMERGENCY ACTION LEVELS
AIRCRAFT CRASH

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
INITIATING CONDITION (113A) ONSITE AIRCRAFT CRASH BEING EXPERIENCED OR PROJECTED WHICH HAVE THE POTENTIAL FOR ENDANGERING THE FACILITY <u>Detection Method:</u> Observation of Aircraft Crash within the Exclusion Area.	INITIATING CONDITION (292A) AIRCRAFT CRASH ON FACILITY BEING EXPERIENCED OR PROJECTED WHICH HAVE A SIGNIFICANT POTENTIAL FOR AFFECTING PLANT SAFETY <u>Detection Method:</u> Observation of a Aircraft Crash within: <u>EITHER a or b:</u> a. Protected Area ----- <u>OR</u> ----- b. Switchyard. -----	INITIATING CONDITION (392A) AIRCRAFT CRASH INTO VITAL STRUCTURES BEING EXPERIENCED OR PROJECTED WITH PLANT NOT IN COLD SHUTDOWN <u>Detection Method:</u> Aircraft crash causing damage <u>or</u> fire in <u>ANY</u> of the following areas: a. Reactor Building. b. Control Building. c. Auxiliary Building. d. Fuel Handling Building. e. Turbine Building. f. Intake Structures. g. DG Building h. Intermediate Building	

Chg
A

TRAIN DERAILMENT

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
INITIATING CONDITION (113B) ONSITE TRAIN DERAILMENT BEING EXPERIENCED OR PROJECTED WHICH HAVE THE POTENTIAL FOR ENDANGERING THE FACILITY <u>Detection Method:</u> 1. Observation of Train Derailment within the Exclusion Area.			

EMERGENCY ACTION LEVELS
 MISSILE IMPACTS OR EXPLOSION

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
	<p>INITIATING CONDITION (292B) MISSILE IMPACTS ON FACILITY WITH RESULTANT MAJOR DAMAGE BEING EXPERIENCED OR PROJECTED WHICH HAVE A SIGNIFICANT POTENTIAL FOR AFFECTING PLANT SAFETY</p> <p><u>Detection Method:</u></p> <p>Observation of missile impacts on Plant structures or components with major damage.</p>	<p>INITIATING CONDITION (392B) OTHER HAZARDS BEING EXPERIENCED OR PROJECTED WITH PLANT NOT IN COLD SHUTDOWN</p> <p>MISSILE OR EXPLOSION IMPACT RENDERING SEVERE DAMAGE TO FACILITY SHUTDOWN</p> <p><u>Detection Method:</u></p> <p>1. Loss of functions needed for hot shutdown (see Initiating Condition 394 for Site Area Emergency).</p>	
NOTIFICATION OF UNUSUAL EVENT	ALERT		
<p>INITIATING CONDITION (113C) ONSITE EXPLOSION (EXCLUDING PLANNED ACTIVITIES) BEING EXPERIENCED OR PROJECTED WHICH HAVE THE POTENTIAL FOR ENDANGERING THE FACILITY</p> <p>ONSITE EXPLOSION (EXCLUDING PLANNED ACTIVITIES).</p> <p><u>Detection Method:</u></p> <p>1. Observation of explosion or warning from offsite.</p>	<p>INITIATING CONDITION (292C) KNOWN EXPLOSION AT FACILITY RESULTING IN MAJOR DAMAGE TO PLANT STRUCTURES OR EQUIPMENT BEING EXPERIENCED OR PROJECTED WHICH HAVE A SIGNIFICANT POTENTIAL FOR AFFECTING PLANT SAFETY</p> <p><u>Detection Method:</u></p> <p>Observation of Major Damage by Explosion.</p>		

EMERGENCY ACTION LEVELS
TOXIC OR FLAMMABLE GAS

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
<p>INITIATING CONDITION (113D) NEAR OR ONSITE TOXIC OR FLAMMABLE GAS RELEASE OF A MAGNITUDE THAT THREATENS PERSONNEL BEING EXPERIENCED OR PROJECTED WHICH HAVE THE POTENTIAL FOR ENDANGERING THE FACILITY</p> <p>NEAR OR ONSITE TOXIC OR FLAMMABLE GAS RELEASE OF A MAGNITUDE THAT THREATENS PERSONNEL.</p> <p><u>Detection Method:</u></p> <p>1. Observation of release or warning from offsite.</p>	<p>INITIATING CONDITION (292D) ENTRY INTO FACILITY ENVIRONS OF TOXIC OR FLAMMABLE GASES IN CONCENTRATION WHICH EXCEEDS THE LIMITS OF FLAMMABILITY OR TOXICITY BEING EXPERIENCED OR PROJECTED WHICH HAVE A SIGNIFICANT POTENTIAL FOR AFFECTING PLANT SAFETY</p> <p><u>Detection Method:</u></p> <p>Observation or credible warning of an unplanned release of toxic or flammable gas within:</p> <p><u>EITHER a OR b:</u></p> <p>a. Protected Area,</p> <p style="text-align: center;">OR</p> <p>b. Switchyard.</p>	<p>INITIATING CONDITION (392C) OTHER HAZARDS BEING EXPERIENCED OR PROJECTED WITH PLANT NOT IN COLD SHUTDOWN</p> <p>ENTRY OF TOXIC OR FLAMMABLE GASES INTO VITAL AREAS WHICH INVOLVE A SIGNIFICANT DEGRADATION OF PLANT SAFETY.</p> <p><u>Detection Method:</u></p> <p>1. Entry of toxic or flammable gases into:</p> <ul style="list-style-type: none"> a. Control Room b. Cable spreading rooms c. Reactor Building d. Switchgear room e. Safe shutdown panels f. Emergency diesel generator rooms <p>As detected by portable instrumentation <u>and</u> renders a train of a safety related system inoperable.</p>	

EMERGENCY ACTION LEVELS
 LOSS OR RHR AT HALF PIPE OPERATIONS

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
	<p>INITIATING CONDITION (297) LOSS OF RESIDUAL HEAT REMOVAL FLOW FOR MORE THAN 20 MINUTES DURING HALF-PIPE OPERATIONS WITH VESSEL HEAD INSTALLED</p> <p><u>Detection Method:</u></p> <p>ALL of the following (1 THROUGH 4) For a period of 20 to 40 minutes:</p> <p>-----</p> <p>1. Both RHR Loop A FLO LO <u>AND</u> RHR Loop B FLO LO annunciators in alarm,</p> <p>-----<u>AND</u>-----</p> <p>2. <u>NEITHER</u> RHR Pump is running,</p> <p>-----<u>AND</u>-----</p> <p>3. Core exit thermocouple temperatures increasing or at saturation temperature for the current RCS pressure</p> <p>-----<u>AND</u>-----</p> <p>4. Reactor Vessel Head is in place and RCS loops are drained to 434'-7.43" or less.</p>	<p>INITIATING CONDITION (397) LOSS OF RESIDUAL HEAT REMOVAL FLOW FOR MORE THAN 40 MINUTES DURING HALF-PIPE OPERATIONS WITH VESSEL HEAD INSTALLED <u>AND</u> HIGH HEAD SAFETY INJECTION/CHARGING UNAVAILABLE.</p> <p><u>Detection Method:</u></p> <p>ALL of the following (1 THROUGH 5) For a period greater than 40 minutes:</p> <p>-----</p> <p>1. Both RHR Loop A FLO LO <u>AND</u> RHR Loop B FLO LO annunciators in alarm,</p> <p>-----<u>AND</u>-----</p> <p>2. <u>NEITHER</u> RHR pump is running,</p> <p>-----<u>AND</u>-----</p> <p>3. Core exit thermocouple temperatures increasing or at saturation temperature for the current RCS pressure</p> <p>-----<u>AND</u>-----</p> <p>4. Reactor Vessel Head is in place and RCS loops are drained to 434'-7.43" or less.</p> <p>-----<u>AND</u>-----</p> <p>5. <u>NEITHER</u> train of Charging/SI is available.</p>	

EMERGENCY ACTION LEVELS
LOSS OF PLANT ANNUNCIATORS

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
	<p>INITIATING CONDITION (296) MOST OR ALL ANNUNCIATOR ALARMS LOST</p> <p><u>Detection Method:</u></p> <p>Greater than 75% of the MCB annunciators inoperable.</p>	<p>INITIATING CONDITION (396) MOST OR ALL ANNUNCIATORS LOST <u>AND</u> PLANT TRANSIENT INITIATED OR IN PROGRESS</p> <p><u>Detection Method:</u></p> <p><u>ALL</u> of the following (1 <u>AND</u> 2):</p> <ol style="list-style-type: none"> Greater than 75% of the MCB Annunciators inoperable, <p style="text-align: center;">AND</p> <ol style="list-style-type: none"> Reactor Trip or Safety Injection actuation initiated or in progress. 	

CONTROL ROOM EVACUATION

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
	<p>INITIATING CONDITIONS (295) EVACUATION OF CONTROL ROOM ANTICIPATED OR REQUIRED WITH CONTROL OF SHUTDOWN SYSTEMS ESTABLISHED FROM LOCAL STATIONS</p> <p><u>Detection Method:</u></p> <p>Same as Initiating Condition.</p>	<p>INITIATING CONDITION (395) EVACUATION OF CONTROL ROOM AND CONTROL OF SHUTDOWN SYSTEMS NOT ESTABLISHED FROM LOCAL STATIONS IN 15 MINUTES.</p> <p><u>Detection Method:</u></p> <p>Same as Initiating Condition.</p>	

EMERGENCY ACTION LEVELS
 EMERGENCY DIRECTOR DISCRETION

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
INITIATING CONDITION (193) OTHER PLANT CONDITIONS EXIST REQUIRING OTHER THAN NORMAL PLANT SHUTDOWN AND REQUIRING INCREASED AWARENESS ON THE PART OF STATE OFFICIALS <u>Detection Method:</u> As determined by IED/ED.	INITIATING CONDITION (293) OTHER PLANT CONDITIONS EXIST THAT WARRANT ACTIVATION OF TECHNICAL SUPPORT CENTER AND EMERGENCY OPERATIONS FACILITY <u>Detection Method:</u> As determined by IED/ED.	INITIATING CONDITION (393) OTHER PLANT CONDITIONS EXIST THAT WARRANT ACTIVATION OF EMERGENCY FACILITIES AND RADIATION MONITORING TEAMS AND A PRECAUTIONARY PUBLIC WARNING <u>Detection Method:</u> As determined by IED/ED.	INITIATING CONDITION (493) OTHER PLANT CONDITIONS EXIST THAT WARRANT ACTIVATION OF EMERGENCY FACILITIES AND RECOMMENDED PROTECTIVE MEASURES FOR THE PUBLIC <u>Detection Method:</u> As determined by IED/ED.

EMERGENCY ACTION LEVELS
OTHER

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
<p>INITIATING CONDITION (115) UNPLANNED LOSS OF ALL ONSITE OR OFFSITE COMMUNICATIONS CAPABILITY.</p> <p><u>Detection Method:</u></p> <p>Unplanned loss of EITHER 1 OR 2:</p> <p>-----</p> <p>1. ALL of the following onsite communications capability affecting the ability to perform routine operations.</p> <ul style="list-style-type: none"> a. Internal telephone system, b. Gal-Tronics system and c. Radio System <p>----- OR -----</p> <p>2. All offsite communications capability. (When extraordinary means must be used to make communications.)</p> <ul style="list-style-type: none"> a. Internal telephone system, b. Bell Lines, c. Fiberoptic Links and d. Radio System 	<p>INITIATING CONDITION (294) LOSS OF ALL FUNCTIONS NEEDED FOR PLANT COLD SHUTDOWN</p> <p><u>Detection Method:</u></p> <p>ALL of the following lost (1 AND 2):</p> <p>1. RHR system not functional in Modes 1 to 4,</p> <p style="text-align: center;">AND</p> <p>2. Inability to reject heat to the condenser and atmosphere.</p>	<p>INITIATING CONDITION (394) LOSS OF FUNCTIONS NEEDED FOR PLANT HOT SHUTDOWN</p> <p><u>Detection Method:</u></p> <p>1. a. Inability to establish charging pump injection.</p> <p style="text-align: center;">AND</p> <p>b. Inability to establish emergency feedwater flow.</p> <p style="text-align: center;">OR</p> <p>2. a. Inability to establish service water flow.</p> <p style="text-align: center;">AND</p> <p>b. Inability to establish component cooling water flow.</p>	
<p>NOTIFICATION OF UNUSUAL EVENT</p> <p>INITIATING CONDITION (114) INABILITY TO REACH REQUIRED SHUTDOWN WITHIN TECHNICAL SPECIFICATION LIMITS</p> <p><u>Detection Method:</u></p> <p>Same as Initiating Condition</p>			

3.1.2 Timely: Classifications which are made consistently within the goal of 15 minutes once plant parameters reach an Emergency Action Level (EAL). Offsite notifications are initiated (verbal contact) within 15 minutes of event classification and/or PAR development. PARs are developed within 15 minutes of data availability.

3.1.3 Accurate: Classification and PAR appropriate to the event as specified by the approved plan and implementing procedure. Initial notification form completed appropriately for the event to include the following:

- Class of emergency
- Description of emergency
- Wind direction and speed
- Whether offsite protective measures are necessary
- Potentially affected population and areas
- Whether a release is taking place
- Date and time of declaration of emergency
- Whether the event is a drill or actual event

3.1.4 Communicator: The person who fills out the Emergency Notification Form and is responsible for the accuracy and timeliness of notifications. The communicator is not expected to be just a phone talker who is not responsible for the accuracy or timeliness.

3.1.5 Siren Tests: Number of sirens multiplied by the number of times they are tested.

3.1.6 Successful Siren Tests: The sum of sirens that performed their function when tested.

3.1.7 Drill: Proficiency enhancing evolution (exercise, functional drill, table top drill, mini drill, etc.) that reasonably simulate, the interactions between appropriate centers or individuals that would be expected to occur during emergencies.

4.0 CONDITIONS AND PREREQUISITES

4.1 The data that is measured on the last calendar day of the quarter is reported to the Nuclear Regulatory Commission.

4.2 Drill/Exercise Performance (DEP) monitors timely and accurate performance in drills, exercises, and actual events that presents opportunities for classification of emergencies, notification of offsite authorities, and development of Protective Action Recommendations (PARs). It is the ratio, in percent, of timely and accurate performance of those actions to total opportunities.

SOUTH CAROLINA ELECTRIC & GAS COMPANY

VIRGIL C. SUMMER NUCLEAR STATION

NUCLEAR OPERATIONS

NUCLEAR OPERATIONS

COPY NO. _____

EMERGENCY PLAN PROCEDURE

EPP-001.4

GENERAL EMERGENCY

REVISION 7

SAFETY RELATED

Original signed by Robert E. Williamson for M.P. Findlay
DISCIPLINE SUPERVISOR

7/1/05
DATE

Original signed by Shaun Zarandi, DA
APPROVAL AUTHORITY

7/5/05
DATE

RECORD OF CHANGES

CHANGE LETTER	TYPE CHANGE	APPROVAL DATE	CANCELLATION DATE	CHANGE LETTER	TYPE CHANGE	APPROVAL DATE	CANCELLATION DATE
A	P	1/18/06		E	P	5/23/08	
B	P	4/25/06		F	P	7/1/08	
C	P	7/2/07					
D	P	2/13/08					

INFORMATION USE

Procedure May Be Performed From Memory.
User Retains Accountability For Proper Performance.

DOCUMENT REVIEW FORM

Page 1 of 2

Document Identification								
Originators Name: Leonard Bouknight				Ext: 54089		Mail Code: 507		
Date: 06/02/08		Document No.: EPP-001.4		Revision No.: 7		Change Letter: F		
Title: GENERAL EMERGENCY						<input checked="" type="checkbox"/> SR <input type="checkbox"/> QR <input type="checkbox"/> NNS		
Development Process: Permanent: (check one) <input checked="" type="checkbox"/> Normal Rev/Chg or <input type="checkbox"/> Editorial Correction <input type="checkbox"/> Temporary Approval								
Description: See Attached.								
Reason/Basis for Change: See attached								
Is the SCOPE of the procedure affected by this change? NO <input checked="" type="checkbox"/> YES <input type="checkbox"/>								
Temporary Approval						Final approval required by: (30 days)		
QR		DC&R (Person Notified)		SS		Date		
Document Reviewers (Enclosure C)								
Required	Position	Type/Print Name	Comments Yes/No	*Additional	Position	Type/Print Name	Comments Yes/No	
	QR	<u>McLoughlin</u>	<input type="checkbox"/> <input checked="" type="checkbox"/>					<input type="checkbox"/> <input type="checkbox"/>
	<u>OS</u>		<input type="checkbox"/> <input checked="" type="checkbox"/>					<input type="checkbox"/> <input type="checkbox"/>
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			<input type="checkbox"/> <input type="checkbox"/>					<input type="checkbox"/> <input type="checkbox"/>
Conference <u>[Signature]</u> <u>6/2/08</u> Supervisor/Date				Comment Due Date <u>6/16/08</u>				
Pre- implementation Actions								
All Comments Resolved				<input checked="" type="checkbox"/> Yes <u>[Signature]</u> <u>06/19/08</u> <small>Originator/Date</small>				
Commitments Addressed per SAP-0630				<input checked="" type="checkbox"/> NA <input type="checkbox"/> Yes, P/CAP # _____ <input type="checkbox"/> MLSA <small>Initial/Date</small>				
50.59 Applicability/Review Completed (SAP-0107)				<input checked="" type="checkbox"/> NA <input type="checkbox"/> Yes, Attached				
Pre-implementation Training Completed				<input checked="" type="checkbox"/> NA <input type="checkbox"/> Yes				
Training required after implementation				<input checked="" type="checkbox"/> NA <input type="checkbox"/> Yes, CR # _____				
PSRC Review Completed				<input checked="" type="checkbox"/> NA <input type="checkbox"/> Yes, Mtg. No _____				
NSRC Review Completed				<input checked="" type="checkbox"/> NA <input type="checkbox"/> Yes, Mtg. No _____				
CHAMPS Update Required				<input checked="" type="checkbox"/> NA <input type="checkbox"/> Yes Planner Notified _____ <small>Initial/Date</small>				
<u>[Signature]</u> <u>6/27/08</u> Supervisor/Date				<u>[Signature]</u> <u>7-1-08</u> Approval Authority/Date				

* Failure by the "Additional Reviewers" to provide comments within 5 working days following the comment due date may be considered as "No Comment"

DOCUMENT REVIEW FORM

Page 2 of 2

Procedure Change: Revised Attachment I deleting the Step for the Shift Supervisor to Complete the NRC Notification Form, this form is being eliminated and the State and local ENF will be used to notify the NRC, also added guidance for the SS to ensure completion of the ENF. Added announcing the emergency over the "NLC Spkr" radio channel to notify site personnel.

Reason for Change: INPO AFI OP.1-2 Shortfalls exist with shift supervisor (SS) oversight during a few transient and normal plant operations. Problems include the SS being distracted from oversight responsibilities during a simulated reactor trip and safety injection.

10CFR 50.54(g) Evaluation: See evaluation completed on the attached SAP-127 Attachment II.

Procedure Change: Revised Attachment III providing guidance for the Shift Communicator to activate ERDS.

Reason for Change: ERDs is required to be activated with one hour of the declaration of an Alert or greater emergency. This will ensure the ERDs is activated as required and provide information to the NRC quicker.

10CFR 50.54(g) Evaluation: See evaluation completed on the attached SAP-127 Attachment II.

* Failure by the "Additional Reviewers" to provide comments within 5 working days following the comment due date may be considered as "No Comment".

DOCUMENT REVIEW FORM

Page 1 of 1

Document Identification								
Originators Name: Leonard Bouknight				Ext: 54089		Mail Code: 507		
Date: 04/28/08		Document No.: EPP-001.4		Revision No.: 7		Change Letter: E		
Title: GENERAL EMERGENCY						<input checked="" type="checkbox"/> SR <input type="checkbox"/> QR <input type="checkbox"/> NNS		
Development Process: Permanent: (check one) <input checked="" type="checkbox"/> Normal Rev/Chg or <input type="checkbox"/> Editorial Correction <input type="checkbox"/> Temporary Approval								
Description: 1. Revise Attachment II deleting "NO" from the flowchart.								
Reason/Basis for Change: This NO is not required in the decision making process								
Is the SCOPE of the procedure affected by this change? NO <input checked="" type="checkbox"/> YES <input type="checkbox"/>								
Temporary Approval						Final approval required by: (30 days)		
QR		DC&R (Person Notified)		SS		Date		
Document Reviewers (Enclosure C)								
Required	Position	Type/Print Name	Comments Yes/No	*Additional	Position	Type/Print Name	Comments Yes/No	
	QR	T. McCullough	<input type="checkbox"/> <input checked="" type="checkbox"/>					<input type="checkbox"/> <input type="checkbox"/>
	NL		<input type="checkbox"/> <input checked="" type="checkbox"/>					<input type="checkbox"/> <input type="checkbox"/>
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Concurrence <u>[Signature]</u> 4/27/08				Comment Due Date				
Supervisor/Date								
Pre- implementation Actions								
All Comments Resolved <input checked="" type="checkbox"/> Yes				<u>[Signature]</u> <small>Originator/Date</small>				
Commitments Addressed per SAP-0630 <input checked="" type="checkbox"/> NA				<input type="checkbox"/> Yes, P/CAP # _____ <input type="checkbox"/> MLSA _____ <small>Initial/Date</small>				
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Pre-implementation Training Completed <input checked="" type="checkbox"/> NA				<input type="checkbox"/> Yes				
Training required after implementation <input checked="" type="checkbox"/> NA				<input type="checkbox"/> Yes, CR # _____				
PSRC Review Completed <input checked="" type="checkbox"/> NA				<input type="checkbox"/> Yes, Mtg. No. _____				
NSRC Review Completed <input checked="" type="checkbox"/> NA				<input type="checkbox"/> Yes, Mtg. No. _____				
CHAMPS Update Required <input checked="" type="checkbox"/> NA				<input type="checkbox"/> Yes Planner Notified _____ <small>Initial/Date</small>				
<u>[Signature]</u> 5/13/08 <small>Supervisor/Date</small>				<u>[Signature]</u> 5/23/08 <small>Approval Authority/Date</small>				

* Failure by the "Additional Reviewers" to provide comments within 5 working days following the comment due date may be considered as "No Comment"

DOCUMENT REVIEW FORM

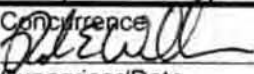


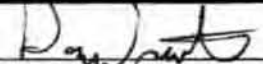
Page 1 of ____

Document Identification							
Originators Name: Leonard Bouknight				Ext: 54089		Mail Code: 507	
Date: 01/03/08		Document No.: EPP-001.4		Revision No.: 7		Change Letter: D	
Title: General Emergency						<input checked="" type="checkbox"/> SR <input type="checkbox"/> QR <input type="checkbox"/> NNS	
Development Process: Permanent: (check one) <input checked="" type="checkbox"/> Normal Rev/Chg or <input type="checkbox"/> Editorial Correction <input type="checkbox"/> Temporary Approval							
Description: Revised to add flow path from block "Modify Protective Actions as Necessary. Do not relax protective actions in any EPZ zones that were previously evacuated" to the block "Continue Assessment of Containment fission product inventory, dose assessment, etc"							
Reason/Basis for Change: Correct potential problem with the flow chart by providing additional path to continue assessing potential releases. This was a comment from the NRC during review of flowchart. Is the SCOPE of the procedure affected by this change? NO <input checked="" type="checkbox"/> YES <input type="checkbox"/>							
Temporary Approval						Final approval required by: (30 days)	
QR		DC&R (Person Notified)		SS		Date	
Document Reviewers (Enclosure C)							
Required	Position	Type/Print Name	Comments Yes/No	*Additional	Position	Type/Print Name	Comments Yes/No
	QR	McLullough	<input type="checkbox"/> <input checked="" type="checkbox"/>				<input type="checkbox"/> <input type="checkbox"/>
	NE ²⁰ 1/4/08		<input type="checkbox"/> <input type="checkbox"/>				<input type="checkbox"/> <input type="checkbox"/>
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Conference <u>1/4/08</u> Supervisor/Date				Comment Due Date <u>1/18/08</u>			
Pre- implementation Actions							
All Comments Resolved <input checked="" type="checkbox"/> Yes				<u>Leonard Bouknight</u> <u>02-06-08</u> Originator/Date			
Commitments Addressed per SAP-0630 <input checked="" type="checkbox"/> NA				<input type="checkbox"/> Yes, P/CAP # _____ <input type="checkbox"/> MLSA Initial/Date			
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Pre-implementation Training Completed <input checked="" type="checkbox"/> NA				<input type="checkbox"/> Yes			
Training required after implementation <input checked="" type="checkbox"/> NA				<input type="checkbox"/> Yes, CR # _____			
PSRC Review Completed <input checked="" type="checkbox"/> NA				<input type="checkbox"/> Yes, Mtg. No. _____			
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CHAMPS Update Required <input checked="" type="checkbox"/> NA				<input type="checkbox"/> Yes, Planner Notified _____ Initial/Date			
<u>2/6/08</u> Supervisor/Date				<u>2-13-08</u> Approval Authority/Date			

* Failure by the "Additional Reviewers" to provide comments within 5 working days following the comment due date may be considered as "No Comment".

DOCUMENT REVIEW FORM

Page 1 of 1

Document Identification								
Originators Name: Leonard Bouknight				Ext: 54089		Mail Code: 507		
Date: 06/06/07		Document No.: EPP-001.4		Revision No.: 7		Change Letter: C		
Title: General Emergency						<input checked="" type="checkbox"/> SR <input type="checkbox"/> QR <input type="checkbox"/> NNS		
Development Process: Permanent: (check one) <input checked="" type="checkbox"/> Normal Rev/Chg or <input type="checkbox"/> Editorial Correction <input type="checkbox"/> Temporary Approval								
Description: Added Instructions to recommend Potassium Iodide as part of Protective Action Recommendations in Attachment II. Correct Typo in Section 6.1.								
Reason/Basis for Change: Update the Attachment to required Protective Actions Recommendations. This was identified during training drill CR-07-00964 Action #1. Correct Typo.								
Is the SCOPE of the procedure affected by this change? NO <input checked="" type="checkbox"/> YES <input type="checkbox"/>								
Temporary Approval						Final approval required by: (30 days)		
QR		DC&R (Person Notified)		SS		Date		
Document Reviewers (Enclosure C)								
Required	Position	Type/Print Name	Comments Yes/No	*Additional	Position	Type/Print Name	Comments Yes/No	
	QR	McColough	<input type="checkbox"/> <input checked="" type="checkbox"/>					<input type="checkbox"/> <input type="checkbox"/>
			<input type="checkbox"/> <input type="checkbox"/>					<input type="checkbox"/> <input type="checkbox"/>
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Concurrence:  6/17/07 Supervisor/Date				Comment Due Date 6/21/07				
Pre-implementation Actions								
All Comments Resolved <input checked="" type="checkbox"/> Yes				Originator/Date:  6-11-07				
Commitments Addressed per SAP-0630 <input checked="" type="checkbox"/> NA				<input type="checkbox"/> Yes, P/CAP # <input type="checkbox"/> MLSA Initial/Date				
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Pre-implementation Training Completed <input checked="" type="checkbox"/> NA				<input type="checkbox"/> Yes				
Training required after implementation <input type="checkbox"/> NA				<input checked="" type="checkbox"/> Yes, CER # 07-1852				
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NSRC Review Completed <input checked="" type="checkbox"/> NA				<input type="checkbox"/> Yes, Mtg. No.				
CHAMPS Update Required <input checked="" type="checkbox"/> NA				<input type="checkbox"/> Yes Planner Notified Initial/Date				
 6/19/07 Supervisor/Date				 7/2/07 Approval Authority/Date				

* Failure by the "Additional Reviewers" to provide comments within 5 working days following the comment due date may be considered as "No Comment".

DOCUMENT REVIEW FORM

Page 1 of 1

Document Identification								
Originators Name: Mark Counts				Ext: 54099		Mail Code: 507		
Date: 4/18/06		Document No.: EPP-001.4		Revision No.: 7		Change Letter: B		
Title: General Emergency						<input checked="" type="checkbox"/> SR <input type="checkbox"/> QR <input type="checkbox"/> NNS		
Development Process: Permanent: (check one) <input checked="" type="checkbox"/> Normal Rev/Chg or <input type="checkbox"/> Editorial Correction <input type="checkbox"/> Temporary Approval <input type="checkbox"/> Restricted Chg (expires: _____)								
Description: Editorial change to Attachment II. Enlarged a text box that was hiding some text.								
Reason/Basis for Change: Correct an error.								
Is the SCOPE of the procedure affected by this change? NO <input checked="" type="checkbox"/> YES <input type="checkbox"/> If yes, attach SAP-0107 form.								
Temporary Approval						Final approval required by: (30 days)		
QR		DC&R (Person Notified)		SS		Date		
Document Reviewers (Enclosure C)								
Required	Position	Type/Print Name	Comments Yes/No	*Additional	Position	Type/Print Name	Comments Yes/No	
	QR	B. Williamson	<input type="checkbox"/> <input checked="" type="checkbox"/>					<input type="checkbox"/> <input type="checkbox"/>
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Concurrency: <u>[Signature]</u> for MPF 4/24/06 Supervisor/Date				Comment Due Date <div style="text-align: center; font-weight: bold;">ASAP</div>				
Pre-implementation Actions								
All Comments Resolved				<input checked="" type="checkbox"/> Yes <u>[Signature]</u> Originator/Date				
Commitments Addressed per SAP-0630				<input checked="" type="checkbox"/> NA <input type="checkbox"/> Yes, P/CAP # _____ <input type="checkbox"/> MLSA				
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Pre-implementation Training Completed				<input checked="" type="checkbox"/> NA <input type="checkbox"/> Yes				
Training required after implementation				<input checked="" type="checkbox"/> NA <input type="checkbox"/> Yes, CER # _____				
PSRC Review Completed				<input checked="" type="checkbox"/> NA <input type="checkbox"/> Yes, Mtg. No. _____				
NSRC Review Completed				<input checked="" type="checkbox"/> NA <input type="checkbox"/> Yes, Mtg. No. _____				
Other: _____				<input checked="" type="checkbox"/> NA <input type="checkbox"/> Yes				
<u>[Signature]</u> for MPF 4/24/06 Supervisor/Date				<u>[Signature]</u> 4/25/06 Approval Authority/Date				

* Failure by the "Additional Reviewers" to provide comments within 5 working days following the comment due date may be considered as "No Comment".

Document Identification


Originators Name: Mark Counts		Ext.: 54099	Mail Code: 507
Date: 4/25/05	Document No.: EPP-001.4	Revision No.: 7	Change Letter: N/A
Title: General Emergency			<input checked="" type="checkbox"/> SR <input type="checkbox"/> QR <input type="checkbox"/> NNS
Development Process:			
Permanent: (check one) <input checked="" type="checkbox"/> Normal Rev/Chg or <input type="checkbox"/> Editorial Correction			
<input type="checkbox"/> Temporary Approval <input type="checkbox"/> Restricted Chg (expires: _____)			
Description: Revised Attachment I, Attachment II, Attachment III and removed reference to EIS. This revision does not alter the scope of this procedure.			
Reason/ Basis for Change: RIS 2004-13 Supplement 1 and other changes to enhance the procedure.			
Temporary Approval			Final approval required by:
QR _____	DC&R _____	SS _____ / _____	(30 days) _____ / _____ / _____
Person Notified			Date

Document Reviewers (Enclosure C)

[illegible]

Concurrence <i>[Signature]</i> <i>Sumner 7/16/05</i> Discipline Supervisor/ Date	Comment Due Date 6/16/05
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Pre-implementation Actions

All Comments Resolved	<input checked="" type="checkbox"/> Yes	 7/16/05 Originator/ Date
Commitments Addressed per SAP-0630	<input checked="" type="checkbox"/> NA	<input type="checkbox"/> Yes, P/CAP # _____ <input type="checkbox"/> MLSA
50.59 Applicability/ Review Completed (SAP0107)	<input checked="" type="checkbox"/> NA	<input type="checkbox"/> Yes, Attached
Pre-implementation Training Completed	<input type="checkbox"/> NA	<input checked="" type="checkbox"/> Yes
Training required after implementation	<input checked="" type="checkbox"/> NA	<input type="checkbox"/> Yes, CER # _____
PSRC Review Completed	<input checked="" type="checkbox"/> NA	<input type="checkbox"/> Yes, Mtg. No. _____
NSRC Review Completed	<input checked="" type="checkbox"/> NA	<input type="checkbox"/> Yes, Mtg. No. _____
Other:	<input checked="" type="checkbox"/> NA	<input type="checkbox"/> Yes

 7/11/05 for MPF Discipline Supervisor / Date	 DA 7-5-05 Approval Authority / Date
---	---

* Failure by the "Additional Reviewers" to provide comments within 5 working days following the comment due date may be considered as "No Comment".

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ATTACHMENTS

- ATTACHMENT I - General Emergency - Initial Actions Summary
- ATTACHMENT II - Protective Action Recommendations
- ATTACHMENT III - General Emergency Shift Communicator Actions Flow Chart
- ATTACHMENT IV - Evacuation of Non-Essential Personnel Decision Tree
- ATTACHMENT V - EOF -vs.- Backup EOF Decision Flow Chart

1.0 PURPOSE AND SCOPE

- 1.1 This procedure describes the actions to be taken in the event that a General Emergency condition has been declared at the V. C. Summer Nuclear Station.
- 1.2 Changes and revisions to this procedure must ensure compliance with the requirements of SAP-630, 10CFR50.54.q and 10CFR50 Appendix B. A 10CFR50.59 review is not required.

2.0 REFERENCES

- 2.1 V. C. Summer Nuclear Station, Radiation Emergency Plan, FSAR, Section 13A.
- 2.2 NUREG-0654, Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants.
- 2.3 10CFR50, Applicability of License Conditions and Technical Specifications in an Emergency.
- 2.4 EPP-001, Activation and Implementation of Emergency Plan.
- 2.5 NUREG-0396, Planning Basis for the Development of State and Local Government Radiological Emergency Response Plans in Support of Light Water Nuclear Power Plants, December 1978.
- 2.6 IN 83-28, Criteria for Protective Action Recommendations for General Emergencies.
- 2.7 RIS 04-13 Supplement 1, Consideration of Sheltering in Licensee's Range of Protective Action Recommendations.
- 2.8 WCAP-14696-A Revision 1, Westinghouse Owners Group Core Damage Assessment Guidance.

3.0 DEFINITIONS

- C01→ 3.1 General Emergency - Events are in process or have occurred which involve actual or imminent substantial core degradation or melting with potential for loss of containment integrity or hostile actions that result in an actual loss of physical control of the facility. Releases can be reasonably expected to exceed EPA Protective Action Guideline exposure levels offsite for more than the immediate site area.
- 3.2 Early Warning Siren System (EWSS) - The primary means for alerting the public within the 10 mile Emergency Planning Zone around the nuclear plant.
- 3.3 Severe Core Damage – Fuel over-temperature condition where fuel pellets have reached a temperature where there is a rapid movement of fission products from the fuel pellet matrix to the reactor coolant system.

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4.0 CONDITIONS AND PREREQUISITES

- 4.1 The Duty Shift Supervisor shall concur with any actions that depart from a license condition or technical specification in an emergency when such actions are immediately needed to protect the public health and safety.
- 4.2 Attachment II should be used by the Interim Emergency Director/Emergency Director/Offsite Emergency Coordinator (IED/ED or OEC) as an aid in determining which Protective Actions should be recommended to government officials when a General Emergency is declared.

5.0 PROCEDURE

- 5.1 A General Emergency has been declared in accordance with EPP-001.
- 5.2 Initial Actions (Initial Actions Summary, see Attachment I).
- 5.2.1 The Interim Emergency Director (IED) or the Emergency Director (ED) shall accomplish, or cause to be accomplished, the following:
- A. Determine the location to which non-essential personnel will be evacuated. (Refer to Attachment IV for guidance).

NOTE 5.2.1.B

The plant page announcement should be modified by the IED/ED as is appropriate for current conditions.

- B. Announce the emergency condition and site evacuation to all plant personnel over the plant paging system.

Attention in the Plant. Attention in the Plant:

The station is in a General Emergency Condition. The initiating event is _____. All Emergency Response Personnel report to your duty stations. All non-essential personnel evacuate the site. Proceed to (choose one):

Your Private Residence.

or

The Southern Offsite Holding Area.

or

The Northern Offsite Holding Area.

All Essential personnel in the Radiation Control Area assemble at the RCA Checkpoint. All personnel shall refrain from eating, drinking, smoking or chewing until further notice.

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- C. Sound the Radiation Emergency Alarm.

- D. Repeat the announcement.

NOTE 5.2.1.E

Guidance for the Shift Communicator may be found on Attachment III and is performed concurrently with IED initial actions.

- E. Direct the Shift Communicator to complete the initial notifications in accordance with EPP-002. Designate to the Shift Communicator whether the Emergency Operations Facility (EOF) or Backup EOF will be utilized. (Refer to Attachment V for guidance.)

NOTE 5.2.1.F

The information in Attachment II intended as guidance and may not include all situations. The IED/ED/OEC should use best judgment when recommending Protective Actions to offsite officials.

- F. Refer to Attachment II for Protective Action Recommendations for offsite areas.
- G. Activate the EWSS in accordance with EPP-021.
- H. Notify Security of call-in.
- I. Ensure on-shift personnel have responded to their emergency response stations as follows:
 - 1. When the Operations Support Center (OSC) is not activated, assign a Maintenance person to record names and badge numbers of all essential shift workers, including Operations personnel.
 - 2. Provide names of all essential shift workers to the Technical Support Center (TSC)/Security.

NOTE 5.2.1.J

Consideration should be given to access routes taken.

- J. Request Offsite Emergency Services (Fire, Medical, Law Enforcement, etc.) if required, in accordance with EPP-002.
- K. Repeat Steps 5.2.1.B, C, and D.
- L. Ensure the Emergency Log Book or the TSC AutoLog is established and maintained. Attachment I should be used as the log of those items listed on Attachment I. Any other pertinent items should be noted in the Emergency Log Book or the TSC AutoLog.
- M. Update the OEC as conditions warrant.
- N. Ensure TSC/OSC/EOF/Backup EOF is being activated in accordance with EPP-023 and EPP-051.

- O. If non-essential personnel have been evacuated to an Offsite Holding Area, ensure HP personnel are assigned to report to that Offsite Holding Area.
- P. If actions depart from license conditions and Technical Specifications, refer to Step 4.1. Document in the Emergency Log Book or the TSC AutoLog and notify Plant Management. Notify the NRC Operations Center as soon as possible.

5.2.2 Initial Actions for All Other Personnel

- A. Emergency Response Personnel report to their designated stations.
- B. Non-essential personnel evacuate the site, proceed to their private residence or offsite holding area as designated by the IED/ED, and await further instructions.
- C. Personnel in the Radiation Control Area (RCA) report to the RCA Control Point on the 412' level of the Control Building, unless otherwise directed.
- D. Perform accountability of Protected Area personnel in accordance with EPP-012.

NOTE 5.2.2.E

Essential shift workers who are involved with maintenance on essential equipment must notify the Control Room (CR) to determine if the work should proceed.

- E. When the OSC is not activated, essential shift workers report to the Control Room.

5.3 Follow-up Actions

5.3.1 IED

- A. Ensure updated follow-up notifications are made in accordance with EPP-002 hourly and when conditions change that could affect offsite areas and/or emergency response activities.
- B. Update the ED of the status of the emergency and current plant conditions, as necessary.
- C. Ensure plant page announcements are made periodically to update personnel on emergency conditions, as appropriate.

- D. Continue assessments and corrective actions to mitigate the emergency condition and place the plant into a safe and controlled condition.
- E. Make assignments to the staff to mitigate the emergency conditions in accordance with established procedures, or as required for conditions.
- F. Dispatch essential shift workers to the OSC when the OSC is activated.
- G. Continually assess the status of the General Emergency condition for possible recommendation to the ED to enter the recovery phase.

5.3.2 ED

- A. Assume the duties of the IED as soon as possible when onsite and thoroughly cognizant of the situation.
- B. Ensure updated follow-up notifications are made in accordance with EPP-002, hourly and when conditions change that could affect offsite areas and/or emergency response activities. These notifications will be accomplished by the EOF when the EOF is activated.
- C. Ensure plant page announcements are made periodically to update personnel on emergency conditions, as appropriate.
- D. Update the OEC of the status of the emergency and current plant conditions, as necessary.
- E. Verify the TSC/OSC are manned and activated in accordance with EPP-023.
- F. Continually assess the status of the General Emergency condition.

5.3.3 OEC

- A. Maintain awareness of the plant status and potential offsite consequences of the emergency.
- B. Ensure updated follow-up notifications are made in accordance with EPP-002, hourly and when conditions change that could affect offsite areas and/or emergency response activities. This includes development and approval of dose projections and Protective Action Recommendations.

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C. Verify the EOF is manned and activated in accordance with EPP-051.

D. Keep the ED informed of offsite radiological conditions.

5.4 Final Actions

5.4.1 The ED will determine when plant conditions warrant entry into the recovery phase. The NRC and Department of Health and Environment Control (DHEC) must agree with this decision.

5.4.2 The ED/OEC shall ensure that offsite authorities are:

A. Notified verbally by normal emergency communications in accordance with EPP-002.

B. Provided a written summary within 8 hours of the closeout of the emergency. This is the responsibility of Nuclear Licensing.

5.4.3 Initiate EPP-017 as required.

6.0 RECORDS

6.1 Forward all written material or copies of written material generated as a result of an emergency to the Emergency Services Unit (ESU). The ESU will ensure appropriate written material included in the applicable Condition Evaluation Report.

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7.0 REVISION SUMMARY

7.1 Incorporated Changes A through D.

7.2 Deleted the references in Section 2.0 that did not pertain to the development or revision of this procedure in accordance with SAP-139.

7.3 Added references 2.5 through 2.8 that included basis for development of plant-based Protective Action Recommendations.

7.4 Added Step 3.1.3 – Added the definition for Severe Core Damage.

7.5 Step 5.2.1.L., P. and Attachment I – Replaced the word EIS with AutoLog. AutoLog is the current method for logging plant activities.

7.6 Revised Attachment I to include the plant announcement from the body of the procedure. This is an enhancement to this attachment.

- 7.7 Attachment I, Line 17 – Added the words “Ensure the Communicator has” to indicate that the Communicator is the individual who activated the sirens, not the IED/ED/OEC.
- 7.8 Revised Attachment II to provide more detailed guidance for the determination of Protective Actions that will be recommended to State and local officials.
- 7.9 Revised Attachment III to indicate that Fairfield County is the controlling county for siren activation, not Newberry County.
- 7.10 Change A revisions include:
 - 7.10.1 Step 3.1.1 – Revised the definition of a General Emergency as required by NRC Bulletin 2005-02 and CER 05-2864.
 - 7.10.2 Step 5.2.1 B and Attachment I – Added statement in the announcement for personnel to refrain from eating, drinking, smoking or chewing until further notice.
 - 7.10.3 Step 5.3.3 B – Added statement concerning approval of dose projections and Protective Action Recommendations.
- 7.11 Change B revisions include:
 - 7.11.1 Attachment II – Enlarged a text box that was hiding some text.
- 7.12 Change F revisions include:
 - 7.12.1 Revised Attachment I deleting the Step for the Shift Supervisor to Complete the NRC Notification Form, this form is being eliminated and the State and local ENF will be used to notify the NRC, also added guidance for the SS to ensure completion of the ENF.
 - 7.12.2 Revised Attachment III providing guidance for the Shift Communicator to activate ERDS.

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GENERAL EMERGENCY
INITIAL ACTIONS SUMMARY

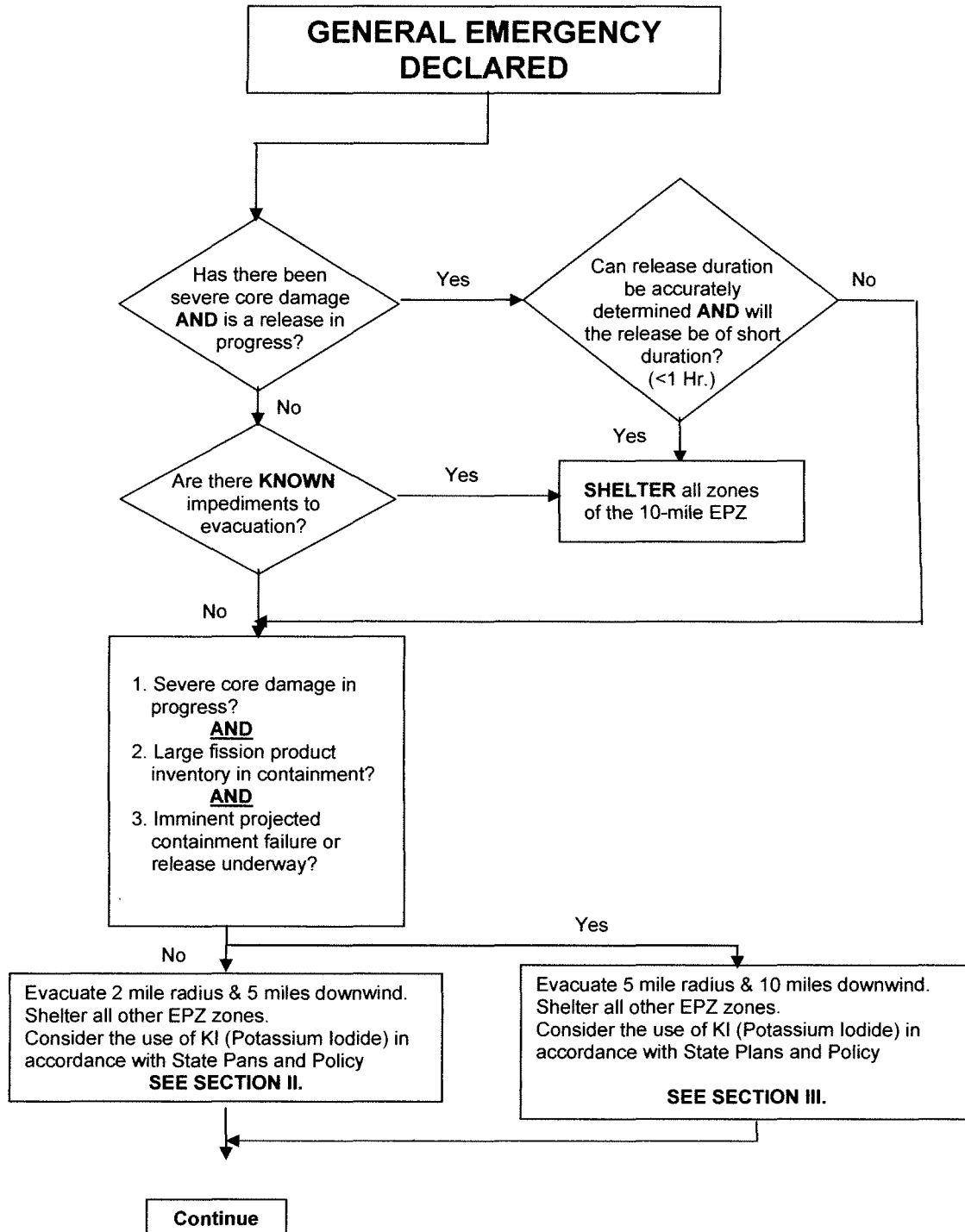
DATE: xx/xx/xx

INITIAL ACTIONS		TIME
1.	Assess Conditions and Classify Emergency	X X X X
2.	Announce to Plant Personnel Attention in the Plant. Attention in the Plant: The station is in a General Emergency Condition. The initiating event is <u>Detection Methods from IC (431)</u> All Emergency Response Personnel report to your duty stations. All non-essential personnel evacuate the site. Proceed to (choose one): <div style="border: 1px solid black; border-radius: 50%; padding: 5px; display: inline-block;"> Your Private Residence. </div> or The Southern Offsite Holding Area. or The Northern Offsite Holding Area.	
Chg. A	All Essential personnel in the Radiation Control Area assemble at the RCA Checkpoint. All personnel shall refrain from eating, drinking, smoking or chewing until further notice.	X X X X
3.	Sound Radiation Emergency Alarm	
4.	Repeat Announcement to Plant Personnel	
5.	Determine the EOF location (EPP-001.4 Att V)	
6.	Ensure Shift Communicator activates beepers Notify Security of call-in	
7.	Ensure completion of Emergency Notification Form (EPP-002 Att. I) Found in EP Tool Box.	
8.	Refer to EPP-001.4 Att. II for determining Protective Action Recommendations and Enter on the Emergency Notification Form	
9.	Ensure Communicator performs "Recommendation for Actuation of the EWSS" (EPP-021 Att. I) Found in EP Tool Box	
10.	Ensure Fairfield Pumped Storage has been Notified to Evacuate to the same Location as the Plant Non-Essentials	
*11.	Ensure Essential Shift Workers have reported to CR Area	
*12.	Assign Person (Maintenance) To Record Names and Badge Numbers of All Essential Personnel (including Operations personnel) - Provide to TSC/Security	
13.	Repeat Announcement to Plant Personnel and make announcement over the "NLC Spkr" radio channel.	
14.	Sound Radiation Emergency Alarm	
15.	Repeat Announcement to Plant Personnel and make announcement over the "NLC Spkr" radio channel.	
16.	Ensure Communicator has Activated EWSS In Coordination with EAS Activation (EPP-021)	
17.	Request Offsite Emergency Services if Required (ESSX *42) - Notify Security	
18.	Commence record-keeping in the ED log book or in the TSC AutoLog	

*Off-Normal Hours Only.

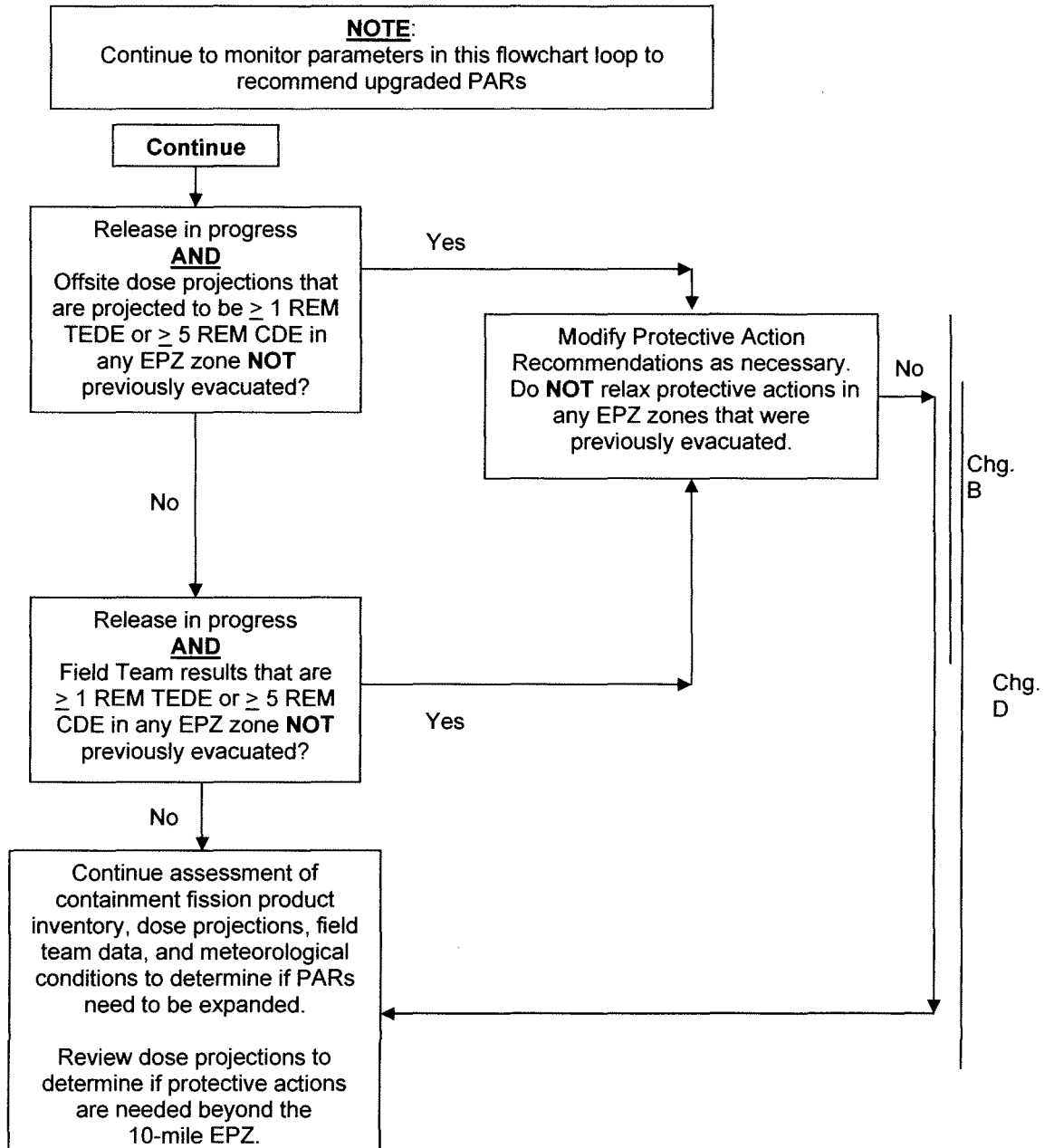
Signature _____

PROTECTIVE ACTION RECOMMENDATIONS



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PROTECTIVE ACTION RECOMMENDATIONS



PROTECTIVE ACTION RECOMMENDATIONS

I. DEFINITIONS

- A. Severe Core Damage is indicated by ANY of the following:
1. Containment Rad. Monitor > 10,000 R/Hr. without RB Spray operating.
OR
Containment Rad. Monitor > 4,000 R/Hr. with RB Spray operating.
 2. Core Exit Thermocouple > 2000°F.
 3. Core uncovered > 30 minutes.
 4. Containment H₂ > 1%
 5. Emergency Director Judgment.
- B. Large fission product inventory in the containment is indicated by ANY of the following:
1. A Loss of Coolant Accident > Charging Pump capacity.
 2. Containment H₂ > 1 %.
 3. An unplanned, unexplained rapid primary system depressurization with corresponding containment pressure increase.
 4. Emergency Director Judgment.
- C. Imminent projected containment failure or release underway is indicated by ANY of the following:
1. Containment pressure > 57 psig.
 2. Rapid uncontrolled decrease in containment pressure following an initial increase due to RCS failure.
 3. Failure of containment isolation system resulting in a direct path from the containment to the environment.
 4. Containment H₂ concentration > 4%.
 5. Unisolable faulted/ruptured S/G.
 6. Emergency Director Judgment.
- D. Known Impediments – events or conditions recognized to exist prior to or during the event. It is not intended that VCS personnel attempt to obtain information on travel conditions beyond what is already established.
1. External natural emergencies (e.g. Tornado, hurricane, ice storm)
 2. Road damage that could prevent flow of traffic (e.g. bridge damage, road construction)

PROTECTIVE ACTION RECOMMENDATIONS

II. 2-MILE RADIUS, 5 MILES DOWNWIND EVACUATION / SHELTERING

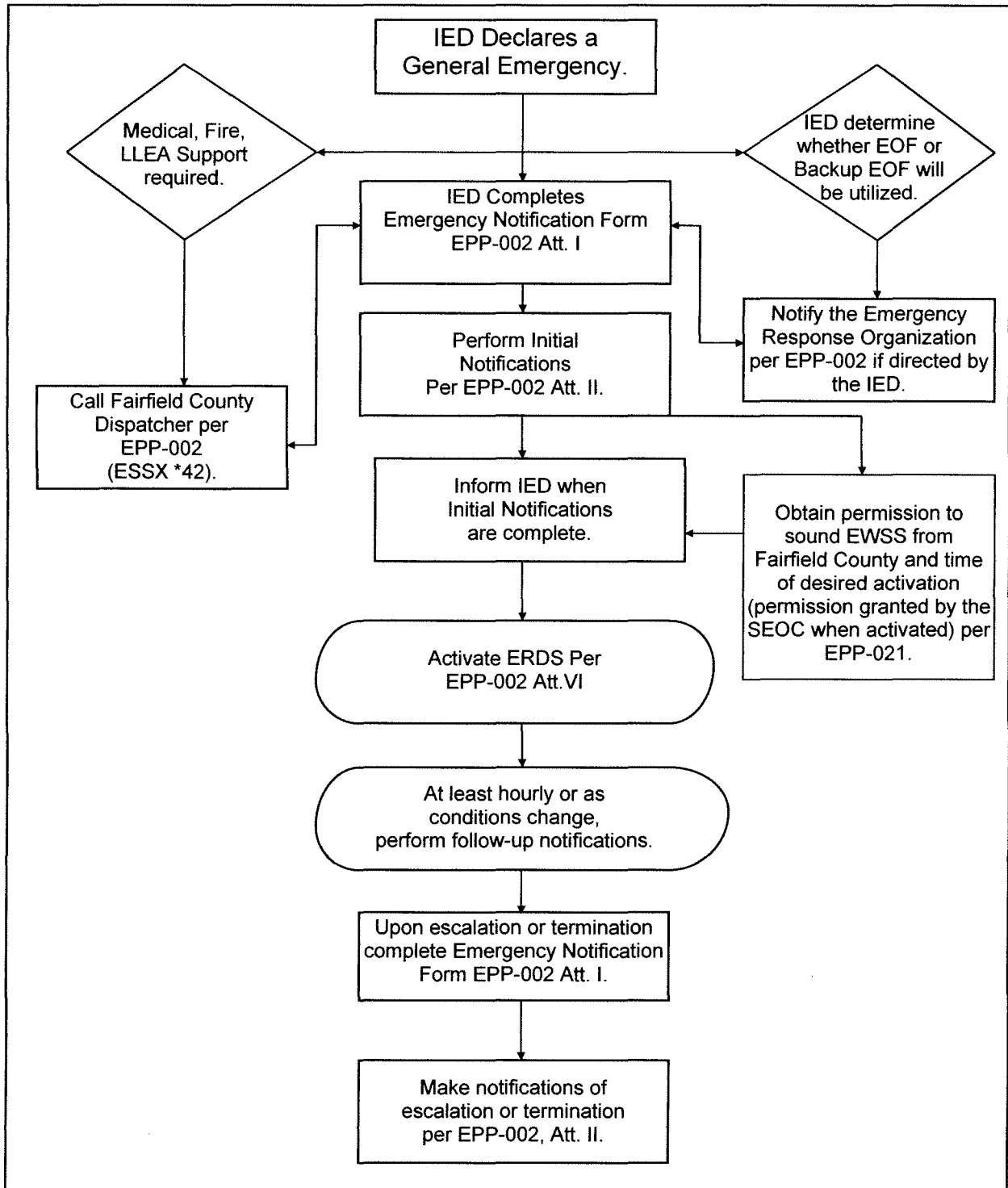
Wind Direction (From)	Compass Bearing	Evacuate EPZ Zones	Shelter EPZ Zones
348.76° - 11.25°	N	A-0, C-1, D-1, E-1	A-1, B-1, F-1, A-2, B-2, C-2, D-2, E-2, F-2
11.26° - 33.75°	NNE	A-0, C-1, D-1, E-1	A-1, B-1, F-1, A-2, B-2, C-2, D-2, E-2, F-2
33.76° - 56.25°	NE	A-0, E-1	A-1, B-1, C-1, D-1, F-1, A-2, B-2, C-2, D-2, E-2, F-2
56.26° - 78.75°	ENE	A-0, E-1, F-1	A-1, B-1, C-1, D-1, A-2, B-2, C-2, D-2, E-2, F-2
78.76° - 101.25°	E	A-0, E-1, F-1	A-1, B-1, C-1, D-1, A-2, B-2, C-2, D-2, E-2, F-2
101.26° - 123.75°	ESE	A-0, A-1, F-1	B-1, C-1, D-1, E-1, A-2, B-2, C-2, D-2, E-2, F-2
123.76° - 146.25°	SE	A-0, A-1, F-1	B-1, C-1, D-1, E-1, A-2, B-2, C-2, D-2, E-2, F-2
146.26° - 168.75°	SSE	A-0, A-1, F-1	B-1, C-1, D-1, E-1, A-2, B-2, C-2, D-2, E-2, F-2
168.76° - 191.25°	S	A-0, A-1, B-1	C-1, D-1, E-1, F-1, A-2, B-2, C-2, D-2, E-2, F-2
191.26° - 213.75°	SSW	A-0, A-1, B-1	C-1, D-1, E-1, F-1, A-2, B-2, C-2, D-2, E-2, F-2
213.76° - 236.25°	SW	A-0, A-1, B-1, C-1	D-1, E-1, F-1, A-2, B-2, C-2, D-2, E-2, F-2
236.26° - 258.75°	WSW	A-0, A-1, B-1, C-1	D-1, E-1, F-1, A-2, B-2, C-2, D-2, E-2, F-2
258.76° - 281.25°	W	A-0, B-1, C-1	A-1, D-1, E-1, F-1, A-2, B-2, C-2, D-2, E-2, F-2
281.26° - 303.75°	WNW	A-0, C-1	A-1, B-1, D-1, E-1, F-1, A-2, B-2, C-2, D-2, E-2, F-2
303.76° - 326.25°	NW	A-0, C-1	A-1, B-1, D-1, E-1, F-1, A-2, B-2, C-2, D-2, E-2, F-2
326.26° - 348.75°	NNW	A-0, C-1, D-1	A-1, B-1, E-1, F-1, A-2, B-2, C-2, D-2, E-2, F-2

PROTECTIVE ACTION RECOMMENDATIONS

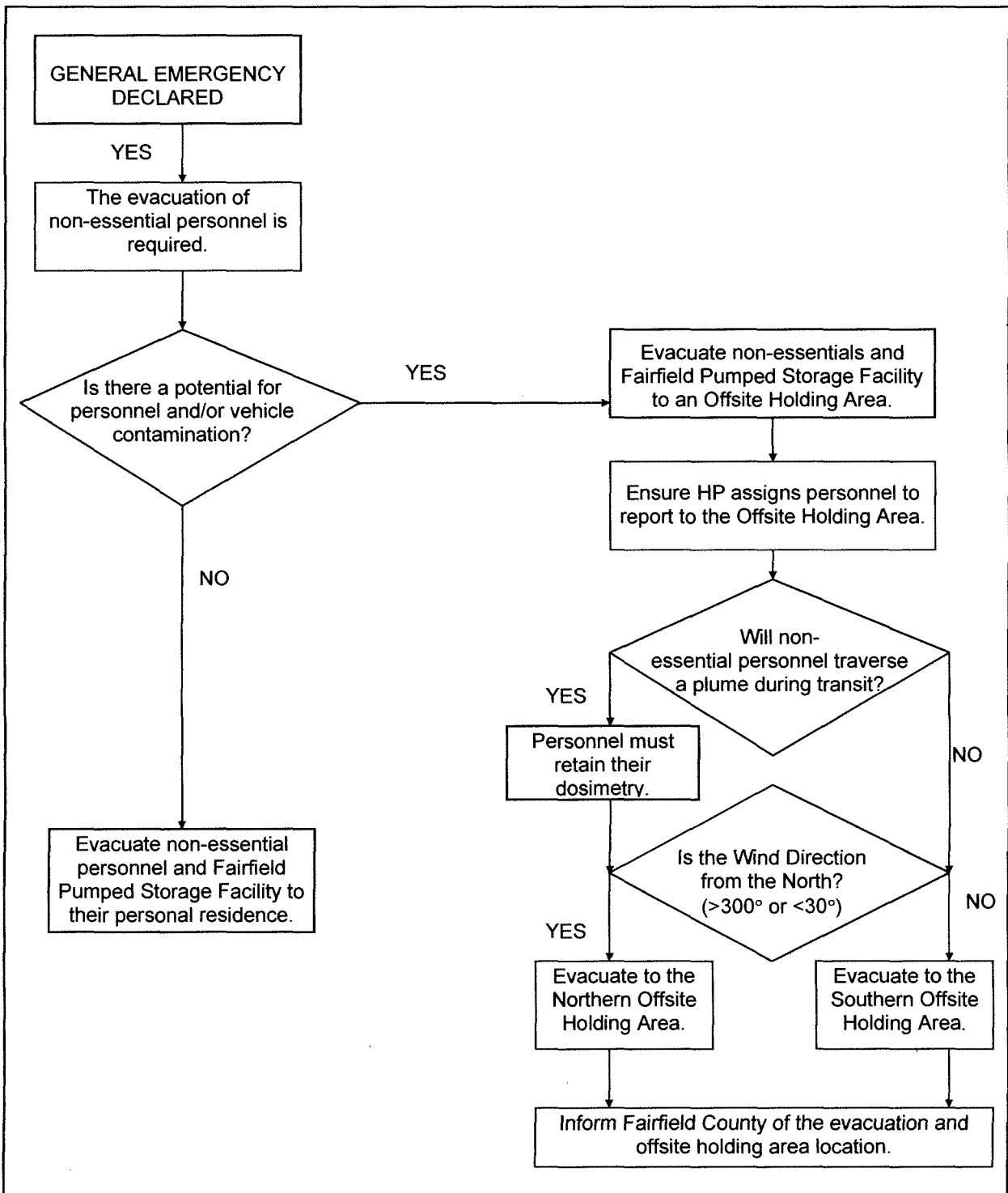
III. 5-MILE RADIUS, 10 MILES DOWNWIND EVACUATION / SHELTERING

Wind Direction (From)	Compass Bearing	Evacuate EPZ Zones	Shelter EPZ Zones
348.76° - 11.25°	N	A-0, A-1, B-1, C-1, D-1, E-1, F-1, D-2	A-2, B-2, C-2, E-2, F-2
11.26° - 33.75°	NNE	A-0, A-1, B-1, C-1, D-1, E-1, F-1, D-2, E-2	A-2, B-2, C-2, F-2
33.76° - 56.25°	NE	A-0, A-1, B-1, C-1, D-1, E-1, F-1, D-2, E-2	A-2, B-2, C-2, F-2
56.26° - 78.75°	ENE	A-0, A-1, B-1, C-1, D-1, E-1, F-1, E-2, F-2	A-2, B-2, C-2, D-2
78.76° - 101.25°	E	A-0, A-1, B-1, C-1, D-1, E-1, F-1, E-2, F-2	A-2, B-2, C-2, D-2
101.26° - 123.75°	ESE	A-0, A-1, B-1, C-1, D-1, E-1, F-1, F-2	A-2, B-2, C-2, D-2, E-2
123.76° - 146.25°	SE	A-0, A-1, B-1, C-1, D-1, E-1, F-1, A-2, F-2	B-2, C-2, D-2, E-2
146.26° - 168.75°	SSE	A-0, A-1, B-1, C-1, D-1, E-1, F-1, A-2, F-2	B-2, C-2, D-2, E-2
168.76° - 191.25°	S	A-0, A-1, B-1, C-1, D-1, E-1, F-1, A-2	B-2, C-2, D-2, E-2, F-2
191.26° - 213.75°	SSW	A-0, A-1, B-1, C-1, D-1, E-1, F-1, A-2, B-2	C-2, D-2, E-2, F-2
213.76° - 236.25°	SW	A-0, A-1, B-1, C-1, D-1, E-1, F-1, A-2, B-2	C-2, D-2, E-2, F-2
236.26° - 258.75°	WSW	A-0, A-1, B-1, C-1, D-1, E-1, F-1, B-2, C-2	A-2, D-2, E-2, F-2
258.76° - 281.25°	W	A-0, A-1, B-1, C-1, D-1, E-1, F-1, B-2, C-2	A-2, D-2, E-2, F-2
281.26° - 303.75°	WNW	A-0, A-1, B-1, C-1, D-1, E-1, F-1, C-2	A-2, B-2, D-2, E-2, F-2
303.76° - 326.25°	NW	A-0, A-1, B-1, C-1, D-1, E-1, F-1, C-2	A-2, B-2, D-2, E-2, F-2
326.26° - 348.75°	NNW	A-0, A-1, B-1, C-1, D-1, E-1, F-1, D-2	A-2, B-2, C-2, E-2, F-2

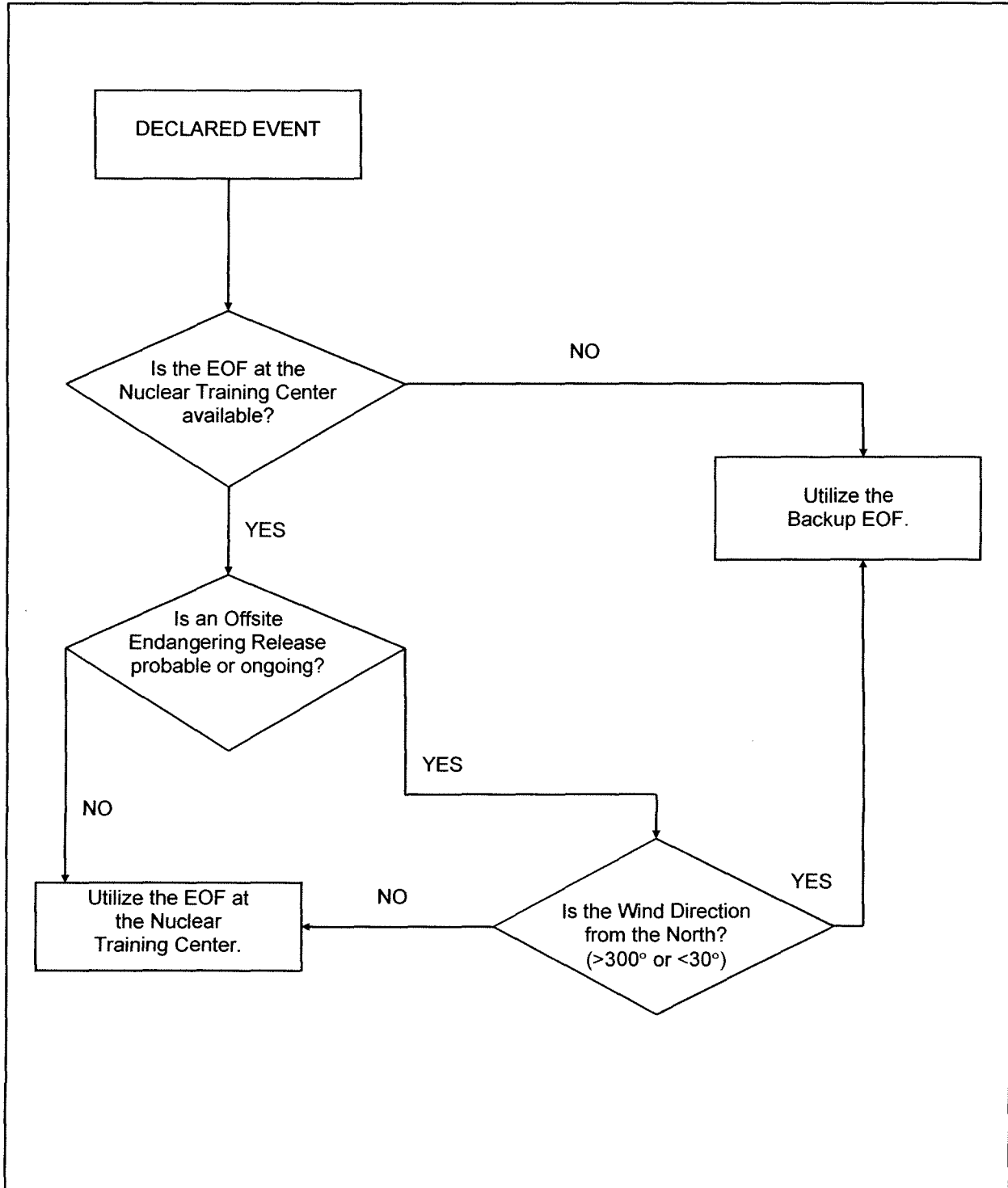
**GENERAL EMERGENCY
SHIFT COMMUNICATOR ACTIONS
FLOW CHART**



EVACUATION OF NON-ESSENTIAL PERSONNEL DECISION TREE



EOF -vs.- BACKUP EOF
DECISION FLOW CHART



Facility: VC SUMMER - FINAL

Date of Examination: 2009 NRC

Examination Level (circle one): ☒ RO / SRO

Operating Test Number: _____

Administrative Topic (see Note)	Type Code*	Describe activity to be performed
Conduct of Operations (A1-a)	P, M	<u>RO/SRO Common</u> Calculate the Maximum Allowable Head Venting Time in accordance with EOP-18.2, RESPONSE TO VOIDS IN REACTOR VESSEL, Attachment 2 G2.1.25 (3.9/4.2): Ability to interpret reference materials, such as graphs, curves, tables, etc.
Conduct of Operations (A1-b)	M	Perform a Shutdown Margin Verification for intended plant conditions in accordance with GOP-005, REACTOR SHUTDOWN FROM STARTUP TO HOT STANDBY (MODE 2 TO MODE 3), Step 3.7.b. G2.1.23 (4.3/4.4): Ability to perform specific system and integrated plant procedures during all modes of plant operation.
Equipment Control (A2)	N	Perform the surveillance test procedure and complete the associated documentation for the Pressurizer PORV motor operated block valves. G2.2.12 (3.7/4.1): Knowledge of surveillance procedures.
Radiation Control (A3)	M	<u>RO/SRO Common</u> Determine the dose limit and apply the RWP dose limits to calculate stay time for performance of a task involving whole body exposure. G2.3.7 (3.5/3.6): Ability to comply with radiation work permit requirements during normal or abnormal conditions..
Emergency Plan		Category not selected for RO

NOTE: All items (5 total) are required for SROs. RO applicants require only 4 items unless they are retaking only the administrative topics, when 5 are required.

*Type Codes & Criteria:

- (C)ontrol room
- (D)irect from bank (≤ 3 for ROs; \leq for SROs & RO retakes)
- (N)ew or (M)odified from bank (> 1)
- (P)revious 2 exams (≤ 1 ; randomly selected)
- (S)imulator

JPM SUMMARY STATEMENTS

CONDUCT OF OPERATIONS (A1-1): Given a set of conditions, calculate the Maximum Allowable Head Venting Time in accordance with EOP-18.2, RESPONSE TO VOIDS IN REACTOR VESSEL, Attachment 2. Modify 2005 NRC JPM A1-2 by changing the Reactor Building initial conditions. RO/SRO Common JPM.

CONDUCT OF OPERATIONS (A1-2): Perform a Shutdown Margin Verification for intended plant conditions in accordance with GOP-005, REACTOR SHUTDOWN FROM STARTUP TO HOT STANDBY (MODE 2 TO MODE 3), Step 3.7.b. The applicant will be directed from GOP-005 to perform STP-134.001, SHUTDOWN MARGIN VERIFICATION, to determine the required boron concentration for the intended conditions (Mode 5). Modify a Bank JPM by changing core burnup, existing boron concentration, and adding an "untriappable" rod. In addition, STP-134.001 has undergone significant revisions since the Bank JPM being modified was last revised.

EQUIPMENT CONTROL (A2): Perform the surveillance test procedure and complete the associated documentation for the Pressurizer PORV motor operated block valves. The applicant will perform STP-127.001, PRESSURIZER BLOCK VALVE OPERABILITY TEST, on the simulator; stroke testing the three PZR PORV Block Valves with a malfunction placing one valve outside of the specified acceptance criteria. New JPM.

RADIATION CONTROL (A3): Determine the stay time for performance of a task involving whole body exposure to ensure compliance with RWP requirements. Identified as a modified JPM because there are dose rate/dose calculation JPM's in the facility bank (JPA-007). RO/SRO Common JPM.

Facility: VC SUMMER - FINAL Date of Examination: 2009 NRC

Examination Level (circle one): RO / **SRO** Operating Test Number: _____

Administrative Topic (see Note)	Type Code*	Describe activity to be performed
Conduct of Operations (A1-a)	P, M	<u>RO/SRO Common</u> Calculate the Maximum Allowable Head Venting Time in accordance with EOP-18.2, RESPONSE TO VOIDS IN REACTOR VESSEL, Attachment 2 G2.1.25 (3.9/4.2): Ability to interpret reference materials, such as graphs, curves, tables, etc.
Conduct of Operations (A1-b)	N	Evaluate the impact of a change in the plant electrical lineup (close ALT Feed BRKR to ESF Bus 1DA or 1DB) on the TS LCO and complete SAP-205, Attachment 1 – REMOVAL AND RESTORATION CHECKSHEET G2.1.18 (3.6/3.8): Ability to make accurate, clear, and concise logs, records, status boards, and reports.
Equipment Control (A2)	M	Evaluate the completed surveillance test procedure for a safety related system G2.2.12 (3.7/4.1): Knowledge of surveillance procedures.
Radiation Control (A3)	M	<u>RO/SRO Common</u> Determine the dose limit and apply the RWP dose limits to calculate stay time for performance of a task involving whole body exposure. G2.3.7 (3.5/3.6): Ability to comply with radiation work permit requirements during normal or abnormal conditions..
Emergency Plan (A4)	M	Given a set of conditions, determine the EAL and complete the Emergency Notification Form within the required time G2.4.41 (2.9/4.6): Knowledge of the emergency action level thresholds and classifications.

NOTE: All items (5 total) are required for SROs.

*Type Codes & Criteria:

- (C)ontrol room
- (D)irect from bank (≤ 3 for ROs; \leq for SROs & RO retakes)
- (N)ew or (M)odified from bank (> 1)
- (P)revious 2 exams (≤ 1 ; randomly selected)
- (S)imulator

JPM SUMMARY STATEMENTS

CONDUCT OF OPERATIONS (A1-a): Given a set of conditions, calculate the Maximum Allowable Head Venting Time in accordance with EOP-18.2, RESPONSE TO VOIDS IN REACTOR VESSEL, Attachment 2. Modify 2005 NRC JPM A1-2 by changing the Reactor Building initial conditions. RO/SRO Common JPM.

CONDUCT OF OPERATIONS (A1-b): Evaluate the impact of a change in the plant electrical lineup (close alternate feed breaker to ESF Bus 1DA or 1DB in Mode 1) on the Technical Specification LCO and complete SAP-205, STATUS CONTROL AND REMOVAL AND RESTORATION, Attachment 1 – REMOVAL AND RESTORATION CHECKSHEET. The applicant will be required to determine the Technical Specification Action Statements that must be entered and then complete the status tracking document. New JPM.

EQUIPMENT CONTROL (A2): Evaluate the completed surveillance test procedure for a safety related system. The applicant will be directed to review (for approval) a completed STP-205.004, RHR PUMP AND VALVE OPERABILITY TEST, containing three significant errors. Modify a Bank JPM by changing all errors.

RADIATION CONTROL (A3): Determine the stay time for performance of a task involving whole body exposure to ensure compliance with RWP requirements. Identified as a modified JPM because there are dose rate/dose calculation JPM's in the facility bank (JPA-007). RO/SRO Common JPM.

EMERGENCY PLAN (A4): Given a set of conditions, determine the EAL and complete the Emergency Notification Form within the required time. The applicant will be given a set of conditions requiring declaration of a GENERAL EMERGENCY for an ATWS Event.

Facility: VC Summer - FINAL		Date of Examination: 2009	
Exam Level (circle one): RO / SRO(I) / <i>SRO(U)</i>		Operating Test No.: NRC	
Control Room Systems® (8 for RO; 7 for SRO-I)			
System / JPM Title		Type Code*	Safety Function
a.	APE 001 [JPS-036B] Respond to Continuous Rod Withdrawal (AOP-403.3)	D, S	1
b.	System 006 [JPSF-058A] Raise ECCS Accumulator Level (W/ High Pressure Alarm) (SOP-112)	M, A, S	2
c.	System 008 [JPS-068B] Shift CCW Trains (W/O Transferring In-Service Charging Pumps) (SOP-118)	M, S	8
d.	APE 025 [JPSF-065] <i>Establish Hot Leg Injection During Loss of RHR at Mid-Loop Conditions (AOP-115.5)</i>	D, A, S, L	4P
e.	System 045 [JPSF-022B] Respond to Turbine Trip Failure (W/ Manual SI Required) (EOP-1.0)	M, A, S	4S
f.	System 026 [JPSF-019B] <i>Manually Initiate Reactor Building Spray (EOP-1.0)</i>	M, A, S	5
g.	System 010 [JPSF-150A] <i>Depressurize the RCS to Refill the Pressurizer (EOP-2.1)</i>	P, D, A, S	3
h.	System 015 [JPS-157] Perform an Intermediate Range NI Analog Channel Operational Test (STP-102.003) RO Only	N, S	7
In-Plant Systems® (3 for RO; 3 for SRO-I; 3 or 2 for SRO-U)			
i.	System 001 [JPPF-096A] Locally Trip the Reactor (EOP-13.0)	M, A, E	1
j.	System 061 [JPP-068] <i>Reset Turbine Driven Emergency Feed Pump (SOP-211)</i>	D, R	4S
k.	System 062 [JPP-207] <i>Transfer a Vital 120VAC Power Supply - Return of Alternate Source (SOP-310)</i>	N	6

@ All control room (and in-plant) systems must be different and serve different safety functions; in-plant systems and functions may overlap those tested in the control room.

* Type Codes	Criteria for:	RO / SRO-I / SRO-U
(A)lternate path	4-6 / 4-6 / 2-3	[6] / [6] / 3
(C)ontrol room		
(D)irect from bank	$\leq 9 / \leq 8 / \leq 4$	[4] / [4] / 3
(E)mergency or abnormal in-plant	$\geq 1 / \geq 1 / \geq 1$	[1] / [1] / 1
(L)ow-Power	$\geq 1 / \geq 1 / \geq 1$	[1] / [1] / 1
(N)ew or (M)odified from bank including 1(A)	$\geq 2 / \geq 2 / \geq 1$	[7] / [6] / 2
(P)revious 2 exams	$\leq 3 / \leq 3 / \leq 2$ (randomly selected)	[1] / [1] / 1
(R)CA	$\geq 1 / \geq 1 / \geq 1$	[1] / [1] / 1
(S)imulator		

VC SUMMER 2009 NRC EXAM JPM SUMMARY

- a. Respond to continuous rod withdrawal in accordance with AOP-403.3, CONTINUOUS CONTROL ROD MOTION. Applicant will use Manual control rod motion to restore Tav_g to Tref. Bank JPM JPS-036B.
- b. Raise the level in an ECCS Accumulator in accordance with SOP-112, SAFETY INJECTION SYSTEM. The applicant will restore ECCS Accumulator level to within the technical specification band using the system operating procedure. When the accumulator level is raised, the high pressure alarm will come in and the applicant will have to vent the accumulator to the RB to lower pressure. Modify Bank JPM JPSF-058 (now 058A).
- c. Swap Active CCW loop from Train A to Train B in accordance with SOP-118. Modify Bank JPM JPS-068 (now 068B).
- d. Establish hot leg injection during loss of RHR at mid-loop conditions in accordance with AOP-115.5, LOSS OF RHR WITH THE RCS NOT INTACT (MODES 5 & 6). The alternate path is that the applicant will respond to degrading plant conditions by aligning RHR injection and establishing flow to the RCS hot legs. Bank JPM JPSF-065.
- e. Respond to a turbine trip failure in accordance with EOP-1.0, REACTOR TRIP/SAFETY INJECTION ACTUATION. The alternate path is that the applicant will be required to trip the turbine using diverse means from the MCB and/or locally. After completing the immediate operator actions for the turbine trip, the applicant will respond to degrading plant conditions that require manual initiation of SI. Modify Bank JPM JPSF-022A (now 022B) by adding a simulator malfunction that leads to a requirement for MANUAL SI actuation.
- f. Manually initiate reactor building spray in accordance with EOP-1.0, REACTOR TRIP/SAFETY INJECTION ACTUATION, Step 8. The applicant will implement alternate path actions to actuate RB Spray using Train B switches or by manually aligning spray pump suction and header isolation valves. Failure of MVG-3003A, RB Spray Isolation Valve, to open automatically will require the applicant to manually open the valve to establish Train A Reactor Building Spray flow. Modify Bank JPM JPSF-019 (now 019B) by adding the MVG-3003A failure.
- g. Depressurize the RCS to refill the Pressurizer using a PORV in accordance with EOP-2.1, POST-LOCA COOLDOWN AND DEPRESSURIZATION, Step 8. The alternate path is that the applicant must use a PZR PORV to depressurize because the spray valve for the running RCP fails to open. After depressurizing, the PZR PORV will fail to close requiring the respective isolation valve to be closed. Randomly selected from 2007 NRC Exam. Bank JPM JPSF-150A.
- h. Perform an Intermediate Range Analog Channel Operational Test for N35 in accordance with STP-102.003. New JPM.
- i. Locally trip the reactor in accordance with EOP-13.0, RESPONSE TO ABNORMAL NUCLEAR POWER GENERATION, ATTACHMENT 1 – TRIPPING THE REACTOR LOCALLY. The alternate path requires the applicant to open the Rod Drive MG Set breakers after attempts to manually open the reactor trip breakers fail. Modify Bank JPM JPPF-096 (now 096A).

- j. Reset turbine driven emergency feed pump in accordance with SOP-211, EMERGENCY FEEDWATER SYSTEM. Bank JPM JPP-068.
- k. Transfer a vital 120VAC power supply in accordance with SOP-310, 120 VAC INSTRUMENT AND CONTROL SYSTEM. The applicant will complete the steps to restore the alternate source of power to Inverter XIT-5901 in accordance with procedure section IV.AD. New JPM.

Facility:	VC Summer - FINAL	Date of Examination:	7/6/09	Operating Test Number:	NRC
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1. GENERAL CRITERIA	Initials		
	a	b*	c#
a. The operating test conforms with the previously approved outline; changes are consistent with sampling requirements (e.g. 10 CFR 55.45, operational importance, safety function distribution).	RC	P	M
b. There is no day-to-day repetition between this and other operating tests to be administered during this examination.	RC	P	M
c. The operating test shall not duplicate items from the applicants' audit test(s) (see Section D.1.a).	RC	P	M
d. Overlap with the written examination and between different parts of the operating test is within acceptable limits.	RC	P	M
e. It appears that the operating test will differentiate between competent and less-than-competent applicants at the designated license level.	RC	P	M

2. WALK-THROUGH CRITERIA	a	b*	c#
a. Each JPM includes the following, as applicable: <ul style="list-style-type: none"> * initial conditions * initiating cues * references and tools, including associated procedures * reasonable and validated time limits (average time allowed for completion) and specific designation if deemed to be time-critical by the facility licensee * operationally important specific performance criteria that include: <ul style="list-style-type: none"> - detailed expected actions with exact criteria and nomenclature - system response and other examiner cues - statements describing important observations to be made by the applicant - criteria for successful completion of the task - identification of critical steps and their associated performance standards - restrictions on the sequence of steps, if applicable 	RC	P	M
b. Ensure that any changes from the previously approved systems and administrative walk-through outlines (Forms ES-301-1 and 2) have not caused the test to deviate from any of the acceptance criteria (e.g., item distribution, bank use, repetition from the last 2 NRC examinations) specified on those forms and Form ES-201-2.	RC	P	M

3. SIMULATOR CRITERIA	a	b*	c#
The associated simulator operating tests (scenario sets) have been reviewed in accordance with Form ES-301-4 and a copy is attached.	RC	P	M

	Printed Name / Signature	Date
a. Author	Richard E. Ellis / <i>[Signature]</i>	6/24/09
b. Facility Reviewer (*)	William R. Quick / <i>[Signature]</i>	6/24/09
c. NRC Chief Examiner (#)	Robert F. Neelle / <i>[Signature]</i>	6/24/09
d. NRC Supervisor	MALCOLM T. WIDMAN / <i>[Signature]</i>	6/25/09

NOTE: * The facility signature is not applicable for NRC-developed tests.

Independent NRC reviewer initial items in Column "c"; chief examiner concurrence required.

Facility: VC Summer -
FINAL

Date of Exam: 7/6/09

Scenario Numbers: 1,2,3

Operating Test No.: NRC

QUALITATIVE ATTRIBUTES				Initials					
				a	b*	c#			
1.	The initial conditions are realistic, in that some equipment and/or instrumentation may be out of service, but it does not cue the operators into expected events.			RH	Pa	1			
2.	The scenarios consist mostly of related events.			RH	Pa	1			
3.	Each event description consists of <ul style="list-style-type: none"> the point in the scenario when it is to be initiated the malfunction(s) that are entered to initiate the event the symptoms/cues that will be visible to the crew the expected operator actions (by shift position) the event termination point (if applicable) 			RH	Pa	1			
4.	No more than one non-mechanistic failure (e.g., pipe break) is incorporated into the scenario without a credible preceding incident such as a seismic event.			RH	Pa	1			
5.	The events are valid with regard to physics and thermodynamics.			RH	Pa	1			
6.	Sequencing and timing of events is reasonable, and allows the examination team to obtain complete evaluation results commensurate with the scenario objectives.			RH	Pa	1			
7.	If time compression techniques are used, the scenario summary clearly so indicates. Operators have sufficient time to carry out expected activities without undue time constraints. Cues are given.			RH	Pa	1			
8.	The simulator modeling is not altered.			RH	Pa	1			
9.	The scenarios have been validated. Pursuant to 10 CFR 55.46(d), any open simulator performance deficiencies or deviations from the referenced plant have been evaluated to ensure that functional fidelity is maintained while running the planned scenarios.			RH	Pa	1			
10.	Every operator will be evaluated using at least one new or significantly modified scenario. All other scenarios have been altered in accordance with Section D.5 of ES-301.			RH	Pa	1			
11.	All individual operator competencies can be evaluated, as verified using Form ES-301-6 (submit the form along with the simulator scenarios).			RH	Pa	1			
12.	Each applicant will be significantly involved in the minimum number of transients and events specified on Form ES-301-5 (submit the form with the simulator scenarios).			RH	Pa	1			
13.	The level of difficulty is appropriate to support licensing decisions for each crew position.			RH	Pa	1			
Target Quantitative Attributes (Per Scenario; See Section D.5.d)				Actual Attributes			-	-	-
				1	2	3	-	-	-
1.	Total malfunctions (5-8)			10	10	11	RH	Pa	1
2.	Malfunctions after EOP entry (1-2)			4	4	5	RH	Pa	1
3.	Abnormal events (2-4)			2	4	2	RH	Pa	1
4.	Major transients (1-2)			1	2	1	RH	Pa	1
5.	EOPs entered/requiring substantive actions (1-2)			4	2	3	RH	Pa	1
6.	EOP contingencies requiring substantive actions (0-2)			1	0	0	RH	Pa	1
7.	Critical tasks (2-3)			3	3	3	RH	Pa	1

Facility: VC Summer - FINAL		Date of Exam: 7/6/2009		Operating Test No.: NRC														
A P P L I C A N T	E V E N T T Y P E	Scenarios																
		1			2			3			4			T O T A L	M I N I M U M (*)			
		CREW POSITION			CREW POSITION			CREW POSITION			CREW POSITION							
		S R O	A T C	B O P	S R O	A T C	B O P	S R O	A T C	B O P	S R O	A T C	B O P					
RO <input type="checkbox"/>	RX														0	1	1	0
	NOR	1													1	1	1	1
SRO-I <input type="checkbox"/>	I/C	245 6													4	4	4	2
SRO-U-1 <input checked="" type="checkbox"/>	MAJ	7													1	2	2	1
	TS	36													2	0	2	2
RO <input type="checkbox"/>	RX														0	1	1	0
	NOR	1													1	1	1	1
SRO-I <input type="checkbox"/>	I/C	245 6													4	4	4	2
SRO-U-2 <input checked="" type="checkbox"/>	MAJ	7													1	2	2	1
	TS	36													2	0	2	2
RO <input type="checkbox"/>	RX														0	1	1	0
	NOR														0	1	1	1
SRO-I <input type="checkbox"/>	I/C				123 45										5	4	4	2
SRO-U-3 <input checked="" type="checkbox"/>	MAJ				68										2	2	2	1
	TS				24										2	0	2	2
RO <input type="checkbox"/>	RX					1									1	1	1	0
	NOR	1													1	1	1	1
SRO-I <input type="checkbox"/>	I/C				123 45										5	4	4	2
SRO-U-4 <input checked="" type="checkbox"/>	MAJ				68										2	2	2	1
	TS				24										2	0	2	2
RO <input type="checkbox"/>	RX					1									1	1	1	0
	NOR	1													1	1	1	1
SRO-I-1 <input checked="" type="checkbox"/>	I/C	245 6				24									5	4	4	2
SRO-U <input type="checkbox"/>	MAJ	7				68									3	2	2	1
	TS	36													2	0	2	2

A P P L I C A N T	E V E N T T Y P E	Scenarios												T O T A L	M I N I M U M (*)						
		1			2			3			4										
		CREW POSITION			CREW POSITION			CREW POSITION			CREW POSITION										
		S R O	A T C	B O P	S R O	A T C	B O P	S R O	A T C	B O P	S R O	A T C	B O P		R	I	U				
RO <input type="checkbox"/>	RX		1											1	1	1	0				
	NOR													0	1	1	1				
	SRO-I-2 <input checked="" type="checkbox"/>	I/C	46		123 45									7	4	4	2				
	SRO-U <input type="checkbox"/>	MAJ	7		68									3	2	2	1				
		TS			24									2	0	2	2				
RO-1 <input checked="" type="checkbox"/>	RX		1											1	1	1	0				
	NOR													0	1	1	1				
	SRO-I <input type="checkbox"/>	I/C	46				135							5	4	4	2				
	SRO-U <input type="checkbox"/>	MAJ	7				68							3	2	2	1				
		TS												0	0	2	2				
RO-2 <input checked="" type="checkbox"/>	RX					1								1	1	1	0				
	NOR			1										1	1	1	1				
	SRO-I <input type="checkbox"/>	I/C		25		24								4	4	4	2				
	SRO-U <input type="checkbox"/>	MAJ		7		68								3	2	2	1				
		TS												0	0	2	2				
RO-3 <input checked="" type="checkbox"/>	RX		1											1	1	1	0				
	NOR													0	1	1	1				
	SRO-I <input type="checkbox"/>	I/C	46				135							5	4	4	2				
	SRO-U <input type="checkbox"/>	MAJ	7				68							3	2	2	1				
		TS												0	0	2	2				
RO-4 <input checked="" type="checkbox"/>	RX					1								1	1	1	0				
	NOR			1										1	1	1	1				
	SRO-I <input type="checkbox"/>	I/C		25		24								4	4	4	2				
	SRO-U <input type="checkbox"/>	MAJ		7		68								3	2	2	1				
		TS												0	0	2	2				

Instructions:

1. Circle the applicant level and enter the operating test number and Form ES-D-1 event numbers for each event type; TS are not applicable for RO applicants. ROs must service in both the "at-the-controls (ATC)" and "balance-of-plant (BOP)" positions; Instant SROs must serve in both the SRO and ATC positions, including at least two instrument or component (I/C) malfunctions and one major transient, in the ATC position. If an Instant SRO *additionally* serves in the BOP position, one I/C malfunction can be credited toward the two I/C malfunctions required for the ATC position.
2. Reactivity manipulations may be conducted under normal or *controlled* abnormal conditions (refer to Section D.5.d) but must be significant per Section C.2.a of Appendix D. (*) Reactivity and normal evolutions may be replaced with additional instrument or component malfunctions on a 1-for-1 basis.
3. Whenever practical, both instrument and component malfunctions should be included; only those that require verifiable actions that provide insight to the applicant's competence count toward the minimum requirements specified for the applicant's license level in the right-hand columns.

Facility: VC Summer - FINAL	Date of Examination: 7/6/09	Operating Test No.: NRC											
Competencies	APPLICANTS												
	SRO				ATC				BOP				
	SCENARIO				SCENARIO				SCENARIO				
	1	2	3	4	1	2	3	4	1	2	3	4	
Interpret/Diagnose Events and Conditions	2-9	1-9	2-11		3467 89	2478	247 10 11		2589	1356 9	5678 9		
Comply With and Use Procedures (1)	1-9	1-9	1-11		1346 789	1247 8	1247 10 11		1257 89	1356 89	1567 89		
Operate Control Boards (2)	NA	NA	NA		1467 89	1246 78	1247 11		1257 8	1356 89	1567 89		
Communicate and Interact	ALL	ALL	ALL		1346 789	1246 78	1247 10 11		1257 89	1356 89	1356 789		
Demonstrate Supervisory Ability (3)	ALL	ALL	ALL		NA	NA	NA		NA	NA	NA		
Comply With and Use Tech. Specs. (3)	36	24	34		NA	NA	NA		NA	NA	NA		
Notes: (1) Includes Technical Specification compliance for an RO. (2) Optional for an SRO-U. (3) Only applicable to SROs.													

Instructions:

Circle the applicants' license type and enter one or more event numbers that will allow the examiners to evaluate every applicable competency for every applicant.

Facility: <i>Summer</i> Date of Exam:		RO K/A Category Points												SRO-Only Points			
Tier	Group	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G *	Total	A2	G*	Total	
1. Emergency & Abnormal Plant Evolutions	1	3	3	3	N/A			3	3	N/A			3	18	3	3	6
	2	2	1	2				1	1				2	9	2	2	4
	Tier Totals		5	4				5	4				4	5	27	5	5
2. Plant Systems	1	2	2	2	3	3	2	2	3	3	3	3	28	2	3	5	
	2	1	0	1	1	1	1	1	1	1	1	1	10	2	1	3	
	Tier Totals		3	2	3	4	4	3	3	4	4	4	4	38	4	4	8
3. Generic Knowledge and Abilities Categories					1	2	3	4	10				1	2	3	4	7
					3	2	3	2					2	1	2	2	

- Ensure that at least two topics from every applicable K/A category are sampled within each tier of the RO and SRO-only outlines (i.e., except for one category in Tier 3 of the SRO-only outline, the "Tier Totals" in each K/A category shall not be less than two).
- The point total for each group and tier in the proposed outline must match that specified in the table. The final point total for each group and tier may deviate by ± 1 from that specified in the table based on NRC revisions. The final RO exam must total 75 points and the SRO-only exam must total 25 points.
- Systems/evolutions within each group are identified on the associated outline; systems or evolutions that do not apply at the facility should be deleted and justified; operationally important, site-specific systems that are not included on the outline should be added. Refer to ES-401, Attachment 2, for guidance regarding the elimination of inappropriate K/A statements.
- Select topics from as many systems and evolutions as possible; sample every system or evolution in the group before selecting a second topic for any system or evolution.
- Absent a plant-specific priority, only those K/As having an importance rating (IR) of 2.5 or higher shall be selected. Use the RO and SRO ratings for the RO and SRO-only portions, respectively.
- Select SRO topics for Tiers 1 and 2 from the shaded systems and K/A categories.
- *The generic (G) K/As in Tiers 1 and 2 shall be selected from Section 2 of the K/A Catalog, but the topics must be relevant to the applicable evolution or system.
- On the following pages, enter the K/A numbers, a brief description of each topic, the topics' importance ratings (IRs) for the applicable license level, and the point totals (#) for each system and category. Enter the group and tier totals for each category in the table above; if fuel handling equipment is sampled in other than Category A2 or G* on the SRO-only exam, enter it on the left side of Column A2 for Tier 2, Group 2 (Note # 1 does not apply). Use duplicate pages for RO and SRO-only exams.
- For Tier 3, select topics from Section 2 of the K/A catalog, and enter the K/A numbers, descriptions, IRs, and point totals (#) on Form ES-401-3. Limit SRO selections to K/As that are linked to 10 CFR 55.43.

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
008AA1.06	Pressurizer Vapor Space Accident / 3	3.6	3.6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Control of PZR level
Ability to operate and / or monitor the following as they apply to (ABNORMAL PLANT EVOLUTION):(CFR: 41.7 / 45.5 / 45.6)														
011EK3.15	Large Break LOCA / 3	4.3	4.4	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Criteria for shifting to recirculation mode
Knowledge of the reasons for the following responses as they apply to (EMERGENCY PLANT EVOLUTION):(CFR: 41.5 / 41.10 / 45.6 / 45.13)														
015AK2.07	RCP Malfunctions / 4	2.9	2.9	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	RCP seals
Knowledge of the interrelations between (ABNORMAL PLANT EVOLUTION) and the following:(CFR: 41.7 / 45.7 / 45.8)														
022AA2.02	Loss of Rx Coolant Makeup / 2	3.2	3.7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Charging pump problems
Ability to determine and interpret the following as they apply to ABNORMAL PLANT EVOLUTION):(CFR: 41.10 / 43.5 / 45.13)														
025AK1.01	Loss of RHR System / 4	3.9	4.3	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Loss of RHRS during all modes of operation
Knowledge of the operational implications of the following concepts as they apply to the (ABNORMAL PLANT EVOLUTION):(CFR: 41.8 to 41.10 / 45.3)														
026AG2.1.20	Loss of Component Cooling Water / 8	4.6	4.6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to execute procedure steps.
This is a Generic, no stem statement is associated.														

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
027AK2.03	Pressurizer Pressure Control System Malfunction / 3	2.6	2.8	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Controllers and positioners
Knowledge of the interrelations between (ABNORMAL PLANT EVOLUTION) and the following:(CFR: 41.7 / 45.7 / 45.8)														
029EK1.02	ATWS / 1	2.6	2.8	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Definition of reactivity
Knowledge of the operational implications of the following concepts as they apply to the EMERGENCY PLANT EVOLUTION):(CFR: 41.8 to 41.10 / 45.3)														
038EK1.01	Steam Gen. Tube Rupture / 3	3.1	3.4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Use of steam tables
Knowledge of the operational implications of the following concepts as they apply to the EMERGENCY PLANT EVOLUTION):(CFR: 41.8 to 41.10 / 45.3)														
040AG2.2.25	Steam Line Rupture - Excessive Heat Transfer / 4	3.2	4.2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of the bases in Technical Specifications for limiting conditions for operations and safety limits.
This is a Generic, no stem statement is associated.														
054AK3.03	Loss of Main Feedwater / 4	3.8	4.1	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Manual control of AFW flow control valves
Knowledge of the reasons for the following responses as they apply to (ABNORMAL PLANT EVOLUTION):(CFR: 41.5 / 41.10 / 45.6 / 45.13)														
055EA1.01	Station Blackout / 6	3.7	3.9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	In-core thermocouple temperatures
Ability to operate and / or monitor the following as they apply to (EMERGENCY PLANT EVOLUTION):(CFR: 41.7 / 45.5 / 45.6)														

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
056AA2.02	Loss of Off-site Power / 6	3.5	3.6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ESF load sequencer status lights
				Ability to determine and interpret the following as they apply to ABNORMAL PLANT EVOLUTION):(CFR: 41.10 / 43.5 / 45.13)										
057AG2.4.8	Loss of Vital AC Inst. Bus / 6	3.8	4.5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of how abnormal operating procedures are used in conjunction with EOPs.
				This is a Generic, no stem statement is associated.										
065AK3.08	Loss of Instrument Air / 8	3.7	3.9	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Actions contained in EOP for loss of instrument air
				Knowledge of the reasons for the following responses as they apply to (ABNORMAL PLANT EVOLUTION):(CFR: 41.5 / 41.10 / 45.6 / 45.13)										
077AK2.02	Generator Voltage and Electric Grid Disturbances / 6	3.1	3.3	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Breakers, relays
				Knowledge of the interrelations between (ABNORMAL PLANT EVOLUTION) and the following:(CFR: 41.7 / 45.7 / 45.8)										
WE04EA1.1	LOCA Outside Containment / 3	4.0	4.0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Components and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes and automatic and manual features.
				Ability to operate and / or monitor the following as they apply to (EMERGENCY PLANT EVOLUTION):(CFR: 41.7 / 45.5 / 45.6)										
WE05EA2.1	Inadequate Heat Transfer - Loss of Secondary Heat Sink / 4	3.4	4.4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Facility conditions and selection of appropriate procedures during abnormal and emergency operations.
				Ability to determine and interpret the following as they apply to (EMERGENCY PLANT EVOLUTION):(CFR: 41.10 / 43.5 / 45.13)										

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
001AK1.16	Continuous Rod Withdrawal / 1	3	3.4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Definition and application of power defect
				Knowledge of the operational implications of the following concepts as they apply to the (ABNORMAL PLANT EVOLUTION):(CFR: 41.8 to 41.10 / 45.3)										
024AK2.01	Emergency Boration / 1	2.7	2.7	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Valves
				Knowledge of the interrelations between (ABNORMAL PLANT EVOLUTION) and the following:(CFR: 41.7 / 45.7 / 45.8)										
033AG2.4.11	Loss of Intermediate Range NI / 7	4.0	4.2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of abnormal condition procedures.
				This is a Generic, no stem statement is associated.										
051AA1.04	Loss of Condenser Vacuum / 4	2.5	2.5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Rod position
				Ability to operate and / or monitor the following as they apply to (ABNORMAL PLANT EVOLUTION):(CFR: 41.7 / 45.5 / 45.6)										
061AK3.02	ARM System Alarms / 7	3.4	3.6	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Guidance contained in alarm response for ARM system
				Knowledge of the reasons for the following responses as they apply to (ABNORMAL PLANT EVOLUTION):(CFR: 41.5 / 41.10 / 45.6 / 45.13)										
068AA2.02	Control Room Evac. / 8	3.7	4.2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Local boric acid flow
				Ability to determine and interpret the following as they apply to ABNORMAL PLANT EVOLUTION):(CFR: 41.10 / 43.5 / 45.13)										

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
074EK3.03	Inad. Core Cooling / 4	3.4	3.8	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Placing the plant in hot standby status
Knowledge of the reasons for the following responses as they apply to (EMERGENCY PLANT EVOLUTION);(CFR: 41.5 / 41.10 / 45.6 / 45.13)														
WE01EK1.2	Radiagnosis / 3	3.4	4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Normal, abnormal and emergency operating procedures associated with (Reactor Trip or Safety Injection / Radiagnosis).
Knowledge of the operational implications of the following concepts as they apply to the EMERGENCY PLANT EVOLUTION);(CFR: 41.8 to 41.10 / 45.3)														
we03EG2.4.21	LOCA Cooldown - Depress. / 4	4.0	4.6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of the parameters and logic used to assess the status of safety functions
This is a Generic, no stem statement is associated.														

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
003G2.1.7	Reactor Coolant Pump	4.4	4.7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior and instrument interpretation.
				This is a Generic, no stem statement is associated.										
004A3.15	Chemical and Volume Control	3.5	3.6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	PZR pressure and temperature
				Ability to monitor automatic operations of the (SYSTEM) including:(CFR: 41.7 / 45.5)										
004K2.05	Chemical and Volume Control	2.7	2.9	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	MOVs
				Knowledge of electrical power supplies to the following:(CFR: 41.7)										
005K5.02	Residual Heat Removal	3.4	3.5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Need for adequate subcooling
				Knowledge of the operational implications of the following concepts as they apply to the (SYSTEM):(CFR: 41.5 / 45.7)										
006A1.09	Emergency Core Cooling	2.8	3.2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Pump amperage, including start, normal and locked
				Ability to predict and/or monitor changes in parameters associated with operating the (SYSTEM) controls including:(CFR: 41.5 / 45.5)										
007A2.03	Pressurizer Relief/Quench Tank	3.6	3.9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Overpressurization of the PZR
				Ability to (a) predict the impacts of the following on the (SYSTEM) and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation:(CFR: 41.5 / 43.5 / 45.3 / 45.13)										

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
008A1.03	Component Cooling Water	2.7	2.9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	CCW pressure
				Ability to predict and/or monitor changes in parameters associated with operating the (SYSTEM) controls including:(CFR: 41.5 / 45.5)										
010A2.01	Pressurizer Pressure Control	3.3	3.6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Heater failures
				Ability to (a) predict the impacts of the following on the (SYSTEM) and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation:(CFR: 41.5 / 43.5 / 45.3 / 45.13)										
012K4.01	Reactor Protection	3.7	4.0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Trip logic when one channel OOC or in test
				Knowledge of (SYSTEM) design feature(s) and or interlock(s) which provide for the following:(CFR: 41.7)										
012K6.10	Reactor Protection	3.3	3.5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Permissive circuits
				Knowledge of the effect that a loss or malfunction of the following will have on the (SYSTEM):(CFR: 41.7 / 45.7)										
013K6.01	Engineered Safety Features Actuation	2.7	3.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sensors and detectors
				Knowledge of the effect that a loss or malfunction of the following will have on the (SYSTEM):(CFR: 41.7 / 45.7)										
022A4.05	Containment Cooling	3.8	3.8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Containment readings of temperature, pressure and humidity system
				Ability to manually operate and/or monitor in the control room:(CFR: 41.7 / 45.5 to 45.8)										

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
022K1.02	Containment Cooling	3.7	3.5	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	SEC/remote monitoring systems
				Knowledge of the physical connections and/or cause-effect relationships between (SYSTEM) and the following:(CFR: 41.2 to 41.9 / 45.7 to 45.8)										
026A4.05	Containment Spray	3.5	3.5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Containment spray reset switches
				Ability to manually operate and/or monitor in the control room:(CFR: 41.7 / 45.5 to 45.8)										
039A2.04	Main and Reheat Steam	3.4	3.7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Malfunctioning steam dump
				Ability to (a) predict the impacts of the following on the (SYSTEM) and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation:(CFR: 41.5 / 43.5 / 45.3 / 45.13)										
039K5.05	Main and Reheat Steam	2.7	3.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Bases for RCS cooldown limits
				Knowledge of the operational implications of the following concepts as they apply to the (SYSTEM):(CFR: 41.5 / 45.7)										
059K4.13	Main Feedwater	2.9	2.9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Feedwater fill for S/G upon loss of RCPs
				Knowledge of (SYSTEM) design feature(s) and or interlock(s) which provide for the following:(CFR: 41.7)										
061K3.01	Auxiliary/Emergency Feedwater	4.4	4.6	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	RCS
				Knowledge of the effect that a loss or malfunction of the (SYSTEM) will have on the following:(CFR: 41.7 / 45.6)										

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
061K5.01	Auxiliary/Emergency Feedwater	3.6	3.9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Relationship between AFW flow and RCS heat transfer
				Knowledge of the operational implications of the following concepts as they apply to the (SYSTEM):(CFR: 41.5 / 45.7)										
062G2.4.46	AC Electrical Distribution	4.2	4.2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to verify that the alarms are consistent with the plant conditions.
				This is a Generic, no stem statement is associated.										
062G2.4.9	AC Electrical Distribution	3.8	4.2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of low power / shutdown implications in accident (e.g. LOCA or loss of RHR) mitigation strategies.
				This is a Generic, no stem statement is associated.										
063A4.01	DC Electrical Distribution	2.8	3.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Major breakers and control power fuses
				Ability to manually operate and/or monitor in the control room:(CFR: 41.7 / 45.5 to 45.8)										
064A3.05	Emergency Diesel Generator	2.8	2.9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Operation of the governor control of frequency and voltage control in parallel operation
				Ability to monitor automatic operations of the (SYSTEM) including:(CFR: 41.7 / 45.5)										
064K4.10	Emergency Diesel Generator	3.5	4.0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Automatic load sequencer: blackout
				Knowledge of (SYSTEM) design feature(s) and or interlock(s) which provide for the following:(CFR: 41.7)										
073K3.01	Process Radiation Monitoring	3.6	4.2	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Radioactive effluent releases
				Knowledge of the effect that a loss or malfunction of the (SYSTEM) will have on the following:(CFR: 41.7 / 45.6)										

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
076K1.16	Service Water	3.6	3.8	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ESF
				Knowledge of the physical connections and/or cause-effect relationships between (SYSTEM) and the following:(CFR: 41.2 to 41.9 / 45.7 to 45.8)										
078K2.01	Instrument Air	2.7	2.9	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Instrument air compressor
				Knowledge of electrical power supplies to the following:(CFR: 41.7)										
103A3.01	Containment	3.9	4.2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Containment isolation
				Ability to monitor automatic operations of the (SYSTEM) including:(CFR: 41.7 / 45.5)										

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
001A2.07	Control Rod Drive	4.1	4.4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Effect of reactor trip on primary and secondary parameters and systems
				Ability to (a) predict the impacts of the following on the (SYSTEM) and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation:(CFR: 41.5 / 43.5 / 45.3 / 45.13)										
002A4.02	Reactor Coolant	4.3	4.5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Indications necessary to verify natural circulation from appropriate level, flow and temperature indications and valve positions upon loss of forced circulation
				Ability to manually operate and/or monitor in the control room:(CFR: 41.7 / 45.5 to 45.8)										
011K6.05	Pressurizer Level Control	3.1	3.7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Function of PZR level gauges as postaccident monitors
				Knowledge of the effect that a loss or malfunction of the following will have on the (SYSTEM):(CFR: 41.7 / 45.7)										
016K5.01	Non-nuclear Instrumentation	2.7	2.8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Separation of control and protection circuits
				Knowledge of the operational implications of the following concepts as they apply to the (SYSTEM):(CFR: 41.5 / 45.7)										
027G2.4.31	Containment Iodine Removal	4.2	4.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Knowledge of annunciators alarms, indications or response procedures
				This is a Generic, no stem statement is associated.										
028K3.01	Hydrogen Recombiner and Purge Control	3.3	4.0	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hydrogen concentration in containment
				Knowledge of the effect that a loss or malfunction of the (SYSTEM) will have on the following:(CFR: 41.7 / 45.6)										

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
035A1.01	Steam Generator	3.6	3.8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	S/G wide and narrow range level during startup, shutdown and normal operations
				Ability to predict and/or monitor changes in parameters associated with operating the (SYSTEM) controls including:(CFR: 41.5 / 45.5)										
072K1.05	Area Radiation Monitoring	2.8	2.9	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	MRSS
				Knowledge of the physical connections and/or cause-effect relationships between (SYSTEM) and the following:(CFR: 41.2 to 41.9 / 45.7 to 45.8)										
075K4.01	Circulating Water	2.5	2.8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Heat sink
				Knowledge of (SYSTEM) design feature(s) and or interlock(s) which provide for the following:(CFR: 41.7)										
086A3.01	Fire Protection	2.9	3.3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Starting mechanisms of fire water pumps
				Ability to monitor automatic operations of the (SYSTEM) including:(CFR: 41.7 / 45.5)										

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
G2.1.17	Conduct of operations	3.9	4.0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to make accurate, clear and concise verbal reports.
				This is a Generic, no stem statement is associated.										
G2.1.18	Conduct of operations	3.6	3.8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to make accurate, clear and concise logs, records, status boards and reports.
				This is a Generic, no stem statement is associated.										
G2.1.43	Conduct of operations	4.1	4.3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to use procedures to determine the effects on reactivity of plant changes
				This is a Generic, no stem statement is associated.										
G2.2.14	Equipment Control	3.9	4.3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of the process for controlling equipment configuration or status
				This is a Generic, no stem statement is associated.										
G2.2.37	Equipment Control	3.6	4.6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to determine operability and/or availability of safety related equipment
				This is a Generic, no stem statement is associated.										
G2.3.11	Radiation Control	3.8	4.3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to control radiation releases.
				This is a Generic, no stem statement is associated.										
G2.3.5	Radiation Control	2.9	2.9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to use radiation monitoring systems
				This is a Generic, no stem statement is associated.										

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
G2.3.7	Radiation Control	3.5	3.6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to comply with radiation work permit requirements during normal or abnormal conditions
				This is a Generic, no stem statement is associated.										
G2.4.30	Emergency Procedures/Plans	2.7	4.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of events related to system operations/status that must be reported to internal organizations or outside agencies.
				This is a Generic, no stem statement is associated.										
G2.4.32	Emergency Procedures/Plans	3.6	4.0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of operator response to loss of all annunciators.
				This is a Generic, no stem statement is associated.										

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
008AG2.4.6	Pressurizer Vapor Space Accident / 3	3.7	4.7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge symptom based EOP mitigation strategies.
				This is a Generic, no stem statement is associated.										
015AA2.10	RCP Malfunctions / 4	3.7	3.7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	When to secure RCPs on loss of cooling or seal injection
				Ability to determine and interpret the following as they apply to ABNORMAL PLANT EVOLUTION):(CFR: 41.10 / 43.5 / 45.13)										
026AG2.2.44	Loss of Component Cooling Water / 8	4.2	4.4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to interpret control room indications to verify the status and operation of a system, and understand how operator actions and directives affect plant and system conditions
				This is a Generic, no stem statement is associated.										
054AA2.04	Loss of Main Feedwater / 4	4.2	4.3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Proper operation of AFW pumps and regulating valves
				Ability to determine and interpret the following as they apply to ABNORMAL PLANT EVOLUTION):(CFR: 41.10 / 43.5 / 45.13)										
062AG2.2.36	Loss of Nuclear Svc Water / 4	3.1	4.2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to analyze the effect of maintenance activities, such as degraded power sources, on the status of limiting conditions of operations
				This is a Generic, no stem statement is associated.										
WE04EA2.1	LOCA Outside Containment / 3	3.4	4.3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Facility conditions and selection of appropriate procedures during abnormal and emergency operations.
				Ability to determine and interpret the following as they apply to (EMERGENCY PLANT EVOLUTION):(CFR: 41.10 / 43.5 / 45.13)										

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
001AA2.03	Continuous Rod Withdrawal / 1	4.5	4.8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Proper actions to be taken if automatic safety functions have not taken place
				Ability to determine and interpret the following as they apply to ABNORMAL PLANT EVOLUTION):(CFR: 41.10 / 43.5 / 45.13)										
003AA2.03	Dropped Control Rod / 1	3.6	3.8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Dropped rod, using in-core/ex-core instrumentation in-core or loop temperature measurements
				Ability to determine and interpret the following as they apply to ABNORMAL PLANT EVOLUTION):(CFR: 41.10 / 43.5 / 45.13)										
037AG2.4.8	Steam Generator Tube Leak / 3	3.8	4.5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of how abnormal operating procedures are used in conjunction with EOPs.
				This is a Generic, no stem statement is associated.										
we08EG2.2.25	RCS Overcooling - PTS / 4	3.2	4.2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of the bases in Technical Specifications for limiting conditions for operations and safety limits.
				This is a Generic, no stem statement is associated.										

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
013G2.2.42	Engineered Safety Features Actuation	3.9	4.6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ability to recognize system parameters that are entry-level conditions for Technical Specifications
				This is a Generic, no stem statement is associated.										
062G2.4.6	AC Electrical Distribution	3.7	4.7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge symptom based EOP mitigation strategies.
				This is a Generic, no stem statement is associated.										
064A2.13	Emergency Diesel Generator	2.6	2.8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Consequences of opening auxiliary feeder bus (ED/G sub supply)
				Ability to (a) predict the impacts of the following on the (SYSTEM) and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation:(CFR: 41.5 / 43.5 / 45.3 / 45.13)										
073G2.4.8	Process Radiation Monitoring	3.8	4.5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of how abnormal operating procedures are used in conjunction with EOPs.
				This is a Generic, no stem statement is associated.										
078A2.01	Instrument Air	2.4	2.9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Air dryer and filter malfunctions
				Ability to (a) predict the impacts of the following on the (SYSTEM) and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation:(CFR: 41.5 / 43.5 / 45.3 / 45.13)										

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
001G2.4.34	Control Rod Drive	4.2	4.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of RO tasks performed outside the main control room during an emergency and the resultant operational effects
This is a Generic, no stem statement is associated.														
034A2.03	Fuel Handling Equipment	3.3	4.0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Mispositioned fuel element
Ability to (a) predict the impacts of the following on the (SYSTEM) and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation:(CFR: 41.5 / 43.5 / 45.3 / 45.13)														
068A2.04	Liquid Radwaste	3.3	3.3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Failure of automatic isolation
Ability to (a) predict the impacts of the following on the (SYSTEM) and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation:(CFR: 41.5 / 43.5 / 45.3 / 45.13)														

KA	NAME / SAFETY FUNCTION:	IR	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	TOPIC:
		RO	SRO											
G2.1.27	Conduct of operations	3.9	4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of system purpose and or function.
				This is a Generic, no stem statement is associated.										
G2.1.34	Conduct of operations	2.7	3.5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of primary and secondary chemistry limits
				This is a Generic, no stem statement is associated.										
G2.2.38	Equipment Control	3.6	4.5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of conditions and limitations in the facility license.
				This is a Generic, no stem statement is associated.										
G2.3.13	Radiation Control	3.4	3.8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of radiological safety procedures pertaining to licensed operator duties
				This is a Generic, no stem statement is associated.										
G2.3.14	Radiation Control	3.4	3.8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of radiation or contamination hazards that may arise during normal, abnormal, or emergency conditions or activities
				This is a Generic, no stem statement is associated.										
G2.4.20	Emergency Procedures/Plans	3.8	4.3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of operational implications of EOP warnings, cautions and notes.
				This is a Generic, no stem statement is associated.										
G2.4.41	Emergency Procedures/Plans	2.9	4.6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Knowledge of the emergency action level thresholds and classifications.
				This is a Generic, no stem statement is associated.										

Tier/Group	Randomly Selected K/A	Reason for Rejection
2/2	002 A4.04	Reject. Filling RHR (LPI) pumps during refueling is testing minutia. Filling of the pumps happens transparently when filling the system. It's not really a different evolution. Resolution: Replaced with 002 A4.02.
2/1	003 G2.4.41	Reject because ROs are NOT responsible for determining EAL classifications. Also reject because there are no EAL classifications related to RCPs. Resolution: Replaced with 003 G2.1.7.
2/1	004 A3.01	Due to a computer sampling error, this K/A was replaced with 004 K2.05, which is what we wrote a question to. Chief Examiner accepted.
2/1	005 K5.02	May be difficult to write to because there are no operationally-relevant links for RHE to subcooling. Resolution: Attempt to write the question.
SRO 1/1	008 AG2.2.38	Will be hard to match this K/A. There is no firm link between the facility license and a PZR Vapor Space Accident. Resolution: Replaced with 008 AG2.4.6.
1/1	011 EK1.01	Reject because reflux boiling is N/A for a LBLOCA. Only applies to a SBLOCA. Resolution: Replaced with 011 EK3.15.
2/1	012 K6.07	Reject because VCSNS does not have a "core protection calculator." This is a CE design. Resolution: Replaced with 012 K4.01.
1/1	015 AK2.07	This K/A was duplicated on the final outline, but was not on the original outline, nor was it on the original ES-401-4. Resolution: Replaced with 040 G2.2.25
2/1	022 K1.04	Cannot write a question that will be a 100% match to the K/A. VCSNS does not use Chilled Water for Containment Cooling. We could write a question to Industrial Cooling or SW. Resolution: Originally replaced with 022 K6.08, which had an RO Importance Value of 1.9. 022 K6.08 was replaced with 022 A4.05.

SRO 1/1	026 AG2.4.34	<p>Reject because at VCSNS we do not have any RO tasks outside of the CR for a Loss of CCW.</p> <p>Resolution: Was supposed to be replaced with 026 AG2.2.44; however, final outline still contained 026 AG2.4.34. We wrote to 026 AG2.2.44, which Chief Examiner accepted.</p>
1/1	027 AK3.02	<p>We don't "shift flow chart transmitters" and have no alternate PZR PCS transmitters at VCSNS.</p> <p>Resolution: Was supposed to be replaced with 027 AA2.03, but was actually replaced with 027AK2.03. We wrote a question to 027 AK2.03, which the Chief Examiner accepted.</p>
2/2	027 G2.4.1	<p>Will be hard to match this K/A. VCSNS does not have any EOP Entry Conditions (or Symptoms) or IOAs related to Containment Iodine Removal.</p> <p>Resolution: Replaced with 027 G2.4.31</p>
2/2	028 K3.01	<p>Recombiners are no longer in service.</p> <p>Resolution: Replaced with 029 K3.01</p>
1/1	029 EK1.02	<p>In order to provide a 100% match to the K/A, we run the risk of a GFES style question that may be LOD=1.</p> <p>Resolution: Attempt a question. Notify Chief if LOD=1.</p>
1/2	033 AG2.2.21	<p>Will be difficult to write an RO question to "surveillance" in the AOP for Loss of IR. Normally, "surveillance space" is for SRO Only. The AOP does not prompt operators to perform any STPs, nor GTP-702 tracking. At best, we might be able to get to the RO level with a Op Test done after the failed channel was repaired.</p> <p>Resolution: Replaced with 033 AG2.4.11.</p>
SRO 2/2	034 G2.4.6	<p>Reject because at VCSNS we have NO actions for operating FH Equipment in our EOPs. Is it appropriate to write question to an AOP?</p> <p>Resolution: Replaced with 034 A2.03.</p>
1/1	038 EK1.04	<p>Reject because reflux boiling during a SGTR is not operationally relevant. It is not considered in the EOP-4.0 (E-3) series, and is not a cooling mechanism that impacts on operator actions.</p> <p>Resolution: Replaced with 038 EK1.01.</p>
2/1	039 K5.08	<p>Due to a computer sampling error, this K/A was replaced with 039 A2.04, which is what we wrote a question to. Chief Examiner accepted.</p>

1/1	040AG2.2.2	Appears to have been replaced with a duplicate 015 AK2.07 on the final outline as part of the oversampling issue document under WE12 EK2.2. The duplicate 015 AK2.07 was replaced with 040 G2.2.25.
1/1	040 G2.2.25	K/A is SRO Only. Resolution: Replaced with 058 G2.1.7
2/1	061 K5.05	Due to a computer sampling error, the low-level K/A statements for APEs and EPEs were incorrectly mixed with the high level statements of the system. Given that, we wrote a question that more closely matched 061 K5.01, which the Chief Examiner accepted.
2/1	064 K4.04	Due to a computer sampling error, this K/A was replaced with 063 A3.05, which is what we wrote a question to. Chief Examiner accepted.
3	G2.1.18	Reject because this Generic is also selected on this exam (RO). It may be difficult to write an appropriate SRO Only question. Resolution: Replaced with G2.1.34
3	G2.2.11	Will be hard to write an RO question to this K/A. At VCSNS, ROs are not involved in the <i>process</i> for temporary mods. They may operate a temporary mod, but only Scheduling SROs or the Procedure Writing group would be involved in the process. At the RO level, we run the risk of a LOD = 1. Resolution: Replaced with G2.2.14
1/2	WE03 G.2.41	(Believe this is supposed to be 2.4.41 vs. 2.4 on the outline). Reject because ROs are NOT responsible for determining EAL classifications for a LOCA. May be able to write a high-level question on either 1) order of severity of the 4 classifications OR 2) 15 minutes to declare after the event. With either case, will run the risk of LOD = 1. Resolution: Replaced with WE03 G2.4.21.
1/1	WE12 EK2.2	On the RO exam, the generator selected APE 040 and then selected EPE E12. We were informed in 2007 that the topics are considered 1 line item, and therefore, if either of those items is selected, the other should remain unavailable until all other available topics are selected at least 1 time. (This was supported by Headquarters) In this case, topics 007, 009, 025, and E11 were not selected for tier 1 Group 1, but 040 and E12 were each selected. This may be considered excessive overlap or inadequate sampling. Resolution: Replaced with 025 AK1.01

Facility: <u>V.C. Summer - FINAL</u>		Date of Exam: <u>7/10/09</u>		Exam Level: RO <input checked="" type="checkbox"/> SRO <input checked="" type="checkbox"/>														
Item Description	Initial																	
	a	b*	c*															
1. Questions and answers are technically accurate and applicable to the facility.	<i>REE</i>	<i>R</i>	<i>M</i>															
2. a. NRC K/As are referenced for all questions. b. Facility learning objectives are referenced as available.	<i>REE</i>	<i>R</i>	<i>M</i>															
3. SRO questions are appropriate in accordance with Section D.2.d of ES-401	<i>REE</i>	<i>R</i>	<i>M</i>															
4. The sampling process was random and systematic (If more than 4 RO or 2 SRO questions were repeated from the last 2 NRC licensing exams, consult the NRR OL program office).	<i>REE</i>	<i>R</i>	<i>M</i>															
5. Question duplication from the license screening/audit exam was controlled as indicated below (check the item that applies) and appears appropriate: ___ the audit exam was systematically and randomly developed; or ___ the audit exam was completed before the license exam was started; or ___ the examinations were developed independently; or <input checked="" type="checkbox"/> the licensee certifies that there is no duplication; or ___ other (explain)	<i>REE</i>	<i>R</i>	<i>M</i>															
6. Bank use meets limits (no more than 75 percent from the bank, at least 10 percent new, and the rest new or modified); enter the actual RO / SRO-only question distribution(s) at right.	<table border="1"> <tr> <th>Bank</th> <th>Modified</th> <th>New</th> </tr> <tr> <td><i>210</i></td> <td><i>2116</i></td> <td><i>52119</i></td> </tr> </table>	Bank	Modified	New	<i>210</i>	<i>2116</i>	<i>52119</i>	<i>R</i>	<i>M</i>									
Bank	Modified	New																
<i>210</i>	<i>2116</i>	<i>52119</i>																
7. Between 50 and 60 percent of the questions on the RO exam are written at the comprehension/ analysis level; the SRO exam may exceed 60 percent if the randomly selected K/As support the higher cognitive levels; enter the actual RO / SRO question distribution(s) at right.	<table border="1"> <tr> <th>Memory</th> <th>C/A</th> </tr> <tr> <td><i>32 8</i> <i>(42.7%) (32%)</i></td> <td><i>43 17</i> <i>(57.3%) (68%)</i></td> </tr> </table>	Memory	C/A	<i>32 8</i> <i>(42.7%) (32%)</i>	<i>43 17</i> <i>(57.3%) (68%)</i>	<i>R</i>	<i>M</i>											
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<i>32 8</i> <i>(42.7%) (32%)</i>	<i>43 17</i> <i>(57.3%) (68%)</i>																	
8. References/handouts provided do not give away answers or aid in the elimination of distractors.	<i>R</i>	<i>M</i>																
9. Question content conforms with specific K/A statements in the previously approved examination outline and is appropriate for the tier to which they are assigned; deviations are justified.	<i>R</i>	<i>M</i>																
10. Question psychometric quality and format meet the guidelines in ES Appendix B.	<i>R</i>	<i>M</i>																
11. The exam contains the required number of one-point, multiple choice items; the total is correct and agrees with the value on the cover sheet.	<i>R</i>	<i>M</i>																
<table border="0"> <tr> <td></td> <td>Printed Name / Signature</td> <td>Date</td> </tr> <tr> <td>a. Author</td> <td><i>Rusty Quick for Rusty Ellis / Rusty Quick</i></td> <td><i>7/2/09</i></td> </tr> <tr> <td>b. Facility Reviewer (*)</td> <td><i>Rusty Quick</i></td> <td><i>7/2/09</i></td> </tr> <tr> <td>c. NRC Chief Examiner (#)</td> <td><i>Randy Galt</i></td> <td><i>7/2/09</i></td> </tr> <tr> <td>d. NRC Regional Supervisor</td> <td><i>MARLENE T. INDIAN</i></td> <td><i>07/10/09</i></td> </tr> </table>					Printed Name / Signature	Date	a. Author	<i>Rusty Quick for Rusty Ellis / Rusty Quick</i>	<i>7/2/09</i>	b. Facility Reviewer (*)	<i>Rusty Quick</i>	<i>7/2/09</i>	c. NRC Chief Examiner (#)	<i>Randy Galt</i>	<i>7/2/09</i>	d. NRC Regional Supervisor	<i>MARLENE T. INDIAN</i>	<i>07/10/09</i>
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d. NRC Regional Supervisor	<i>MARLENE T. INDIAN</i>	<i>07/10/09</i>																
Note: * The facility reviewer's initials/signature are not applicable for NRC-developed examinations. # Independent NRC reviewer initial items in Column "c"; chief examiner concurrence required.																		

MICHAEL MEEKS PERFORMED INDEPENDENT REVIEW AND INITIALED IN COLUMN "c." CHIEF EXAMINER CONCURS. *Michael Meeks* 07/09/2009

Summer 2008-301

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation	
			Stem Focus	Cues	T/F	Cred Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only			
<p>Instructions</p> <p>[Refer to Section D of ES-401 and Appendix B for additional information regarding each of the following concepts.]</p> <ol style="list-style-type: none"> Enter the level of knowledge (LOK) of each question as either (F)undamental or (H)igher cognitive level. Enter the level of difficulty (LOD) of each question using a 1 - 5 (easy - difficult) rating scale (questions in the 2 - 4 range are acceptable). Check the appropriate box if a psychometric flaw is identified: <ul style="list-style-type: none"> The stem lacks sufficient focus to elicit the correct answer (e.g., unclear intent, more information is needed, or too much needless information). The stem or distracters contain cues (i.e., clues, specific determiners, phrasing, length, etc). The answer choices are a collection of unrelated true/false statements. One or more distracters is not credible. One or more distracters is (are) partially correct (e.g., if the applicant can make unstated assumptions that are not contradicted by stem). Check the appropriate box if a job content error is identified: <ul style="list-style-type: none"> The question is not linked to the job requirements (i.e., the question has a valid K/A but, as written, is not operational in content). The question requires the recall of knowledge that is too specific for the closed reference test mode (i.e., it is not required to be known from memory). The question contains data with an unrealistic level of accuracy or inconsistent units (e.g., panel meter in percent with question in gallons). The question requires reverse logic or application compared to the job requirements. <u>Check questions that are sampled</u> for conformance with the approved K/A and those that are <u>designated SRO-only</u> (K/A and license level mismatches are unacceptable). Based on the reviewer's judgment, is the question as written (U)nacceptable (requiring repair or replacement), in need of (E)ditorial enhancement, or (S)atisfactory? At a minimum, explain any "U" ratings (e.g., how the Appendix B psychometric attributes are not being met). <p style="text-align: center;">RO/SRO Combined Question</p> <p>Generic: NP = Not plausible NDV = No discriminatory value CAF = Check at facility WOOTF = Which one of the following DV = discriminatory value</p> <p>FACILITY COMMENT: <i>Please type all facility responses in blue. Do this for each question</i></p>																

Q#/ Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only		
1	C	2	X			X						Y	N	E*	<p>001A2.07</p> <p>Psychometrics: If distracter A was correct, B would be correct (subsets). If C was correct, D would be correct (subsets). Rewrite stem: "WOOTF describes the required response and the <i>minimum</i> amount of boric acid to be added?" Due to the psychometric flaws, distracters A and C are not plausible. Therefore this Q is U 12/30/08</p> <p>FACILITY COMMENT: <i>Please type all facility responses in blue.</i></p> <p><i>Facility Response: Question revised as suggested</i></p> <p>Atlanta Review (RFA approved): 06/02/09:</p> <p>001 - OK as revised</p>
2	C	2	X			X						Y	N	U	<p>001AK1.16</p> <p>Since the increase in fuel temperature directly inserts negative reactivity through the Doppler effect, one might think that the power defect has decreased especially if they forget that the total power defect is the product of the overall power coefficient X the change in Rx power. Since they know that Tave has changed (from the initial conditions), "remained the same" is not plausible. Replace "remained the same" with "decreased" in both A and B distracters.</p> <p>This Q is U because of 2 NP distracters. Peer review stated all distracters are non-plausible 12/30/08</p> <p>Facility Response:</p> <p><i>Question changed as suggested. Restructured WOOTF based on feedback from 2nd validation.</i></p> <p><i>Duplicate Question. We propose using version 002.</i></p> <p>Atlanta Review (RFA approved): 06/02/09:</p>

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only		
															002 - 3 rd bullet: Change from "after the failure" to "after rods in MAN"
3	C	4										Y	N	S	002A4.02 No comment (good Q) 12/30/08 E Atlanta Review (RFA approved): 06/03/09: 001 - Add power history to make choices A & B more credible.
4	C	2										Y	N	S	003G2.17 No comment 12/30/08 Atlanta Review (RFA approved): 06/03/09: 001 - Choice A; Replace "seal brg temp" with "Seal DP 350 psid" (Avoid DJ w/ SRO question) Choice C: reduce down to "HI/LO annunciato due to high level"
5	C	2				X						Y	N	U	004A3.15 With energizing only one set of BU heaters, it is NOT plausible for relief valves to be the first thing that happens. Replace distracters A and B. This Q is U because of two NP distracters. 12/30/08 Facility Response: Revised the two NP distractors, re-sequenced distractors from shortest to longest. Revised Feedback section accordingly. Duplicate Question. We propose using version 002. Duplicate Question – This means that, rather than revise the original question; we duplicated, then revised. When we get the second question where we want it, we will delete the first.

Q#/ Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stern Focus	Cues	T/F	Cred Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only		
															Atlanta Review (RFA approved): 06/03/09: 002 - OK as-is
6	M	2	X			X						Y	N	E	<p>004K2.05</p> <p>LCV-115D is the VCT outlet NOT the RWST to charging pumps. Facility re-verify this Q. This Q is a E (due to no correct answers) until verified. 12/30/08</p> <p><i>Facility Response:</i></p> <p><i>LCV-115D is RWST-Charging pumps, not VCT outlet. Changed nomenclature to be consistent with EOPs. Table AB3.2 is in error - feedback will be submitted to correct after the exams.</i></p> <p>Atlanta Review (RFA approved): 06/03/09: 001 - Ok as-is</p>
7	C	2	X									Y	N	E S	<p>005K5.02</p> <p>2nd bullet states that Mode 4 was "just" entered. Remove Tavg < 350°F from the WOOTF statement. The applicant should be able to figure this out. 12/30/08</p> <p><i>Facility Response:</i></p> <p><i>This can easily be deleted in Atlanta if necessary. We would prefer to leave it in since it is the complete name of LCO 3.5.3.</i></p> <p>Atlanta Review (RFA approved): 06/03/09: 001 - Ok as-is. Change question to SAT.</p>
8	M	2	X				X					Y	N	E	<p>006A1.09</p> <p>Distracter C is not plausible because the applicant does not know what the initial gpm was. The term "throttle" could</p>

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only		
															<p>mean increase or decrease. Change throttle to increase flow or decrease flow. State a starting flow in the stem to qualify distracter C. 12/30/08</p> <p><i>Facility Response:</i></p> <p><i>Added the following bullet to given information:</i></p> <p><i>RHR Pump 'A' is in service with 3750 gpm flow indicated on FI-602A.</i></p> <p><i>Also revised last two bullets to give more precise RHR pump conditions - based on validation feedback.</i></p> <p><i>Atlanta Review (RFA approved): 06/03/09:</i></p> <p><i>001 - Choice C; Swap 603 & 605 to prevent C from being a subset.</i></p>
9	C	3										Y	N	S E	<p>007A2.03 No comment 12/30/08</p> <p><i>Facility Response:</i></p> <p><i>Based on feedback from validation, 1) added "Due to the transient" in the 3rd bullet and 2) moved the word "rapidly" in the 2nd bullet.</i></p> <p><i>Atlanta Review (RFA approved): 06/03/09:</i></p> <p><i>001 - Change WOOTF to "initially."</i></p> <p><i>Revise all 4 choices to require only the 1st procedure entered.</i></p>
10	C	2										Y	N	S	<p>008A1.03 No comment 12/30/08</p>

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only		
														E	<p><i>Facility Response:</i></p> <p><i>Feedback from validation has shown us that this question is not operationally oriented and tests trivia. It is not necessary to know that CCW discharge pressure will be felt through the CCBP. This knowledge is not applied in any of our procedures.</i></p> <p><i>Duplicate Question. We propose using version 002.</i></p> <p><i>Atlanta Review (RFA approved): 06/03/09:</i></p> <p><i>002 - Choice A: for consistency, change "pumps" to "CCBPs"</i></p> <p><i>Subbullets 1 & 2: for consistency, change "operating" to "running."</i></p>
11	C	2				X						Y	N	U	<p>008AA1.06</p> <p>Given bullets 2 and 6 that talk about rad monitor indications increasing and pressurizer PORV and safety tailpipe temps increasing, renders distracters A and B NP (main steam line leak).</p> <p>Replace distracters A and B or do a better job justifying plausibility</p> <p>This Q is U because there are two NP t.</p> <p>12/30/08</p> <p><i>Facility Response:</i></p> <p><i>Revised Choices A & B to "leaking PZR PORV" vs "MSLB." Added last bullet for PRT pressure to allow discrimination between PORV and steam space break. Revised stem and WOOTF based on feedback from validation. Validation feedback was that it was difficult to tell what point in time was being asked. With this in mind, we added "prior to a subsequent Rx Trip/SI" to the end of the WOOTF. Also had questions about what Tavq was doing, so we provided Tavq indication.</i></p> <p><i>Duplicate Question. We propose using version 002.</i></p>

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only		
															Atlanta Review (RFA approved): 06/03/09: 002 - WOOTF: Add "automatic" before Rx Trip/SI. Remove underline from "charging."
12	C	2				X						N	N	U	010A2.01 Distracters C and D are NP because of the amber trouble light is on for Gp 2 only. C and D will be ruled out immediately. Replace distracters C and D. KA requires "correct, control, or mitigate" This Q is U because there are two NP distracters and KA not met. 12/30/08 Facility Response: Modified the stem and choices to improve credibility (by distinguishing between control and backup group indications) and by providing actions to terminate the downward trend in PZR pressure. Duplicate Question. We propose using version 002. Atlanta Review (RFA approved): 06/03/09: 002 - All 4 choices: underline "decrease and increase."
13	M	2										Y	N	S E	011EK3.15 No comment 12/30/08 Facility Response: Feedback from validation indicated that this question is not operationally relevant in that it is not important to know which event may dictate the need for Hot Leg Recirc. It is more operationally relevant to know what part of the core is of concern, which more closely addresses why HLR is implemented. None of the actions in the EOPs require the operators to distinguish between and cold leg and a hot leg break.

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only		
															<p><i>Also, this is true only for a certain regime of cold leg breaks, in which subcooling is lost, not for all breaks. It was felt that this distinction makes it more of an SRO, than RO, knowledge. The actual decision to implement HLR will be made by the TSC, using guidance in PSEG-08, TSC Duties. Knowledge of the criteria in PSEG-08 for making this decision also appears to be more of an SRO, than RO, issue. Duplicate Question. We propose using version 002.</i></p> <p>Atlanta Review (RFA approved): 06/03/09:</p> <p>002 - Choices B & D: replace "downcomer" with "cold leg nozzles."</p> <p>WOOTF: remove "boiling in the core" – teaching.</p>
14	C	2				X						Y	N	U	<p>011K6.05 Distracter analysis was not completed. Requiring two level transmitters to be operable defeats single failure criteria which is common knowledge. Therefore distracters A and C are not plausible. This Q is U because two distracters are NP Why is "462" plausible? May reconsider after CAF. 12/30/08</p> <p>Facility Response:</p> <p><i>Replaced question.</i></p> <p><i>Duplicate Question. We propose using version 002.</i></p> <p>Atlanta Review (RFA approved): 06/03/09:</p> <p>002 - OK as-is</p>
15	C	2		X								Y	N	E	<p>012K4.01 Check to make sure this Q is not double jeopardy with 011K6.05. Otherwise this Q is OK. 12/30/08</p>

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only		
															<p><i>Facility Response:</i></p> <p><i>This question is not DJ w/ 011 K6.05 because it tests a separate T.S. and different operability requirements.</i></p> <p><i>Capitalized "remaining" in stem because at least two validators overlooked it.</i></p> <p>Atlanta Review (RFA approved): 06/03/09:</p> <p>001 - Last bullet: Add "associated b/s have been tripped"</p> <p>Change initial power level to 25%.</p> <p>WOOTF: Remove "when/if"</p> <p>Change answer to B</p>
16	C	2					X					Y	N	E	<p>012K6.10</p> <p>Change C and D beginning to read "under current conditions). Delete "provided both of the two ..." from both distracters. This is teaching.</p> <p>12/30/08</p> <p><i>Facility Response:</i></p> <p><i>Revised as suggested. Resequenced choices from shortest to longest. Resequenced Distractor Analysis accordingly.</i></p> <p><i>Duplicate Question. We propose using version 002.</i></p> <p>Atlanta Review (RFA approved): 06/03/09:</p> <p>002 - WOOTF: Change "impact" to "result"</p> <p>Add bullet: "All remaining PZR pressure transmitters</p>

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only		
															<p>Indicate 1950 psig and slowly decreasing</p> <p>Choices A: Change "auto opening of PZR PORVs is reset" to "PZR PORV 445B logic changes state."</p> <p>Choice C: change "auto opening of PZR PORVs is unaffected" to "PZR PORV 445B will auto open."</p>
17	C	2	X									Y	N	E	<p>013K6.01</p> <p>Stem: There is no statement to complete as stated in the WWOTF statements. Delete the first WWOTF statements. 12/30/08</p> <p><i>Facility Response:</i></p> <p><i>Revised as suggested.</i></p> <p><i>Feedback from validation tells us that it is trivial to require ROs to know that HI-3 is bypassed versus tripped. Would like to provide T.S. 3.3.2 & T.S. Table 3.3-3 as references.</i></p> <p>Atlanta Review (RFA approved): 06/03/09:</p> <p>001 - Ok with REF PROVIDED, limit to pages 3-17, 3-18, 3-23, 3-24.</p> <p>Make 1st part of WOOTF to the last bullet</p> <p>Make choices into a table format with "HIGH-1" and HIGH-3 as headers.</p>
18	C	3										Y	N	S	<p>015AK2.07</p> <p>No comment 12/31/08</p> <p>Atlanta Review (RFA approved): 06/03/09:</p> <p>001 - Ok as-is</p>

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only		
19	C*	3										Y	N	E	<p>016K5.01</p> <p>* This is a C question due to the involvement of using the flow chart. This is NOT a memory Q. Change M to C 12/31/08</p> <p><i>Facility Response:</i></p> <p><i>Revised as suggested.</i></p> <p>Atlanta Review (RFA approved): 06/03/09:</p> <p>001 - 2nd bullet: delete 2nd part of bullet.</p> <p>WOOTF: add "a set of signals." Remove "could be."</p>
20	M	2				X						Y	N	E	<p>022A4.05</p> <p>In distracters C and D, by telling the applicant that you average the 3 Temp elements, you are teaching. A and B are questionable because of the complexity of attachment III of OAP-106.1. All of the 1st parts are OK</p> <p>Suggestion for 2nd part.:</p> <ul style="list-style-type: none"> A. The sum of all the temperature elements divided by the averages calculated at each elevation. B. The sum of all the temperature elements divided by the averages calculated at each elevation. C. The average of the averages calculated at each elevation D. The average of the averages calculated at each elevation <p>You do NOT need to say the average of the 3 temperature elements at each elevation because it is implied in the second part 12/31/08</p> <p><i>Facility Response:</i></p> <p>Version 001 - Deleted "nine" from Choices A & B. Changed the 2nd part of Choices C & D to read as suggested above.</p>

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only		
															<p>Feedback from validation indicated that we are testing ROs on T.S. surveillance requirements, which should be reserved for SROs. Additionally, as written, this is one of 2 questions on the RO exam which specifically requires knowledge of manual log-taking (see G2.1.18). With Auto-Log, all of the calculations are done transparent to the operator. Since operators rarely take manual logs, we feel that two manual log questions over emphasize this topic. With these issues in mind, we revised second part of all choices to make it more of a conceptual approach versus a specific distinction in how the surveillance is met.</p> <p>Duplicate Question. We propose using version 003.</p> <p>Atlanta Review (RFA approved): 06/03/09:</p> <p>Version 003 OK as-is</p>
21	C	2										N	N	U E	<p>022AA2.02</p> <p>The 2nd part of the KA is not met (based on those predictions, use procedures to correct, control)</p> <p>This Q is U because the KA is not completely satisfied. 12/31/08</p> <p>Facility Response:</p> <p>The actual wording to K/A 022 AA2.02 is:</p> <p>Ability to determine and interpret the following as they apply to the Loss of Reactor Coolant Makeup: Charging Pump Problems.</p> <p>This question was written to this K/A. The description of the K/A in the Notes section of this questions was copied from the original outline that you gave to us. The original outline contained errors in the stem statements of the K/A in that the stem statements for all APEs and EPEs were from the system, not the APE or EPE.</p> <p>Corrected the K/A wording in the Notes section. Do not believe any other changes are required.</p>

Q#	1 LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only		
															<p>Feedback from 2nd validation has identified several psychometric issues. Examinees felt that the question was implying that actual VCT level was 100%; therefore, with VCT at 100%, gas binding could <u>not</u> occur. Also, if VCT level <u>just</u> failed, how could the NROATC immediately note the given charging pump parameters? Additionally, the given parameters may not be entirely consistent with gas binding. At least in the early phases of gas binding, the charging pump parameters should be fluctuating. Question was revised to attempt to alleviate these concerns.</p> <p>Duplicate Question. We propose using version 002.</p> <p>Atlanta Review (RFA approved): 06/03/09:</p> <p>002 - WOOTF: Add (charging pump lineup.)</p> <p>Choice A: Change to "The divert valve failed to shift to the RHUT"</p> <p>Choice B: Change to "suction shifted to RWST"</p> <p>Change top statement to: "sequence of events"</p> <p>Remove last bullet – not needed.</p> <p>Next to last bullet: Remove "At direction of NROATC"</p> <p>Need to change grading of question from UNSAT to E.</p>
22	M	2										?	N	E	<p>022K1.02</p> <p>The KA is to write a Q relating containment cooling and remote monitoring systems. I do not see a connection to this KA from the way this Q is written.</p> <p>CAF: Justify 12/31/08</p> <p>Facility Response:</p>

Q#/ Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only		
															<p>Rewrote question to address a cause-effect relationship.</p> <p>Duplicate Question. We propose using version 003.</p> <p>Atlanta Review (RFA approved): 06/03/09:</p> <p>Version 003 as-is</p> <p>This question was evaluated as E due to the ambiguity of "SEC" in the K/A.</p>
23	M	2										Y	N	S E	<p>024AK2.01</p> <p>No comment 12/31/08</p> <p>Atlanta Review (RFA approved): 06/03/09:</p> <p>001 - Simplified stem by deleting unnecessary given info and factoring "if BA filter will not pass flow" into the WOOTF:</p>
24	C	2	X				X					Y	N	E	<p>025AK1.01</p> <p>In distracters C and D, there is an action that RHR Pump B is started. There are no actions in choices A or B. Why? The stem ask what is the most immediate action. If the action was to start the RHR B pump in C and D then the action has already been completed. Therefore, the Q is misleading. The distracter analysis is not clear on this issue</p> <p>Suggestion: Can the "RHR Pump B Started" be removed from C and D? CAF 12/31/08</p> <p>Facility Response:</p> <p>If "RHR Pump B is removed from Choice C, it would also be correct, since the T.S action would then be to immediately stop any reduction in boron and restore the required loop to service. Since the RHR pump is started, the LCO is satisfied and no action is required.</p>

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only		
															<p><i>'RHR Pump B is started' was included in the correct answer to balance with Choice C. It will make no difference to the correct answer. In either event, immediate action is required (see Actions a & b in T.S. 3.4.1.4.1).</i></p> <p><i>We can change in Atlanta if necessary.</i></p> <p><i>Also note that we revised Choice C's SG levels to meet the limitations of TSR 1032 for T.S. 3.4.1.4.1.b.</i></p> <p><i>Atlanta Review (RFA approved): 06/03/09:</i></p> <p><i>001 - WOOTF: Changed to better solicit answers.</i></p>
25	M	1*										Y	N	E	<p>026A4.05</p> <p>The requirement to depress both RB spray pushbuttons is common knowledge.</p> <p>CAF: Please explain why this Q has DV.</p> <p>*The distracter analysis did not do a good job justifying DV</p> <p>This Q is E pending facility explanation.</p> <p>12/31/08</p> <p><i>Facility Response:</i></p> <p><i>Rewrote Question</i></p> <p><i>Duplicate Question. We propose version 002.</i></p>

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only		
															<p>Atlanta Review (RFA approved): 06/03/09:</p> <p>002 - Reduce given info to:</p> <ul style="list-style-type: none"> Due to LOCA, RB press peaked at 18 and is now 2.5 During EOPs, went to 14.0, and is now in EOP-1.2 <p>Remove last bullet (TSC recommends) – not needed.</p> <p>WOOTF: Minor rewording.</p>
26	C	2	X				X					Y	N	E	<p>026G2.1.20</p> <p>Common knowledge dictates that CCW is needed for RCPs. Distractor A is NP. Replace A and remove "if any" from stem.</p> <p>12/31/08</p> <p>Facility Response:</p> <p>While we agree that it may be considered common knowledge that CCW is needed for the RCPs, this question is asking about operation of <u>charging</u> pumps. Replaced Distractors A & B (for balance), and replaced Distractor C with Distractor B (more credible).</p> <p>Revised the stem by removing local temps and trends, otherwise, with the given temps, we would be requiring them to know the limits of an AOP Attachment from memory.</p> <p>Feedback from 2nd validation indicated that Choice C may also be viewed as correct (since the WOOTF did not specify "preferred order" or "sequence" or "NEXT/FIRST action). We did not go with "NEXT/FIRST" because it seemed inconsistent with the wording of new Choices A & B. With this in mind, we added the last statement "(Assume actions are taken as prescribed in AOP-118.1)."</p> <p>Duplicate Question. We propose using 002.</p> <p>Atlanta Review (RFA approved): 06/03/09:</p>

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only		
															<p>002 - 3rd bullet; Add "no temperature limits are exceeded"</p> <p>Choice B: Change '90' to '20" minutes.</p> <p>Delete last 3 bullets (B Cg pp P-T-L, Letdown status, and downpower in progress. – not needed.</p> <p>WOOTF: add "preferred."</p> <p>Delete "(Assume actions taken...)" because IAW AOP in WOOTF is sufficient.</p>
27	C	2	X				X					Y	N	E	<p>027AK2.03</p> <p>Distracter D is NP as written. "0% open" is unnatural. If this was the correct answer, it would read closed. For A,B, and C add the word OPEN. For D make it read "CLOSED."</p> <p>12/31/08</p> <p>Facility Response:</p> <p>Revised as suggested.</p> <p>Atlanta Review (RFA approved): 06/03/09:</p> <p>001 - ALL 4 choices; Move "approx" and "open" to WOOTF.</p>

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only		
															Make 2nd half of all choices: 80, 30, 80, 30. "
28	C	3										Y	N	S E	<p>027G2.4.31 No comments (Good Question) 12/31/08</p> <p><i>Facility Response:</i></p> <p><i>Feedback from validation indicated that normal practice for this alarm is to have one of the Auxiliary Building AOs to valve in the local gauge glass and provide the Control Room with a local indication. When low level alarm comes in, they use the gauge glass to determine if they are still within T.S limits since the gauge glass is the method used in STP-112.009 to verify the volume is above within the limits of T.S. 3.6.2.2. Added bullet #3 to reflect that practice. This still requires the examinee to use Figure VI-27.</i></p> <p>Atlanta Review (RFA approved): 06/03/09:</p> <p>001 - All 4 choices: Delete 2 decimal places.</p> <p>WOOTF: Add T.S 3.6.2.2.</p>
29	C*	3										Y	N	E	<p>028K3.01 * This is a C question due to the involvement of using figure 15.4-73 . This is NOT a memory Q. Change M to C 12/31/08</p> <p><i>Facility Response:</i></p> <p><i>Feedback from validation indicated that, as written, this question was not operationally oriented in that it tested knowledge of a specific point on a curve in the FSAR. This curve is not in the Station Curve Book and would not be used by operators after a LBLOCA. It postulated an extremely low probability event - both recombiners failed or OOS. Additionally, the TSC would be primarily responsible for monitoring H2 concentration after a LBLOCA. The recombiners have</i></p>

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only		
															<p>been removed from T.S., which further reduces relevance to an operator.</p> <p>Would like a new K/A.</p> <p>Atlanta Review (RFA approved) 06/03/09:</p> <p>Annotate on 401-4 that Recombiners are no longer in service. K/A replaced.</p> <p>Replace with 029 K3.01.</p> <p>Added initial ARP corrective actions to stem of 029 K3.01. Modified all choices to improve psychometrics and eliminate subsets.</p> <p>(Approved by RFA on 6/18/09)</p>
30	M	2				X						Y	N	E*	<p>029EK1.02</p> <p>A slight contradiction: The EOP subcriticality flow chart states that the SUR has to be zero or negative. Zero would make choice C a correct answer too.</p> <p>CAF there are potentially two correct answers. Please re-evaluate this potential contradiction.</p> <p>This Question is E* until this issue is resolved.</p> <p>12/31/08</p> <p>Facility Response:</p> <p>Feedback from validation has indicated that we are testing SRO knowledge. ROs should not be required to know transition criteria <u>out</u> of EOP-13.0. Revised question to test Entry Conditions (which <u>is</u> RO knowledge) vs transition criteria (which is more often SRO knowledge).</p> <p>Duplicate Question. We propose using version 003.</p> <p>Atlanta Review (RFA approved): 06/03/09:</p>

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only		
															002 - WOOTF: Change to "LOWEST" Make choices +0.2, 0.0, -0.2, -0.33. WOOTF: Change "(assume other parameters...exist) to "NO CSF Red paths conditions exist."
31	C	2					X					Y	N	E	033G2.4.11 The distracter analysis states that 12-15% is plausible because this is the next incremental power ascension and would be the correct action if the failure had occurred just above 10%. The reference material provided did not support this statement. CAF: Provide reference to support distracters B and D. 12/31/08. <i>Facility Response:</i> See GOP-4A, Page 13 of 36. Reference will be provided in Atlanta. Atlanta Review (RFA approved): 06/03/09: 001 - WOOTF: Add "maximum allowable power level as limited by T.S. 3.3.1" Delete 3 rd bullet – annunciator SR DET – not needed. Change 2 nd half of B & D to "maintain <15% & split up for readability." Choices A & C: split up for readability.
32	C	3										Y	N	S	035A1.01 No comments 12/31/08 Atlanta Review (RFA approved): 06/03/09: 001 - OK as-is

Q#/ Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only		
33	C	2	X									Y	N	E	<p>038EK1.01</p> <p>Delete the "and" from the 2nd bullet</p> <p>Good Q</p> <p>12/31/08</p> <p><i>Facility Response:</i></p> <p><i>Feedback from validation indicates that this question is an SRO Only question since distractors B & D test a transition to an ECA (Yellow Path) which is not ECA 0.0. Also, all 4 choices involve procedure selection, which is a 10CFR55.43 item.</i></p> <p><i>Duplicate Question. We propose using version 002.</i></p> <p><i>Atlanta Review (RFA approved): 06/03/09:</i></p> <p><i>Revise 002 as follows:</i></p> <p><i>Delete last 2 bullets (crew is preparing to C/D; CRS directs RO to calculate target temp w/ allowance for 50F subcooling) and factor into WOOTF.</i></p> <p><i>WOOTF: Change to "...T/Cs is the target temp, w/ allowance for 50F subcooling."</i></p>
34	C	2				X						Y	N	E*	<p>039A2.04</p> <p>Distractors B and D are not plausible because of the last bullet (C9 status light dim).</p> <p>Suggestion: Render the condensers unavailable by some other means rather than directly with the status light. Maybe give them Cond Vac.</p> <p>This Q is E* because of two NP distractors.</p> <p>12/31/08</p>

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only		
															<p><i>Facility Response:</i></p> <p><i>As suggested, changed "The PERMISV C9 status light is DIM." to "Condenser pressure is 6.0" Hg abs.</i></p> <p>Atlanta Review (RFA approved): 06/03/09:</p> <p>001 - Ok w/ changes</p>
35	C	3										Y	N	S E	<p>039K5.05 No comments 12/31/08</p> <p>Atlanta Review (RFA approved): 06/03/09:</p> <p>001 - WOOLF: Add T.S. 3.4.9.</p>
36	M	2										Y	N	S E	<p>040G2.2.25 No comments 01/01/09</p> <p><i>Facility Response:</i></p> <p><i>We cannot write an RO-level question for this K/A. According to the Region II "SRO Only" document, ROs are only required to know the bases for T.S. Safety Limits. Because a steamline rupture has no impact on either of the T.S. Safety Limits, we could not write an RO question for this K/A.</i></p> <p><i>Request a new K/A.</i></p> <p>Atlanta Review 06/03/09:</p> <p>Replace w/ 058 G2.1.7</p>

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only		
															<p>Annotate on ES-401-4: as follows: Original K/A was SRO Only.</p> <p>Changed initial power level to improve plausibility of "NOT trip" in choices C & D.</p> <p>Reworded WOOTF and choices for readability and clarity. Added "automatically trip" and "automatically start" to preclude consideration of manual start/trip.</p> <p>(Approved by RFA on 6/18/09)</p>
37	M	2				X						Y	N	U	<p>051AA1.04</p> <p>Distracter C is NP because the Q has nothing to do with a dropped rod.</p> <p>Distracter D is NP because it is common knowledge that 2/3 channels are required to trip. Consider tripping an OPDT channel in the stem, then D will be plausible.</p> <p>This Q is U because two distracters are NP.</p> <p>01/01/09</p> <p>Facility Response:</p> <p>Changed Choices C & D as suggested and resequenced choices from shortest to longest. Also revised Distractor Analysis accordingly.</p> <p>Duplicate question. We propose using version 002.</p> <p>Atlanta Review (RFA approved): 06/03/09:</p> <p>002 - Give name & number of AOP.</p>
38	C	3										Y	N	S	<p>054AK3.03</p> <p>No comments</p> <p>01/01/09</p>

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only		
														E	<p>Atlanta Review (RFA approved): 06/03/09:</p> <p>001 - Delete 1st bullet "S/U being conducted IAW..." – 2nd bullet provides enough information.</p>
39	C	2	X									Y	N	E	<p>055EA1.01</p> <p>Consider deleting everything above the WOOTF statement. Based on the reference provided, none of the bullets seem to impact the selection of the correct answer. 01/01/09</p> <p>Facility Response:</p> <p>Revised as suggested.</p> <p>Atlanta Review (RFA approved): 06/03/09:</p> <p>001 - Choice D; Add "and rising"</p> <p>WOOTF: Add title of EOP-6.0.</p> <p>Choice C: To strengthen, add "WR"</p>
40	C	2	X				X					N	N	U E	<p>056AA2.02</p> <p>The 2nd part of the KA is not met (based on those predictions, use procedures to correct, control)</p> <p>This Q is U because the KA is not completely satisfied. Also on Train "A" where is step 6,7,8 status 01/01/09</p>

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only		
															<p><i>Facility Response:</i></p> <p><i>The actual wording to K/A 056 AA2.02 is:</i></p> <p><i>Ability to determine and interpret the following as they apply to the Loss of Offsite Power: ESF load sequencer status lights.</i></p> <p><i>This question was written to this K/A. The description of the K/A in the Notes section of this question was copied from the original outline that you gave to us. The original outline contained errors in the descriptions of the K/A in that the descriptions for all APEs and EPEs were from the system, not the APE or EPE.</i></p> <p><i>Corrected the K/A wording in the Notes section. Do not believe any other changes are required.</i></p> <p><i>Given information for Train 'A' ESFLS is intended to make Choice B more credible. Added a sentence in the Distractor Analysis for Choice B to help clarify this attempt. Added information for Steps 6-8 on Train 'A'.</i></p> <p><i>We believe this question should be an Enhancement.</i></p> <p><i>Atlanta Review (RFA approved): 06/03/09</i></p> <p><i>001 - WOOTF; Add", if any" Delete "that"</i></p>
41	C	2					X					Y	N	E	<p>057G2.4.8</p> <p>Distracter D is NP. One would not say "The operator would use an AOP to respond to _____ and then refer to an AOP to respond to _____"</p> <p>The way this would be written would be "The operator would use an AOP for both _____ and _____"</p> <p>Replace distracter D.</p>

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only		
															01/02/09 <i>Facility Response:</i> <i>Feedback from validation indicates that we have postulated an extremely low probability event in the given conditions. Changed initial conditions in the given information because having N44 in test at this time is a more operationally likely situation. Also made minor changes to WOOTF.</i> <i>Duplicate Question. We propose using version 003.</i> <i>Atlanta Review (RFA approved): 06/03/09</i> <i>Version 003 OK</i> <i>Choices C & D: remove "ONLY" – unnecessary if we ask "initially" in WOOTF.</i>
42	C	2					X					N	N	U E	059K4.13 It is common knowledge that FRV will NOT be in auto with the MT off line. Distractors B and D are NP. This Q is U because distractors B and D are NP. Re-write to 059K4.05: Control of speed of MFW pump turbine (2.5/2.8) 01/02/09 <i>Facility Response:</i> <i>Under the conditions stipulated in the stem, the FRVs will be in AUTO. The SOP for shutting down an RCP requires the FRV to be transferred to MANUAL.</i> <i>For this reason, we believe that Distractors B & D are plausible.</i> <i>We believe question should be SAT.</i> <i>Atlanta Review (RFA approved): 06/04/09</i>

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only		
															<p>001 - Choices A & B: Change to HI-HI vs HI.</p> <p>Change from UNSAT to E.</p> <p>Stem: Change to MFP 'B' [vs A] because MFP 'A' oil pumps are supplied by 1A1X.</p>
43	M	2										N	N	U E	<p>061AK3.02</p> <p>The KA requires the Q to be written to a loss or malfunction of the ARM system alarms and the effect it would have on the ARM system. The Q was written .to describe why the ARP directs the operator to refer to FOP-17.2.</p> <p>The Q is U because the KA was not met.</p> <p>01/02/09</p> <p>Facility Response:</p> <p>The actual wording to K/A 061 AK3.02 is:</p> <p>Knowledge of the reasons for the following responses as they apply to the Area Radiation Monitoring (ARM) System Alarms: Guidance contained in alarm response for ARM system.</p> <p>This question was written to this K/A. The description of the K/A in the Notes section of this question was copied from the original outline that you gave to us. The original outline contained errors in that the <u>stem statements</u> for all APEs and EPEs K/As were from the system, not the APE or EPE.</p> <p>Corrected the K/A wording in the Notes section. Do not believe any other changes are required.</p> <p>We believe the question should be SAT.</p> <p>Atlanta Review (RFA approved): 06/04/09</p> <p>001 - WOOTF: Add "for RM-G7 after "ARP."</p>

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only		
															Delete 1 st 3 bullets – not needed Change from UNSAT to E.
44	C	2	X				X					Y	N	E	061K3.01 Change the 3 rd bullet to just above where C-9 will be lost. Since circ pumps off, loss of vac is eminent and applicant should recognize this. Currently, distracter A is NP. 01/02/09 Facility Response: Changed value in 3 rd bullet to 5.1. Feedback from validation has indicated that the examinees have had significant difficulties understanding at what point in the event we are trying to evaluate. Restructured given information on SG levels, resequenced the bullets, and changed the WOOTF to ask for a specific time period. Current version is still 001. Atlanta Review (RFA approved): 06/04/09 001 - Choice C: Change to "PZR spray 100% full open setpoint: vs "the setpoint and cycles"
45	M	2										Y	N	S E	061K5.05 No comments 01/02/09 Atlanta Review (RFA approved): 06/04/09 001 - WOOTF: Add "IAW EOP-1.0)

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only		
															<p>Choice B: Change from "as necessary to stabilize at no load" to "no less than 380 gpm to stop C/D"</p> <p>Change from SAT to E</p>
46	C	3										Y	N	S	<p>062G2.4.46 No comments 01/02/09</p> <p>Atlanta Review (RFA approved): 06/04/09</p> <p>001 - OK as-is</p>
47	M	2										Y	N	S E	<p>062G2.4.9 No comments 01/02/09</p> <p>Facility Response:</p> <p><i>Based on feedback received in recent validations/reviews, modified question to make it more appropriate for ROs and to avoid conflict with SSP-004. As written, Choice D may also be considered correct.</i></p> <p><i>Duplicate Question. We propose using version 002.</i></p> <p>Atlanta Review (RFA approved): 06/04/09</p> <p>002 - Choice A: Change from "ONE offsite" to "ONE offsite and 1 DG."</p> <p>Choice B: Since we have "MIN" in WOOTF, delete "ONLY"</p> <p>WOOTF: underline "MIN"</p>

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only		
48	M	2										N	N	U E	<p>063A4.01</p> <p>I cannot think of a breaker that could NOT be opened manually at the breaker.</p> <p>Distracter B is NP. Replace this distracter</p> <p>The KA does NOT appear to be met. The KA requires the knowledge of ability to manually operate breakers from the CR. This Q deals with a breaker that can only be operated locally.</p> <p>This Q is U because KA is not met.</p> <p>01/02/09</p> <p><i>Facility Response:</i></p> <p><i>Since the K/A relates to the ability to manually operate from the MCB, it appears that if we require the examinee to recognize that he/she cannot manually operate from the MCB, then the K/A is matched, even if it is sort of a "reverse method."</i></p> <p><i>Revised Choice B.</i></p> <p><i>Duplicate Question. We propose using version 003. Version 004 may be an acceptable alternative.</i></p> <p>Atlanta Review (RFA approved): 06/04/09</p> <p>Choice A: Add "using the pushbutton"</p> <p>Choice B: Add "OR using the p/b at the breaker"</p> <p>Choice C: add "OR using the p/b at the breaker"</p> <p>Choice D: add "using the open contactor & screwdriver."</p> <p>Chief Examiner accepts use of this question because MCB breakers cannot be operated from the MCB without DC power.</p> <p>Change from UNSAT to E.</p>

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only		
49	M	2										Y	N	\$	<p>064A3.05 No comments 01/02/09</p> <p>Atlanta Review (RFA approved): 06/04/09</p> <p>001 - OK as-is</p>
50	C	2					X					Y	N	E	<p>064K4.10 Distracter B. Since this is an issue if sustained more than 3 seconds, define sustained with a time. Furthermore, the way this is written, if B was correct, A would be also. Currently, distracter B is NP. 01/02/09</p> <p>Facility Response:</p> <p>Revised Choice B by adding "for 10 (TEN) seconds." Also, needed to change Choice A from 2 to 3 seconds because the ESFLS will not actuate for an additional 2.0 seconds after the UV is sensed (0.25 + 2.0 = 2.25 seconds. See page 50 of 98 of GS-2.</p> <p>Atlanta Review (RFA approved): 06/04/09</p> <p>001 - Choice B: change from "6780' to "6680' to make it more credible.</p> <p>Choice D: Change from a "single phase" to "two phases."</p> <p>WOOTF: Add "w/ respect to 1DA" and delete "1DA" from Choice D.</p>
51															<p>065AK3.08 I do not think enough information is in the stem. Was there</p>

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only		
	M	2					X					Y	N	E	<p>a Rx trip? CAF to resolve/verify 01/02/09</p> <p><i>Facility Response:</i></p> <p><i>It doesn't appear to matter if we tell them a Reactor Trip has occurred or not. They would still implement AOP-220.1 concurrently with EOP-1.0 (see CAUTION in front of procedure).</i></p> <p>Atlanta Review (RFA approved): 06/04/09</p> <p>001 - 3rd bullet: delete "response" (to avoid implicating ARPs)</p> <p>WOOTF: Change "done" to "required."</p> <p>Choices C & D: To improve credibility, change wording to "Alternate steaming one SG at a time" Original wording results in a steamline DP – too easily rejected.</p>
52	C	3										Y	N	S	<p>068AA2.02 No comments 01/02/09</p>

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only		
														E	<p><i>Facility Response:</i></p> <p><i>Based on feedback from validation, revised choices B & D to use more realistic values of emergency boration flow.</i></p> <p><i>Duplicate Question. We propose using version 003.</i></p> <p>Atlanta Review (RFA approved): 06/04/09</p> <p>Version 003 OK.</p> <p>WOOTF: Add IAW GOP-8.</p>
53	M	2					X					Y	N	E	<p>072K1.05</p> <p>Consider starting the WOOTF statement with "In accordance with GS-9, WOOTF of the ..." This will bullet proof the correct answer.</p> <p>01/02/09</p> <p><i>Facility Response:</i></p> <p><i>Would like to avoid referencing training materials in the stem of the question.</i></p> <p>Atlanta Review (RFA approved): 06/04/09</p> <p>001 - 2nd bullet: Add "sudden"</p> <p>WOOTF: Change 2nd half from "over the course of the event" to "after the Rx Trip/Sl."</p>
54	M	2					X					Y	N	E	<p>073K3.01</p> <p>CAF: If the RM-L5 INTERLOCK Switch is placed in OFF, will the discharge terminate? If not, replace distracter A with "The RM-L5 INTERLOCK Switch is placed in OFF"</p> <p>Distracter A is not plausible because there are few systems</p>

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only		
															<p>that isolate on low flow, if any that can recall. 01/02/09</p> <p><i>Facility Response:</i></p> <p><i>Replaced Choice A as suggested. Had to reword WOOTF because the new choice A is not one of the ARP Probable Causes. Resequenced choices and Distractor Analysis from shortest to longest.</i></p> <p><i>Duplicate Question. We propose using 002.</i></p> <p><i>Atlanta Review (RFA approved): 06/04/09</i></p> <p><i>002 - WOOTF: Delete "automatically" Add "MINIMUM."</i></p> <p><i>Choices B & C: "Add Loss of power AND" to increase DV.</i></p>
55	M	1*										Y	N	U	<p>074EK3.03</p> <p>Choice A is too obvious. Regardless of what the other three choices were, choice A would be correct. Change A to degraded loop flow condition statement that would have the same effect as a non-operating RCS loop. *This Q is U because of low DV 01/02/09</p> <p><i>Facility Response:</i></p> <p><i>Revised Choice A as suggested. Resequenced Choices from shortest to longest. Also resequenced distractor analysis. The current version is 002.</i></p> <p><i>Atlanta Review (RFA approved): 06/04/09</i></p>

Q#/ Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only		
															002 - WOOTF: Delete "because DNBR cannot be guaranteed to be maintained within limits" – teaching. Also add "per the associated T.S."
															To better balance choices, change choice D from "a plant transient" to "an instrument failure"
56	M	2										Y	N	S E	075K4.01 No comments 01/02/09 Facility Response: Due to feedback from validation, we are inappropriately testing detailed knowledge of an SOP Off-Normal section. Additionally, it is possible that power may not be reduced if the circ water conditions (low temps - winter) allowed. This situation would involve significant management input and would not necessarily be as clear-cut as the question originally implied. When we evaluated this K/A, we recognized that the same K/A was selected for the Audit Exam. We thought we could write a different question, but this was more difficult than we thought. The end result was a submitted question that did not really match the K/A, in that it did NOT test knowledge of interlocks or design features - it tested an operational limitation. Rewrote to test an interlock. Duplicate Question. We propose using version 004. Atlanta Review (RFA approved): 06/04/09 004 - WOOTF: Add "the following annunciators, when lit, indication a condition..." Choice A: Change "Lube water pump is 15 gpm." to "CW JOCKEY PP TRIP"

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only		
															Choice B: Change "valve at mid-position" to "CNDSR A VACUUM LO"
57	C	3				X						N	N	U	<p>076K1.16</p> <p>Distracters A and B are not plausible because these components nor any other would trip unless the BO sequencer / loss of power occurred. However, add to the step that EDG load test is running in parallel with the vital bus, a grid disturbance occurs and offsite power is lost causing a reactor trip. All other conditions are the same. This will give plausibility to A and B.</p> <p>It's common knowledge that components load shed to prevent overloading the DG upon re-energizing the bus(s). This Q is U because two distracters are NP.</p> <p>01/02/09</p> <p><i>Facility Response:</i></p> <p><i>Revised close to what was suggested. Feedback from validation indicated that Ops would not test D/G 'B' with a leak in SW Loop 'A'.</i></p> <p><i>Duplicate Questions (2). We propose using version 002. (Also have version 003 - BANK)</i></p> <p><i>Atlanta Review (RFA approved): 06/04/09</i></p> <p><i>Version 002:</i></p> <p><i>WOOTF: Change "later" to "following the loss of"</i></p> <p><i>Choices: Change wording to make tense consistent.</i></p>
58	M	2					X					Y	N	E	<p>077AK2.02</p> <p>Why not say that "the Main generator Breaker and Generator Field Breaker will remain CLOSED" for A and C instead of saying "A bumpless transfer to Core 2 will occur." This will be in keeping with B and D.</p> <p>01/02/09</p> <p><i>Facility Response:</i></p> <p><i>Revised as suggested.</i></p>

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred - Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only		
															<p><i>Duplicate Question. We propose using version 002.</i></p> <p>Atlanta Review (RFA approved): 06/04/09</p> <p>002 - WOOTF: Delete "load" since it is already in the choices.</p> <p>WOOTF: remove "voltage regulator" because choices no longer involve the regulator – just the breakers.</p>
59	M	2										Y	N	S E	<p>078K2.01 No comments 01/02/09</p> <p><i>Facility Response:</i></p> <p><i>Due to feedback from validation, deleted 3rd bullet (Rx Trip & SI) because it wasn't needed and 1st part of WOOTF (when est. RB I.A.) because it also wasn't needed and caused some confusion.</i></p> <p>Atlanta Review (RFA approved): 06/04/09</p> <p>001 - OK as-is</p>
60	M	2					X					Y	N	E	<p>086A3.01 To be consistent with the stem, on distracters C and D: Change the word "used" to "pressurized." 01/02/09</p> <p><i>Facility Response:</i></p> <p><i>Revised as suggested.</i></p> <p>Atlanta Review (RFA approved): 06/04/09</p> <p>001 - WOOTF: Add "FIRST"</p>

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRQ Only		
61	C	3					X					Y	N	E	<p>103A3.01 Please explain why distracter A is plausible. The distracter analysis explanation is unacceptable. A phase has occurred. Distracter A is not plausible. 01/02/09</p> <p><i>Facility Response:</i></p> <p><i>We believe that Distracter A is plausible for several reasons: 1) 1 validator picked Choice A 2) some of the MCB status lights in this area should be dim after an SI and 3) the 2nd part of Choice A is correct.</i></p> <p><i>Rewrote Distracter Analysis to better establish plausibility.</i></p> <p>Atlanta Review (RFA approved): 06/04/09</p> <p>001 - Choices B-D: Change "LIT" to "BRIGHT"</p>
62	C	3					X					Y	N	E	<p>E01EK1.2 Psychometrics: Change distracter D to reflect a CRS decision to be in line with A,B, and C. 01/02/09</p> <p><i>Facility Response:</i></p> <p><i>Revised Choice D by replacing "crew" with "CRS"</i></p> <p>Atlanta Review (RFA approved): 06/04/09</p> <p>001 - WOOTF: Change "should" to "meets <u>ALL</u> entry conditions."</p> <p>Change A: from "EOP-16.0" to "just entered EOP-15.0 w/ Rx Trip and NO SI"</p> <p>Choice D: Change 1st CRS" to "crew" and replace "it doesn't appear to be helping" with and the CRS is NOT sure that this is the correct procedure" Also, change "without an SI" to "NO SI."</p>

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only		
63	C	3										Y	N	S E	E03G2.4.21 No comments 01/03/09 <i>Atlanta Review (RFA approved): 06/04/09</i> 001 - Choices B & D: Change '1200' to '10⁴'
64	C	3										Y	N	S E	E04EA1.1 No comments 01/03/09 <i>Atlanta Review (RFA approved): 06/04/09</i> 001 - Add 5th bullet: "SI has not been reset" WOOTF: Add "MINIMUM" Choice C: 1st part – Change "MVG-8888A" to "Train A" – proper nomenclature. Change SAT to E
65	C	3				X						N	N	U	E05EA2.1 Add IAW AOP 15.0 between "action" and "that." This will solidify meeting the 2 nd part of the KA Since bleed and feed are required, A and B are wrong. However, since the word "attempt" is used in both distracters, no action is implied (no success path). Therefore, A and B are NP. Delete the word "attempt" from A and B. Peer comment: C is not plausible either because it is too obvious that the PORVs need to be open – not cycling. This Q is U because two distracters (a and B) are NP 01/03/09 <i>Facility Response:</i> <i>Revised stem and Choices A & B as suggested. Deleted "and close" from Choice C. Additionally,</i>

Q#/ Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only		
															<p>feedback from validation indicated that we could simplify the given information in bullets 3, 4, & 5. Since we tell them in bullet 1 that the plant is in "MODE 3, following a trip," they should <u>know</u> the status of Condensate, MFBPs, and MFWPs (the given bullets are the <u>normal</u> status).</p> <p>Atlanta Review (RFA approved): 06/04/09</p> <p>WOOTF: Move title to 2nd bullet.</p> <p>Remove "WIDE RANGE" from high level bullet.</p>
66	C	3					X					Y	N	E	<p>G2.1.17 Distractor B (bee) is not plausible. The use of the phonetic alphabet is common knowledge. Replace distractor B. 01/03/09</p> <p><i>Facility Response:</i></p> <p><i>In Distractor B, replaced "Place "C (see)" Charging Pump in PULL-TO-LOCK on Train "B (bee)"" with "RCS Tavg is trending towards 557°F" Revised Distractor Analysis accordingly.</i></p> <p><i>Duplicate Question. We propose using version 002.</i></p> <p>Atlanta Review (RFA approved): 06/04/09</p> <p>WOOTF: add "spoken" and "MINIMUM."</p>

Q#/ Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only		
															<p>ALL Choices: put spoken words in quotations.</p> <p>Choice B: delete "trending towards."</p>
67	M	2					X					Y	N	E	<p>G2.1.18</p> <p>Psychometric symmetry and distracter A is NP due to its simplicity.</p> <p>Make distracter B look like D but with 75%.</p> <p>Make distracter A look like C but with 60%</p> <p>01/03/09</p> <p><i>Facility Response:</i></p> <p><i>Revised Choice B to make it look like D and Choice A to make it look like C. Removed "minimum" aspect from stem. Revised the Distractor Analysis accordingly.</i></p> <p><i>Duplicate Question. We propose using version 002.</i></p> <p><i>Atlanta Review (RFA approved): 06/04/09</i></p> <p><i>Choices A & C insert "as" before values</i></p> <p><i>Choices A & C: delete 'since it is the "in-spec" reading because it is not needed and because it is NP that you would red circle an in-spec reading.</i></p> <p>WOOTF: Add "<u>MINIMUM</u>"</p>
68	C	3										Y	N	S E	<p>G2.1.43</p> <p>No comments</p> <p>01/03/09</p> <p><i>Facility Response:</i></p> <p><i>Feedback from validation has indicated that we have not provided enough information to ensure that B is the correct answer. The given prediction from the</i></p>

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred Dist.	Partial	Job-Link	Minutia	#/units	Back-ward	Q= K/A	SRO Only		
															<p>ICRR is a normal occurrence during Startups. Reactor Engineering and Ops work together to make a judgement call on whether it is appropriate to make another rod pull. According to Reactor Engineering, they may incrementally reduce the length of the rod pull as they get closer to criticality. As they get closer, they will asses if they believe the next increment will achieve criticality. If it appears that they will, and criticality will occur < RIL, then they would apply the GOP-A criteria that is outlined in Choice B. Some validators (and a Reactor Engineer) believed that since there was still 65 steps between RIL and the given Bank C position, that D may be the "best answer." When we added new information in the stem to address these issues, further feedback indicated that we overcomplicated the question. With this in mind, we reduced the scope of the question and made it more straight-forward.</p> <p>Duplicate Question. We propose using version 002.</p> <p>Atlanta Review (RFA approved): 06/04/09</p> <p>Choice A: At beginning, insert "Suspend positive reactivity additions." Recalculate the ECC. Dliute to criticality..."</p> <p>Choice D: Move "continue S/U" to the end.</p>
69	M	2										Y	N	S E	<p>G2.2.14 No comments 01/03/09</p> <p>Atlanta Review (RFA approved): 06/04/09</p> <p>WOOTF: Break into two statements:</p> <p>Statement 1: Make it read: " IAW SAP-205"</p>

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only		
															Statement 2: Make it read: "IAW OAP-106.3"
70	M	2					X					Y	N	E	<p>G2.2.37</p> <p>The procedure uses the term "racked in" vs. "racked up." If the breakers are closed, it is assumed to be racked in. Distracter B is a subset of A. Make A "racked in and closed." Make be "racked in ONLY." In choices A and B, move the word "only" up front before the word "train."</p> <p>01/03/09</p> <p><i>Facility Response:</i> <i>Revised as suggested.</i></p> <p><i>Atlanta Review (RFA approved): 06/04/09</i></p> <p><i>Choices A & B: Change "ONLY Train 'B' is INOP" to "Initial entry into the LCO for Train 'B' is required at the time when"</i></p>
71	M	2										Y	N	S	<p>G2.3.11</p> <p>No comments</p> <p>01/03/09</p> <p><i>Atlanta Review (RFA approved): 06/04/09</i></p>

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only		
72	M	1				X						N	N	U	<p>OK as-is</p> <p>G2.3.5 Stem: Change to read "...is adjustedthe setpoint is directed to be found?" Change A and C 2nd part to read "SOP-108, ATTACHMENT VA" Reason for change is that ALL LWRPs have setpoint info on them. Currently, B and D are NP. This Q is U because of two NP distracters. 01/03/09</p> <p><i>Facility Response:</i></p> <p><i>Feedback from validation indicated they were very confused with what "directed to be found" meant. Rewrote WOOTF to "where is release setpoint found" and revised second half of choices A & C. Revised Distractor Analysis accordingly.</i></p> <p><i>Validators were also confused about what "Prior to the release" meant. Some viewed this as "the end of the last release," which meant that the setpoint would be 2X background. With this in mind, changed 1st part of WOOTF from "Prior to release" to "in preparation for a WMT release."</i></p> <p><i>Duplicate Question. We propose using version 002.</i></p> <p>Atlanta Review (RFA approved): 06/04/09</p> <p>Version 002 – OK as-is.</p>
73	M	2					X					Y	N	E	<p>G2.3.7 Distracter C is NP due to common sense and standard HP work practices. Replace C. 01/03/09</p> <p><i>Facility Response:</i></p>

Q#/ Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only		
															<p><i>Revised Distractor C to make it similar to D and revised D to balance with C. Now, C/D are complimentary like A/B. Revised Distractor Analysis accordingly.</i></p> <p><i>Duplicate Question, We propose using version 002.</i></p> <p>Atlanta Review 06/04/09</p> <p><i>Tabled discussion – will work on new question at VCSNS.</i></p> <p>New Question:</p> <p><i>Converted WOOTF to fill-in-blank format.</i></p> <p><i>Revised choices to A – “ONLY” and B-D- “complete 2nd part of WOOTF (by adding the word “and”)”</i></p> <p>(RFA approved 6/18/09)</p>
74	C	3	X				X					Y	N	E	<p>G2.4.30</p> <p>C and D are wrong because the distractor analysis states that a power change is less than 15% in one hour. How do you know that given the information in the stem?</p> <p>CAF: Please explain.</p> <p>01/03/09</p> <p>Facility Response:</p> <p><i>Because AOP-210.3 requires a power reduction to 91%, which is only 9% from 100% power. In the Distractor Analysis for Choices C & D, added “(per AOP-210.3)” to clarify.</i></p> <p>Atlanta Review (RFA approved): 06/04/09</p> <p>WOOTF: Insert “as listed in AOP-210.3, Feedwater Pump Malfunction”</p>

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only		
75	C	1	X			X						N	N	U	<p>G2.4.32</p> <p>The attached references do NOT support either the correct answer or the distracters.</p> <p>CAF: you will have to redefine, e-evaluate or walk me through this one.</p> <p>This Q is U until the facility proves otherwise.</p> <p>Peer Review: No plausible distracters</p> <p>01/03/09</p> <p><i>Facility Response:</i></p> <p><i>This appears to have been a copying error. Our hard copy contains all of the references for both the answer and distracters. They will be provided at the review in Atlanta unless you ask for them earlier.</i></p> <p><i>Duplicate Question. Current version is 002. We propose version 003.</i></p> <p><i>Validation is raising questions about operational relevance of exact steps in the AOP. On a practical bases, the exact sequence of steps taken is a combination of our choices; much more involved than dictated by the procedure. Have written another question that is more operationally relevant.</i></p>
SRO ONLY															
76	C	2				X						N	Y	U	<p>001AA2.03</p> <p>Distracters C and D are NOT plausible. First, they are not trip setpoints. The basis for C and D are the basis for trip setpoints.</p> <p>Consider the plausibility of using OPDT for C and D.</p> <p>The KA requires an action. No actions are listed</p> <p>The Q is U because of two NP distracters.</p> <p>12/29/08</p> <p><i>Facility Response:</i></p>

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only		
															<p>Regarding K/A match, these were our comments in the Notes section:</p> <p>"Not an exact match to the K/A because any action taken as a result of a failure of an automatic action would be an Immediate Operator Action; therefore, would not be an SRO Only question. Question was written to the impact that a Continuous Rod Withdrawal has on the automatic calculation of a protection setpoints and the bases for that calculation."</p> <p>In regards to Choices C & D, we recognized that that they were not setpoints. We attempted to address this with the "limit/set point" wording in the WOOTF.</p> <p>If we changed the 1st part of C & D to OPDT, Choice C would also be correct.</p> <p>Having said that, we replaced the 2nd half of all 4 choices to include an action, versus a bases, and revised the WOOTF.</p> <p>Duplicate Question. We propose using version 002.</p> <p>Atlanta Review (RFA approved): 06/02/09:</p> <p>Removed redundant "Tavg increasing" from WOOTF.</p> <p>Reworded 1st half of choices C & D to " The TS 3.2.5 DNB Paramater for Tavg will be exceeded"</p> <p>Reworded last bullet to "Tavg is 580F and <u>continues to rise.</u>"</p>
77	M	2	X			X						Y	N	U	<p>001G2.4.34</p> <p>The procedure does NOT specifically state "who" will do which action. It only states to notify the BOP when the RTBs are opened. All choices are potentially correct. Furthermore, the presumed correct answer states to "report" to the BOP. The procedure states to "notify" the BOP. If in fact choice C is the only correct answer (from</p>

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only		
															<p>the who does what perspective), choice C is still wrong because the procedure states to "notify" not "report to." This would leave NO correct answers.</p> <p>This Q is U because of multiple correct answers. Additionally, Q is NOT SRO knowledge.</p> <p>Recommend replacing this Q 12/29/08</p> <p><i>Facility Response:</i></p> <p><i>Replaced Question.</i></p> <p><i>Duplicate Question. We propose using version 003.</i></p> <p><i>Atlanta Review (RFA approved): 06/02/09:</i></p> <p><i>2nd bullet: change 'implemented" to "entered"</i></p> <p><i>5th bullet: insert 'long"</i></p> <p><i>WOOTF: add "from the CREP."</i></p> <p><i>Choice B. Inserted "GREATER THAN."</i></p> <p><i>Choice D: reword to "Either N32A or N33 indicates 1000cps or less."</i></p>
78	M	2	X									Y	Y	E	<p>003AA2.03</p> <p>Confirm IAW "what" procedure? 12/29/08</p> <p><i>Facility Response:</i></p> <p><i>Not sure what we need to do here. Will discuss in Atlanta.</i></p> <p><i>Note: Actual K/A statement is as follows:</i></p> <p><i>"Ability to determine and interpret the following as they</i></p>

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6, U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only		
															<p>apply to the Dropped Control Rod: Dropped rod, using in-core/ex-core instrumentation in-core or loop temperature measurements."</p> <p>This question was written to this K/A. The description of the K/A in the Notes section of this question was copied from the original outline that you gave to us. The original outline contained errors in that the <u>stem statements</u> for all APEs and EPEs K/As were from the system, not the APE or EPE.</p> <p>Corrected the K/A wording in the Notes section.</p> <p>Feedback from validation has indicated that we are overemphasizing T.S. bases statements, in the 2nd half of questions, on the SRO exam. If we were to emphasize anything, we should emphasize operator actions. Additionally, many of the validators felt this knowledge was trivial, having no relevance to day-to-day operations. With this in mind, we changed the second half of each choice in this question to <u>actions</u> in T.S., versus <u>bases</u>. It is still SRO Only since the action tested are greater than 1 hour (2 and 12).</p> <p>Duplicate Question. We propose using version 002.</p> <p>Atlanta Review (RFA approved): 06/02/09:</p> <p>WOOTF: underline "must" and add "IAW T.S. 3.2.4"</p>
79	C	2	X									Y	Y	E	<p>008G2.4.6</p> <p>2nd Bullet: Delete "causing a small break LOCA" Teaching</p> <p>4th Bullet: Instead of stating that "all RCPs have been tripped," state all actions of procedure ____ have been completed (which would include the tripping of the RCPs)</p> <p>5th and 6th Bullets: Delete, not necessary</p> <p>In the WOOTF statement, state (... following, IAW procedure ____ identifies ...)</p> <p>12/29/08</p> <p>Facility Response:</p>

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only		
															<p><i>2nd Bullet: changed as suggested. Deleted "All RCPs tripped" and revised statement about procedures entered to include EOP-2.1 specifically. Deleted bullets 5 & 6. Changed WOOTF statement.</i></p> <p><i>Based on feedback from validation, we have not provided enough information in the stem to accurately place them in EOP-2.1. Additionally, with a stuck open safety valve, RCS subcooling will not be maintained above 30°F (see ES-1.2 Background (HES12BG.doc) page 37) until an RCS cooldown is initiated.</i></p> <p><i>Feedback also indicated that, even with indicated PZR level at 100%, a marginal amount of spray control may be possible, unless the PZR was water-solid (Choice 'B' may also be considered correct). With this feedback in mind, we revised the stem to accurately place them in EOP-2.1; and placed them in a water-solid condition. Also changed choices to test knowledge of Note - Step 9. This is SRO knowledge because it involves a decision on which RCP should be started. RO's would not be required to make this decision.</i></p> <p><i>Since the previous version of this question involved understanding of the bases for the EOP step, it could be considered RO knowledge (see K/A 2.4.18, Knowledge of the specific bases for EOPs 3.3/4.0).</i></p> <p><i>Duplicate Question. We propose using version 003.</i></p> <p><i>Atlanta Review (RFA approved): 06/02/09:</i></p> <p><i>Break up Choices C & D to look like A & B.</i></p> <p><i>Restructured all 4 choices to better balance and increase plausibility.</i></p>
80	C	2	X									Y	Y	E	<p>013G2.2.42</p> <p>3rd Bullet: Delete (teaching). 12/29/08</p> <p><i>Facility Response:</i></p>

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only		
															<p><i>Deleted 3rd Bullet as suggested.</i></p> <p>Atlanta Review (RFA approved): 06/02/09:</p> <p>Add "<u>ALL</u> of" to WOOTF:</p> <p>Check for overlap.</p>
81	C	2	X				X					Y	Y	E	<p>015AA2.10</p> <p>Stem: Place a coma after the word "recovery"</p> <p>Stem: Add the word "specific" before the word "procedures(s) and delete the word "only" from C and D since EOP-1.0 is not referenced in A or B.</p> <p>5th Bullet: What valve???</p> <p>Increase the bearing Temps for A and B RCPs so C (196) doesn't stick out like a sore thumb. 193 and 194 seem appropriate suggested value.</p> <p>12/29/08</p> <p><i>Facility Response:</i></p> <p><i>Stem: Added comma after "recovery." Added "specific" before "procedure(s)."</i></p> <p><i>Deleted "ONLY" from Choices C & D.</i></p> <p><i>Deleted 5th bullet.</i></p> <p><i>Revised RCP temps as suggested.</i></p> <p>Atlanta Review (RFA approved): 06/02/09:</p> <p>Move "IAW SOP-101" from choices to WOOTF.</p> <p>Change 1st parts of B & D from "ALL RCPs" to "Only RCPs B & C. To make this credible, change motor brg temp for A to 189F.</p>
82	C	2	X									Y	Y	E	<p>026G2.2.44</p> <p>Typo in Stem answer choices: LCV-7098 should be LCV-</p>

Q#/ Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only		
															<p>7090. (If this is true, this typo should have been caught during validation. 12/29/08</p> <p><i>Facility Response:</i></p> <p><i>Changed 7098 to 7090 in stem and choices.</i></p> <p><i>Agree that this should have been caught before now.</i></p> <p>Atlanta Review (RFA approved): 06/02/09:</p> <p>Choices A-D: Change "will be" to "are" <u>and</u> add "ALL" to C & D.</p> <p>WOOTF: Add "IAW this XCP-601, 1-1"</p>
83	C	3	X				X					Y	Y	E	<p>034A2.03</p> <p>The answer when the blank is filled in makes no sense (...the fuel assembly is mispositioned based on being in the wrong place). Obviously, if it is in the wrong place it is mispositioned.</p> <p>Suggestion:</p> <p>Given these conditions, the refueling team should ____.</p> <p>A. Unlatch the assembly AND perform a new statistical reliability check of N-31.</p> <p>B. Unlatch the assembly AND suspend core alterations.</p> <p>C. Perform a new statistical reliability check of N-31 ONLY.</p> <p>D. Suspend core alterations ONLY.</p>

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only		
															<p>If the "material transfer form" is provided, the 4th bullet (... at location J-2) is NOT needed. Let the applicant use the reference to figure that out. 12/29/08</p> <p><i>Facility Response:</i></p> <p><i>Revised stem & choices as suggested above.</i></p> <p><i>Still need to tell them which hole the assembly is actually going in to. Then they need the form to make the determination that it is in the wrong location so they can, in turn, determine that Core Alts must be suspended. The response of the SR instruments is normal for placing an assembly in a 3X3 array.</i></p> <p><i>Duplicate Question. We propose using version 002.</i></p> <p><i>Atlanta Review 06/02/09:</i></p> <p>3rd bullet: Add "SR NI"</p> <p>WOOTF: Change "should" to "must". Also add "IAW REP-107.103"</p> <p><i>Table for further discussion</i></p> <p><u>06/18/09 Review:</u></p> <p>NEW QUESTION - Version 006</p> <p>Added REP to 1st question. Reduced scope and clarified 2nd question.</p> <p>(RFA approved 06/18/09)</p>
84	C	3				X						Y	Y	U	<p>037G2.4.8</p> <p>Regardless whether the applicant "refers" or "returns to," as</p>

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only		
															<p>stated in OAP-103.4, the way distracter A is written (perform applicable steps of AOP-112.2), is a subset of choice C. The difference between A and C is purely semantics. Start them at a different step in distracter A.</p> <p>This Q us U because there are potentially two correct answers. 12/29/08</p> <p><i>Facility Response:</i></p> <p><i>Restructured all 4 choices. This simplified the choices and eliminated subsets. Wording is now more consistent with OAP-103.4 definitions (REFER TO & GO TO). Revised Distractor Analysis accordingly.</i></p> <p><i>Revised last bullet to place them at Step 4 of EOP-1.1.</i></p> <p><i>Atlanta Review (RFA approved): 06/02/09:</i></p> <p><i>Add "(Step 3)" to last bullet.</i></p> <p><i>Choice B: To increase plausibility, add "Step 4"</i></p>
85	C	3	X			X						Y	Y	U	<p>054AA2.04</p> <p>According to TS 3.7.1.2, the SDEFW pump is NOT inoperable because it has an operable steam supply system. Therefore, you do NOT have three inoperable EFW pumps. None of the references provided stated that the SDEFW pump is inop if the flow control valve fails open.</p> <p>Peer Review: A and C are NOT plausible. No SG levels are provided in the Q stem, which I presume would be the indication used to enter "response to SG high level" Taking action to restore an emergency feed pump would never be incorrect.</p> <p>This Q is U because D is potentially a correct answer and 2 NP distracters. 12/29/08</p> <p><i>Facility Response:</i></p> <p><i>Rewrote question.</i></p>

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only		
															<p><i>Duplicate Question. We propose using version 002.</i></p> <p>Atlanta Review 06/02/09:</p> <p>Last bullet: Add "NR" to SG levels. Change to "ALL" SGs.</p> <p>Delete 6th bullet: "The crew is throttling..."</p> <p>Table for further discussion</p> <p>06/18/09 Review:</p> <p>Moved "MDEFP starts, then trips" to bullet #5.</p> <p>Modified WOOTF and 2nd part of all choices to improve credibility and clarity.</p> <p>(RFA approved 06/18/09)</p>
86	C	3				X						Y	Y	E*	<p>062G2.2.36</p> <p>Stem: Delete the word BOTH since each choice has two activities.</p> <p>Choices: change AND to and.</p> <p>Disractors C and D: "Perform the monthly Surveillance on the B Diesel Generators" is NOT plausible because it is nothing special. However, an extra or special surveillance would be if a statement in the stem indicated that it might be warranted. Modify distractors C and D.</p> <p>Suggestion: (Perform an additional monthly surveillance ...) and add a bullet in the stem to hook the applicant in thinking one is required when in fact it isn't.</p> <p>Peer Review: Test against the requirements not "should." Replace with "shall"</p> <p>The Q is E* because of <i>potentially</i> two NP distracters.</p> <p>12/29/08</p> <p>Facility Response:</p>

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only		
															<p><i>Wrote another question with single choice format.</i></p> <p><i>Duplicate Question. We propose using version 003.</i></p> <p>Atlanta Review (RFA approved): 06/02/09:</p> <p><i>Check Table 3.3.2 for overlap or makes it a direct lookup.</i></p> <p><i>To better balance (3)Bs and (1)A, change Choice A from "B to C" to "C to B"</i></p>
87	C	3					X					Y	Y	E	<p>062G2.4.6</p> <p>Distracters A and B: Change 2nd part to read "Use SG PORVs to stabilize SG Pressure in accordance with EOP-6." Since going to step 30 is stated in the caution statement, it renders the answer <i>potentially</i> NDV.</p> <p>Distracters C and D: Change 2nd part to read: "Establish I.A. to the RB in accordance with EOP-6."</p> <p>This Q was rated as an E because no reference was provided. If the reference was provided, it would have been a U.</p> <p>12/29/08</p> <p><i>Facility Response:</i></p> <p><i>Seems like we have written other questions that tests knowledge of Cautions in a near verbatim fashion and they were <u>not</u> considered NDV. Without the references to step numbers and their relative locations in the EOP, the revised choices would require too detailed knowledge of sequence of steps in the EOP-6.0.</i></p> <p><i>We would like to keep the question as it is written. No changes made to question. Need to discuss further in Atlanta.</i></p> <p>Atlanta Review (RFA approved): 06/02/09:</p> <p>WOOTF: change "the bus" to "bus 1DA" and add "per</p>

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only		
															EOP-6.0" Change end to "when the bus is restored." Choices C & D: 2nd part is weak. Change to "EOP-1.0, Step 1"
88	C	3	X				X					Y*	Y	E	064A2.13 In the WOOTF statement: Delete the word "within" * In order to fully meet the 2 nd part of the KA: Distracters A and C: Change A and C 2 nd part to read: Transfer Service Water System Loads to train B in accordance with ARP-001, Panel XCP-604. Distracters B and D, 2 nd part change to read "Start SWP C and open PVG-3105A In accordance with SOP-117" (to provide ...) is teaching. 12/29/08 Facility Response: Revised WOOTF. Revised 2nd part of all 4 choices as suggested. Atlanta Review (RFA approved): 06/02/09: Change "1F/min" to "1.0F/min" 4th bullet: To add credibility to B & D, add "but not running" WOOTF: change "should" to "required to be."
89	C	3	X				X					Y	Y	E	068A2.04 Stem: State the procedure (... as required by procedure ____.) Distracters: Delete "Close" from all choices. It is already in the stem. This should have been identified during the validation.

Q#/ Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only		
															12/29/08 <i>Facility Response:</i> <i>Revised 001 as suggested. Agree that it should have been caught during validation.</i> <i>Feedback from validation has indicated that we are testing trivial knowledge regarding <u>doses</u> at the Site Boundary. Changed questions to ask for <u>location</u> of limiting dose, versus the actual dose. Still SRO Only since it tests knowledge of a T.S. bases that is not a Safety Limit.</i> <i>Duplicate Question: We propose using version 002.</i> <i>Atlanta Review (RFA approved): 06/02/09:</i> <i>002 OK as-is.</i>
90	C	3	X			X						Y	N	U	073G2.4.8 This Q does NOT meet SRO criteria. Only an action is taken based on an alarm. No in-depth knowledge of procedures or use of TS is involved. Suggestion: Change the stem to require a TS action. Peer Review: Test against the requirements not "should." Replace with "shall." Distracters: B can be ruled out because it is greater than 1 hour action without a reference provided. D is NP because because a uci/ml values needs to be added to the stem. This Q is U because it is NOT SRO only and 2 NP distractors 12/30/08 <i>Facility Response:</i> <i>Rewrote to include ARP actions and T.S. action > 1 hour.</i>

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only		
															<p><i>Duplicate Question. We propose using version 002.</i></p> <p>Atlanta Review (RFA approved): 06/02/09:</p> <p>002 OK as-is.</p>
91	C	3										Y	Y	SE	<p>078A2.01</p> <p>No comment 12/30/08</p> <p><i>Facility Response:</i></p> <p><i>Feedback from validation has indicated that a crew may trip the Reactor at 50#, even if they haven't started working through the AOP. With this in mind, we modified given information to put them at the very beginning of the AOP, with a Reactor Trip not yet implemented.</i></p> <p>Atlanta Review (RFA approved): 06/02/09:</p> <p>WOOTF: "action(s)" vs "action." Change "if Rx has not yet been tripped" to "prior to the Rx trip."</p>
92	C	3					X					Y	Y	E	<p>E04 EA2.1</p> <p>On distracter D, add a transition stem from EOP-2.4 since EOP-2.1 is a transition step out of EOP-2.4. Otherwise, distracter D is NOT plausible. 12/30/08</p> <p><i>Facility Response:</i></p> <p><i>Revised Choice D as suggested.</i></p> <p><i>Feedback from validation has resulted in a few changes from the original version. 1) validators felt that 1300 psig was relatively low for a LOCA outside containment, so we raised pressure to 1700 psig. 2) we</i></p>

Q#/ Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only		
															<p>were asked to provide specific indications of RB conditions, so we provided those indications evaluated in Step 14 of EOP-1.0. 3) we were asked to provide specific alarms for the Auxiliary Building, so we provided 2 specific AB alarms. 4) Since there are more than just the diagnostic steps 12-14 in EOP-1.0, we were asked to give which set of diagnostics in bullet 2.</p> <p>Current version is 002.</p> <p>Atlanta Review (RFA approved): 06/02/09:</p> <p>Add "and STABLE" behind RB pressure</p> <p>Choice A: replace 2nd part – "EOP-2.0" to "EOP-2.4"</p> <p>Choice D: delete "EOP-2.1"</p>
93	C	3										Y	Y	S E	<p>E08 G2.2.25 No comment 12/30/08</p> <p>Facility Response: Current version is 003.</p> <p>Atlanta Review (RFA approved): 06/02/09:</p> <p>Choices A & C. To better balance with B & D, add ""in the Rx vessel wall"</p>
94	M	2				X						Y	Y	U	<p>G2.1.27 Distracters A and C are not plausible because they do NOT meet single failure criteria which is common knowledge. This Q is U because two distracters are NP. 12/30/08</p> <p>Facility Response:</p> <p>Revised Choices A & C to avoid single failure criteria. We propose using version 003. Current version is 002. We have also provided version 004 as an option.</p>

[illegible]

Q#/ Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only		
97	C	3				X						Y	Y	U	<p>Based on the distracter analysis, if the 2nd part of distracter C is correct following work within containment, the 2nd part of distracter A is also correct?</p> <p>This Q is U because of the potential of two correct answers.</p> <p>Suggestion: Make B to include the 2nd part of A and B. Make the 2nd part of A "reactor building closeout inspection ONLY" Similar for C and D. Peer Review: Test what the operator is "required" to do not "will" do. 12/30/08</p> <p><i>Facility Response:</i></p> <p><i>In the WOOTF, changed "will" to "must."</i></p> <p><i>The second part of Choices A and C are incorrect. The reason for the R&R is to ensure STP-215.001B is performed, not STP-109.001 (since it may not be performed for 7 days after closeout). Even if they decided to use the Personnel Airlock, they would not generate the R&R for the RB Closeout. The distracter analysis for Choice C explains why STP-109.001 is plausible, not that it is correct. As such, there is only 1 correct answer. Confusion may have been due to the 2 different explanations, in Choices A & C, of why they were incorrect. Revised the "incorrect because" statements of A & C to make them consistent.</i></p> <p><i>Added "normally" to the WOOTF because feedback from validation indicated that they <u>may</u> use the Personnel Airlock, depending on the location and nature of the work in the RB. If they <u>did</u> use the Personnel Airlock, Choice D would be correct.</i></p> <p><i>We believe the question should be SAT.</i></p> <p><i>Atlanta Review (RFA approved): 06/02/09:</i></p> <p><i>WOOTF: add "IAW OAP-108.1"</i></p>

Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only		
98	C	3	X									Y	Y	E	<p>G2.3.14</p> <p>Reference TS 3.11.2.6 in the stem otherwise choice B is potentially a correct answer based on table 15.3-5 in the provided reference. 12/30/08</p> <p><i>Facility Response:</i></p> <p><i>Revised as suggested.</i></p> <p><i>Feedback from validation has indicated that we are testing trivial knowledge in this particular dose limit from T.S. bases. We propose testing a more operationally-oriented T.S. bases - related to why CR ventilation is reduced to a single train within 30 minutes of an accident. It still matches the K/A and is still SRO Only in that it tests a T.S. bases that is not a Safety Limit.</i></p> <p><i>Duplicate Questions. We propose using version 005.</i></p> <p><i>Atlanta Review (RFA approved): 06/02/09:</i></p> <p><i>Version 005</i></p> <p><i>Choices B & D: change "30" to "1.0."</i></p> <p><i>WOOTF: Add "maximum of"</i></p>
99	C	3	X									Y	Y	E	<p>G2.4.20</p> <p>The status of CCW pump B is not addressed in the stem. Does it need to be in order to rule out distracter B? CAF</p> <p>This Q is an E until this issue is resolved. 12/30/08</p>

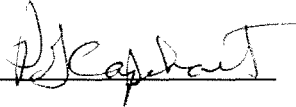

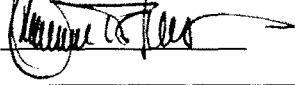
Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
			Stem Focus	Cues	T/F	Cred Dist.	Partial	Job- Link	Minutia	#/ units	Back- ward	Q= K/A	SRO Only		
															<p><i>Facility Response:</i></p> <p><i>Providing status of CCW pump B is not necessary. The applicant should know that loop 'B' is in standby since bullet 2 tells them that 'A' is the Active Loop.</i></p> <p><i>Deleted "Loop 'A'" in WOOTF.</i></p> <p><i>Atlanta Review (RFA approved): 06/02/09:</i></p> <p><i>Move 1st bullet (LOCA) to 3rd bullet to better sequence.</i></p> <p><i>Add : CCW is in it's normal lineup except that CCW Pump 'C.'..."</i></p> <p><i>Choice D; Change "flow" to "loads"</i></p>
100	C	2				X						Y	Y	E*	<p>G2.4.41</p> <p>Psychometrics: If distracter A was correct, C would be correct also because A is a subset of C. If B was correct, D would be also. Suggestion: Add the word only on A and B.</p> <p>NP distracters in A and C due to the times: It's common knowledge that an SAE requires 15 min to notify. Therefore change 10 to 15 minutes in A and C. A will still be wrong because only 2 of the 3 required detection methods. Change the "AND" before the 3 in distracter C to an "OR" and that will make the second part of distracter 3 wrong.</p> <p>The Q is E* because of NP distracters in A and B and because of multiple correct answers due to psychometrics. 12/30/08</p> <p><i>Facility Response:</i></p> <p><i>This question required complete revision based on new EALs.</i></p> <p><i>Original version was 002. We propose using</i></p>

Q#/ Q#	1. LOK (C/A)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. U/E/S	7. Explanation
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															<p>version 003.</p> <p>Atlanta Review (RFA approved): 06/02/09:</p> <p>Place TWENTY minutes in stem.</p> <p>Delete times from all choices. Make choices A-B "only"</p>

Question Status

S (7)	Question is Sat with NO Comments
E (70)	Editorial Changes Needed
E* (5)	Technically the Q is U but a word or two will fix
U (18)	Question is Unsat

**Written Examination Grading
Quality Checklist**

Facility: V.C. Summer		Date of Exam: July 10, 2009		Exam Level: RO/SRO	
Item Description		Initials			
		a	b	c	
1.	Clean answer sheets copied before grading	pgc	N/A	rfa	
2.	Answer key changes and question deletions justified and documented	pgc	N/A	rfa	
3.	Applicants' scores checked for addition errors (reviewers spot check > 25% of examinations)	pgc	N/A	rfa	
4.	Grading for all borderline cases (80 \pm 2% overall and 70 or 80, as applicable, \pm 4% on the SRO-only) reviewed in detail	pgc	N/A	rfa	
5.	All other failing examinations checked to ensure that grades are justified	pgc	N/A	rfa	
6.	Performance on missed questions checked for training deficiencies and wording problems; evaluate validity of questions missed by half or more of the applicants	pgc	N/A	rfa	
Printed Name/Signature				Date	
a. Grader	Phillip G. Capehart/			8/6/09	
b. Facility Reviewer(*)	N/A	_____		N/A	
c. NRC Chief Examiner (*)	Ronald F. Aiello/			8/4/09	
d. NRC Supervisor (*)	Malcolm T. Widmann/			8/10/09	
(*) The facility reviewer's signature is not applicable for examinations graded by the NRC; two independent NRC reviews are required.					