

V.C. SUMMER NUCLEAR STATION JOB PERFORMANCE MEASURE

JPM NO: **NJPA-042B**

2013 NRC RO/SRO Common A3: CALCULATE
EXPOSURE STAY TIMES

APPROVAL:

APPROVAL DATE:

REV NO: 2

CANDIDATE: _____

EXAMINER: _____

TASK:

343-029-03-02

ASSESS EXPOSURE LIMITS OF PERSONNEL FOR ASSIGNED DUTIES

TASK STANDARD:

Determines stay time as follows:

Operator 1: 10.2 hours (10-10.2)

Operator 2: 12.6 hours (12-12.6)

Operator 3: 5 hours (5)

TERMINATING CUE: Applicant has determined stay time for each of the three workers or has handed in JPM.***PREFERRED EVALUATION LOCATION***

CLASSROOM

PREFERRED EVALUATION METHOD

PERFORM

REFERENCES:

HPP-153

ADMINISTRATIVE EXPOSURE LIMITS

<i>INDEX NO.</i>	<i>K/A NO.</i>		<i>RO</i>	<i>SRO</i>
1940012304	2.3.4	Knowledge of radiation exposure limits under normal or emergency conditions.	3.2	3.7

TOOLS:

Survey map of area.

CALCULATOR

HPP-0153 ADMINISTRATIVE EXPOSURE LIMITS

EVALUATION TIME

15

TIME CRITICAL

NO

10CFR55: 45.a.10

TIME START: _____

TIME FINISH: _____

PERFORMANCE TIME: _____

PERFORMANCE RATING:

SAT: _____

UNSAT: _____

CANDIDATE: _____**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, THIS JOB PERFORMANCE MEASURE WILL BE SATISFIED.

SAFETY CONSIDERATIONS: None.

INITIAL CONDITION: Work is to be done in the vicinity of XVT00028-SI, COLD LEG INJECTION HEADER DRAIN VALVE. Three operators are available to perform the work..
The following are the accumulated total doses for the three operators.
Operator 1: 490 mr
Operator 2: 370 mr
Operator 3: 750 mr
All the workers have been at VC Summer for the full year and have not visited any other nuclear site.
It is not desired to approve an increase in access exposure limits.

INITIATING CUES: Calculate the available stay times for each of the three operators (if operator can complete work at all) so that work can be completed without approving an increase in access exposure limits. Assume that all work will be done at 1 foot from XVT00028-SI, COLD LEG INJECTION HEADER DRAIN VALVE.

HAND JPM BRIEFING SHEET TO OPERATOR AT THIS TIME!

STEPS

CRITICAL: No

SEQUENCED: No

SAT ☐

UNSAT ☐

STEP: 1

Determines current exposure of each operator. (Given in initial conditions.)

STEP STANDARD:

Operator 1: 490 mr
Operator 2: 370 mr
Operator 3: 750 mr

CUES:

COMMENTS:

CRITICAL: No

SEQUENCED: No

SAT ☐

UNSAT ☐

STEP: 2

Determines initial administrative exposure limits for each operator of 1000 mr.

STEP STANDARD:

CUES:

Evaluator Note: Applicant may incorrectly think limit is 500 mr (what the limit would be if the operator came from another plant and had not signed a NRC Form 4 yet). If so operator 3 would be said not to be able to do the task and shorter stay times would be calculated for Operator 1 and 2.

COMMENTS:

CRITICAL: No

SEQUENCED: No

SAT ☐

UNSAT ☐

STEP: 3

Subtracts current exposure from administrative limit to determine available dose remaining for each operator.

STEP STANDARD:

Operator 1: 1000-490 mr = 510 mr
Operator 2: 1000-370 mr = 630 mr
Operator 3: 1000-750 mr = 250 mr

CUES:

COMMENTS:

CRITICAL: No

SEQUENCED: No

SAT ☐

UNSAT ☐

STEP: 4

Determines exposure rate at work site from survey map.

STEP STANDARD:

Determines exposure rate is 50 mr/hr.

CUES:

Evaluator Note: The applicant may incorrectly use 550 mr/hr. This is the on contact exposure rate on XVT00028-SI, COLD LEG INJECTION HEADER DRAIN VALVE. The initial cue directs that the applicant assume that the exposure rate at 1 foot from the valve be used.

COMMENTS:

CRITICAL: No

SEQUENCED: Yes

SAT ☐

UNSAT ☐

STEP: 5

Determines stay time by dividing exposure left by exposure rate.

STEP STANDARD:

Operator 1: $510 \text{ mr} / 50 \text{ mr/hr} = 10.2 \text{ hours}$ (10-10.2)

Operator 2: $630 \text{ mr} / 50 \text{ mr/hr} = 12.6 \text{ hours}$ (12-12.6)

Operator 3: $250 \text{ mr} / 50 \text{ mr/hr} = 5 \text{ hours}$ (5)

CUES:

Evaluator Note: The applicant may round these stay times but should not round the stay time up in the case of operator 2. Values in parentheses are allowed values.

COMMENTS:

Examiner ends JPM at this point.

JPM SETUP SHEET

JPM NO: NJPA-042B

DESCRIPTION: 2013 NRC RO/SRO Common A3: CALCULATE EXPOSURE STAY TIMES

IC SET:

INSTRUCTIONS:

COMMENTS:

JPM BRIEFING SHEET

OPERATOR INSTRUCTIONS:

INITIAL CONDITION: Work is to be done in the vicinity of XVT00028-SI, COLD LEG INJECTION HEADER DRAIN VALVE. Three operators are available to perform the work..
The following are the accumulated total doses for the three operators.
Operator 1: 490 mr
Operator 2: 370 mr
Operator 3: 750 mr
All the workers have been at VC Summer for the full year and have not visited any other nuclear site.
It is not desired to approve an increase in access exposure limits.

INITIATING CUES: Calculate the available stay times for each of the three operators (if operator can complete work at all) so that work can be completed without approving an increase in access exposure limits. Assume that all work will be done at 1 foot from XVT00028-SI, COLD LEG INJECTION HEADER DRAIN VALVE.

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

V.C. SUMMER NUCLEAR STATION JOB PERFORMANCE MEASURE

JPM NO: **NJPA-026A**

2013 NRC RO A1-a: EOP-18.2 MAXIMUM
ALLOWABLE HEAD VENT CALC

APPROVAL:

APPROVAL DATE:

REV NO: 4

CANDIDATE: _____

EXAMINER: _____

TASK:

000-097-05-01 RESPOND TO VOIDS IN THE REACTOR VESSEL

TASK STANDARD:

Calculation of Head Venting time of approximately 9.9 minutes (tolerance of 8.8-11.7 minutes).

TERMINATING CUE: A maximum allowable head venting time is calculated.***PREFERRED EVALUATION LOCATION******PREFERRED EVALUATION METHOD***

CLASSROOM

PERFORM

REFERENCES:

EOP-18.2

RESPONSE TO VOIDS IN REACTOR VESSEL

<i>INDEX NO.</i>	<i>K/A NO.</i>		<i>RO</i>	<i>SRO</i>
0000112406	2.4.6	Knowledge of EOP mitigation strategies.	3.7	4.7
1940012125	2.1.25	Ability to interpret reference materials such as graphs, curves, tables, etc.	3.9	4.2

TOOLS:EOP-18.2, Attachment 2, CALCULATION OF MAXIMUM
ALLOWABLE HEAD VENTING TIME
Calculator***EVALUATION TIME***

15

TIME CRITICAL

NO

10CFR55: 45.a.12

TIME START: _____

TIME FINISH: _____

PERFORMANCE TIME: _____

PERFORMANCE RATING:

SAT: _____

UNSAT: _____

CANDIDATE: _____***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, THIS JOB PERFORMANCE MEASURE WILL BE SATISFIED.

SAFETY CONSIDERATIONS: None

INITIAL CONDITION: A LOCA occurred from 100% power.

The crew transitioned to EOP-18.2, RESPONSE TO VOIDS IN REACTOR VESSEL.

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 determine the maximum allowable head venting time using EOP-18.2, Attachment 2, CALCULATION OF MAXIMUM ALLOWABLE HEAD VENTING TIME.

HAND JPM BRIEFING SHEET TO OPERATOR AT THIS TIME!

STEPS

CRITICAL: No

SEQUENCED: Yes

SAT ☐

UNSAT ☐

STEP: 1

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.

CUES:

COMMENTS:

CRITICAL: Yes

SEQUENCED: Yes

SAT ☐

UNSAT ☐

STEP: 2

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 ft3) x [492°R/(RB TEMP (°F) + 460)]

RB AIR VOLUME = ft3

STEP STANDARD:

RB Air Volume is approximately 1.489E6 ft3 (1.45E6 - 1.5E6)

CUES:

COMMENTS:

CRITICAL: Yes

SEQUENCED: Yes

SAT ☐

UNSAT ☐

STEP: 3

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

MAX VENTED VOL = (3% - RB H2 CONC %) x (RB AIR VOLUME (STP)) ft3/100%

MAX VENTED VOL = ft3

STEP STANDARD:

Max Vented Volume is approximately 1.0423E4 ft3. (10150-10500)

CUES:

COMMENTS:

CRITICAL: Yes

SEQUENCED: Yes

SAT ☐

UNSAT ☐

STEP: 4

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 1050 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.

CUES:

COMMENTS:

CRITICAL: Yes

SEQUENCED: Yes

SAT ☐

UNSAT ☐

STEP: 5

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 9.9 minutes. Based on the tolerance of 900-1150 SCFM hydrogen flow rate and max hydrogen to be vented 10150-10500 ft³ , the maximum allowable venting time should be from 8.8 minutes to 11.7 minutes.

CUES:

COMMENTS:

Examiner ends JPM at this point.

JPM SETUP SHEET

JPM NO: NJPA-026A

DESCRIPTION: 2013 NRC RO A1-a: EOP-18.2 MAXIMUM ALLOWABLE HEAD VENT CALC

IC SET:

INSTRUCTIONS:

Provide the examinee the following information:

1. RB pressure on PI-950 = 0.9psig
2. RB temperature on TI-9201A = 148 degrees F
3. RB temperature on TI-9203A = 146 degrees F
4. H2 concentration on CI-8257 = 2.1%
5. H2 concentration on CI-8258 = 2.3%
6. RCS pressure on PI-402 = 310psig
7. RCS pressure on PI-403 = 320psig

COMMENTS:

Examinee must use the highest values provided for the calculation.

JPM BRIEFING SHEET

OPERATOR INSTRUCTIONS:

INITIAL CONDITION: A LOCA occurred from 100% power.

The crew transitioned to EOP-18.2, RESPONSE TO VOIDS IN REACTOR VESSEL.

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 determine the maximum allowable head venting time using EOP-18.2, Attachment 2, CALCULATION OF MAXIMUM ALLOWABLE HEAD VENTING TIME.

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

V.C. SUMMER NUCLEAR STATION JOB PERFORMANCE MEASURE

JPM NO: **NJPA-035**

2013 NRC RO A1-b: PERFORM A QPTR
CALCULATION WITH DROPPED ROD

APPROVAL:

APPROVAL DATE:

REV NO: 5

CANDIDATE: _____

EXAMINER: _____

TASK:

015-004-02-01 PERFORM A QUADRANT POWER TILT RATIO (QPTR) CALCULATIO

TASK STANDARD:

QPTR has been calculated between 1.02 and 1.05 This is due to potential rounding errors.

TERMINATING CUE: STP-108.001 completed.***PREFERRED EVALUATION LOCATION******PREFERRED EVALUATION METHOD***

CLASSROOM

PERFORM

REFERENCES:

STP-108.001

QUADRANT POWER TILT RATIO

<i>INDEX NO.</i>	<i>K/A NO.</i>		<i>RO</i>	<i>SRO</i>
015000A104	A1.04	Quadrant power tilt ratio	3.5	3.7
1940012137	2.1.37	Knowledge of procedures, guidelines, or limitations associated with reactivity management.	4.3	4.6

TOOLS:STP-108.001, QUADRANT POWER TILT RATIO
CALCULATOR
FIGURE V-3A FROM CURVE BOOK***EVALUATION TIME***

20

TIME CRITICAL

No

10CFR55: 45.a.13

TIME START: _____

TIME FINISH: _____

PERFORMANCE TIME: _____

PERFORMANCE RATING:

SAT: _____

UNSAT: _____

CANDIDATE: _____***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, THIS JOB PERFORMANCE MEASURE WILL BE SATISFIED.

SAFETY CONSIDERATIONS:

INITIAL CONDITION: The plant was operating at 100% power.
Control Bank B Rod F4 has dropped.
Control Bank D position is 230 steps.
IPCS is not available.
The following detector currents and indicated power readings exist on the power range NI's with them selected to 4000 micro-A/SLOW:

N-41	Detector A: 255	Detector B: 257	Power: 95%
N-42	Detector A: 297	Detector B: 307	Power: 96%
N-43	Detector A: 254	Detector B: 264	Power: 86%
N-44	Detector A: 341	Detector B: 315	Power: 96%

INITIATING CUES: The Shift Supervisor directs you, as the Reactor Operator, to perform a QPTR surveillance test, in accordance with STP-108.001, QUADRANT POWER TILT RATIO step 6.2.

HAND JPM BRIEFING SHEET TO OPERATOR AT THIS TIME!

STEPS

CRITICAL: No

SEQUENCED: Yes

SAT ☐

UNSAT ☐

STEP: 1

Record the expected detector current for 100% power for each excore detector using VCS Curve Book Figure V-3A.

STEP STANDARD:

Locates Figure V-3A in the VCS Curve Book. Records the detector current values for 100% power from the Figure V-3A that is provided by the examiner. (Detector A is the upper detector, Detector B is the lower detector.)

N41	Detector A: 264.52	Detector B: 275.75
N42	Detector A: 302.78	Detector B: 322.71
N43	Detector A: 288.02	Detector B: 307.82
N44	Detector A: 346.28	Detector B: 330.10

CUES:

Evaluator Note: FIGURE V-3A should be part of the JPM package for classroom performance.

COMMENTS:

CRITICAL: No

SEQUENCED: Yes

SAT ☐

UNSAT ☐

STEP: 2

Ensure that all detector range selector switches are selected to 4000 microA/SLOW.

STEP STANDARD:

Determines that data given in the initial conditions was taken at the right settings.

CUES:

Evaluator Note: The initial conditions of the JPM provide this information.

COMMENTS:

CRITICAL: No

SEQUENCED: Yes

SAT ☐

UNSAT ☐

STEP: 3

Record the actual excore detector readings from the digital meters on Attachment II.

STEP STANDARD:

Records on Attachment II of STP-108.001.

N41 Detector A: 255 Detector B: 257

N42 Detector A: 297 Detector B: 307

N43 Detector A: 254 Detector B: 264

N44 Detector A: 341 Detector B: 315

CUES:

Evaluator Note: The initial conditions of the JPM provide this information.

COMMENTS:

CRITICAL: No

SEQUENCED: Yes

SAT ☐

UNSAT ☐

STEP: 4

Record Reactor Power on Attachment II.

STEP STANDARD:

Records reactor power on Attachment II.

CUES:

Evaluator Note: A note on Attachment II states that with IPCS not available reactor power should come from the NI's. The applicant may record any number of power readings (between 86 and 100%) because the dropped rod has caused different NI readings.

COMMENTS:

CRITICAL: No

SEQUENCED: Yes

SAT ☐

UNSAT ☐

STEP: 5

Record Control Bank D rod position on Attachment II.

STEP STANDARD:

Records "230" on Attachment II.

CUES:

Evaluator Note: Control Bank D position is given as part of initial conditions

COMMENTS:

CRITICAL: Yes

SEQUENCED: Yes

SAT ☐

UNSAT ☐

STEP: 6

Divide actual readings by expected currents to get normalized readings.

STEP STANDARD:

Divides actual Detector A current by the Expected Upper Current at 100% for N41, N42, N43 and N44 and records on Attachment II.

CUES:

Examiner Note: See key for expected numbers.

COMMENTS:

CRITICAL: Yes

SEQUENCED: Yes

SAT ☐

UNSAT ☐

STEP: 7

Divide the sum of the normalized readings by the number of detectors to obtain average normalized reading.

STEP STANDARD:

Adds normalized readings for N41, N42, N43, and N44 (Detector "A"s) and records on Attachment II. Divides that value by 4 to obtain the average normalized reading and records that value on Attachment II.

CUES:

Examiner Note: See key for expected numbers.

COMMENTS:

CRITICAL: Yes

SEQUENCED: Yes

SAT ☐

UNSAT ☐

STEP: 8

Divide the highest normalized reading by the average normalized reading to obtain quadrant power tilt ratio.

STEP STANDARD:

Divides the maximum normalized reading by the average normalized reading and records on Attachment II.

CUES:

Examiner Note: See key for expected numbers.

COMMENTS:

CRITICAL: Yes

SEQUENCED: Yes

SAT ☐

UNSAT ☐

STEP: 9

Record the larger of the upper and lower quadrant power tilt ratio.

STEP STANDARD:

Record the larger of the upper and lower quadrant power tilt ratio on Attachment II.

CUES:

Examiner Note: See key for expected numbers.

COMMENTS:

CRITICAL: No

SEQUENCED: Yes

SAT ☐

UNSAT ☐

STEP: 10

Complete Attachment I and attach Attachments I and II to the STTS sheet.

STEP STANDARD:

Signs and dates Attachment II.

CUES:

Examiner Cue: Cue applicant that another operator will perform the independent verification.

COMMENTS:

Examiner ends JPM at this point.

JPM SETUP SHEET

JPM NO: NJPA-035

DESCRIPTION: 2013 NRC RO A1-b: PERFORM A QPTR CALCULATION WITH DROPPED
ROD

IC SET:

INSTRUCTIONS:

The values in this JPM will need to be verified for the NI detectors to be from the Curve book Fig. V-3A Revision dated 4/25/2013. If the Curve book contains a later revision, these values will need to be changed.

COMMENTS:

The "actual" values will need to be recalculated if the data sheet for expected value from the curve sheet get revised.

JPM BRIEFING SHEET

OPERATOR INSTRUCTIONS:

INITIAL CONDITION: The plant was operating at 100% power.
Control Bank B Rod F4 has dropped.
Control Bank D position is 230 steps.
IPCS is not available.
The following detector currents and indicated power readings exist on the power range NI's with them selected to 4000 micro-A/SLOW:

N-41	Detector A: 255	Detector B: 257	Power: 95%
N-42	Detector A: 297	Detector B: 307	Power: 96%
N-43	Detector A: 254	Detector B: 264	Power: 86%
N-44	Detector A: 341	Detector B: 315	Power: 96%

INITIATING CUES: The Shift Supervisor directs you, as the Reactor Operator, to perform a QPTR surveillance test, in accordance with STP-108.001, QUADRANT POWER TILT RATIO step 6.2.

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

V.C. SUMMER NUCLEAR STATION JOB PERFORMANCE MEASURE

JPM NO: **NJPA-209**

2013 NRC RO A2: PERFORM "A" TRAIN CONTROL
ROOM EMERGENCY AIR CLEANUP SYSTEM
OPERABILITY TEST.

APPROVAL:

APPROVAL DATE:

REV NO: 2

CANDIDATE: _____

EXAMINER: _____

TASK:

088-003-02-01

PERFORM CONTROL ROOM EMERGENCY VENT TEST

TASK STANDARD:

Performs STP and properly records stroke times in accordance with STP-124.001, CONTROL ROOM EMERGENCY AIR CLEANUP SYSTEM OPERABILITY TEST

TERMINATING CUE: Section 6.1 is complete.***PREFERRED EVALUATION LOCATION******PREFERRED EVALUATION METHOD***

SIMULATOR

PERFORM

REFERENCES:

<i>INDEX NO.</i>	<i>K/A NO.</i>		<i>RO</i>	<i>SRO</i>
1940012212	2.2.12	Knowledge of surveillance procedures.	3.7	4.1

TOOLS:

2 Stopwatches (in cal).
An additional operator to use as a timer during the test.
STP-124.001, CONTROL ROOM EMERGENCY AIR CLEANUP
SYSTEM OPERABILITY TEST

EVALUATION TIME 20 ***TIME CRITICAL*** NO ***10CFR55:*** 45.a.13

TIME START: _____ TIME FINISH: _____ PERFORMANCE TIME: _____

PERFORMANCE RATING: SAT: _____ UNSAT: _____**CANDIDATE:** _____**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, THIS JOB PERFORMANCE MEASURE WILL BE SATISFIED.

SAFETY CONSIDERATIONS: None.

INITIAL CONDITION: 100% power MOL. Monthly testing of the "A" train of control room emergency filtration system is required in accordance with STP-124.001, CONTROL ROOM EMERGENCY AIR CLEANUP SYSTEM OPERABILITY TEST. Local verification of valve position indication is not required. RM-A1 is operable and is NOT being testing in parallel using STP-360.032, CONTROL ROOM SUPPLY AIR ATMOSPHERE RADIATION MONITOR. "A" train Control Room Normal Air Handling unit is in service in accordance with SOP-505, CONTROL BUILDING VENTILATION SYSTEM.

INITIATING CUES: The CRS directs you to perform STP-124.001, CONTROL ROOM EMERGENCY AIR CLEANUP SYSTEM OPERABILITY TEST, Section 6.1 and to restore the "A" train to operation after the test. Another operator is available to measure stroke times for XVB00004A-AH, CONTROL RM OUTSIDE AIR INTAKE ISOL VLV.

HAND JPM BRIEFING SHEET TO OPERATOR AT THIS TIME!

STEPS

CRITICAL: Yes

SEQUENCED: Yes

SAT ☐

UNSAT ☐

STEP: 1

Procedure Note:

- a. Section 6.1 performs Train A Control Room Emergency Filtration System testing.
- b. Section 6.2 performs Train B Control Room Emergency Filtration System testing.
- c. Section 6.3 performs local verification of valve position indication.

Record all calibration data on Attachment IA as required.

STEP STANDARD:

Records calibration data about two stopwatches on Attachment IA.

CUES:

Evaluator Note: Due to initial cue the applicant will only perform Section 6.1 of the procedure.

COMMENTS:

CRITICAL: No

SEQUENCED: Yes

SAT ☐

UNSAT ☐

STEP: 2

Ensure that XFN-32A, SPLY FAN A, is in service.

STEP STANDARD:

Verifies red light lit, green light off for XFN-32A.

CUES:

COMMENTS:

CRITICAL: Yes

SEQUENCED: Yes

SAT ☐

UNSAT ☐

STEP: 3

Start XFN-30A, EMERG FLTR FAN A.

STEP STANDARD:

XFN-30A taken to start and held there. Verifies red light lit green light off.

CUES:

Evaluator Note: The switch has to be held in start until the dampers open and then the fan will start.

COMMENTS:

CRITICAL: No

SEQUENCED: Yes

SAT ☐

UNSAT ☐

STEP: 4

Record XFN-30A, EMERG FLTR FAN A, start time on Attachment IA.

STEP STANDARD:

Records start time on Attachment IA.

CUES:

COMMENTS:

CRITICAL: No

SEQUENCED: Yes

SAT ☐

UNSAT ☐

STEP: 5

Record the following damper positions on Attachment IA:

- 1) XDP-22A-AH.
- 2) XDP-23A-AH.
- 3) XDP-24A-AH.

STEP STANDARD:

Records the following positions on Attachment IA:

- 1) XDP-22A-AH: CLOSED
- 2) XDP-23A-AH: OPEN
- 3) XDP-24A-AH: OPEN

CUES:

COMMENTS:

CRITICAL: No

SEQUENCED: Yes

SAT ☐

UNSAT ☐

STEP: 6

Verify the outside air intake flow is less than 1000 CFM on FI-9405A, CR OA FLOW A CFM.

STEP STANDARD:

Verifies flow on FI-9405A is <1000 CFM.

CUES:

COMMENTS:

CRITICAL: No

SEQUENCED: Yes

SAT ☐

UNSAT ☐

STEP: 7

Verify a positive pressure of greater than or equal to 0.125 inch is being maintained as indicated on IPS9419-AH, CONT RM RELIEF HI/LO D/P ALARM SWITCH (CB-463).

STEP STANDARD:

Determines that positive pressure is 0.15 inches.

CUES:

Evaluator Cue: Report that IPS9419-AH, CONT RM RELIEF HI/LO D/P ALARM SWITCH (CB-463) reads 0.15 inch and stable.

Evaluator Note: This instrument is not modeled in the simulator and that is why this information is required to be cued.

COMMENTS:

CRITICAL: Yes

SEQUENCED: Yes

SAT ☐

UNSAT ☐

STEP: 8

Procedure Note: Outside air is required to be isolated if RM-A1 is inoperable. RM-A1 is inoperable if STP-360.032, Control Room Supply Air Atmosphere Radiation Monitor is being performed in parallel with this procedure.

Isolate outside air by placing the following switches to ISOL:

- 1) LOOP B ISOL TRAIN A.
- 2) LOOP B ISOL TRAIN B.
- 3) LOOP A ISOL TRAIN A.
- 4) LOOP A ISOL TRAIN B.

STEP STANDARD:

Places the following switches to ISOL:

- 1) LOOP B ISOL TRAIN A.
- 2) LOOP B ISOL TRAIN B.
- 3) LOOP A ISOL TRAIN A.
- 4) LOOP A ISOL TRAIN B.

CUES:

Evaluator Cue: Due to initial conditions RM-A1 will remain operable because STP-360.032 is not being performed in parallel.

COMMENTS:

CRITICAL: No

SEQUENCED: Yes

SAT ☐

UNSAT ☐

STEP: 9

Continue running the equipment for a minimum of 15 minutes.

STEP STANDARD:

Simulates running emergency ventilation for 15 minutes.

CUES:

Evaluator Cue: Cue applicant that 15 minutes have elapsed.

COMMENTS:

CRITICAL: Yes

SEQUENCED: Yes

SAT ☐

UNSAT ☐

STEP: 10

Procedure Note:

- 1) If STP-360.032, Control Room Supply Air Atmosphere Radiation Monitor is being performed in parallel with this procedure, ensure it has been completed satisfactorily prior to securing XFN-30A-AH, EMERG FLTR FAN A.
- 2) Stopping XFN-30A-AH, EMERG FLTR FAN A, will trip XFN-32A-AH, SPLY FAN A, and close XVB-3A-AH and XVB-4A-AH.
- 3) The stroke time testing of XVB00003A-AH and XVB00004A-AH must be performed concurrently with the stopping of XFN-30A-AH, EMERG FLTR FAN A. This will require two operators to simultaneously time closed XVB-3A-AH and XVB-4A-AH.
- 4) Placing XFN-30A, EMERG FLTR FAN A in STOP will activate annunciator window XCP-6210-LCB3 point 20-27, TRAIN A BYP.

Stop XFN-30A, EMERG FLTR FAN A, and measure the stroke time in the fail safe direction to the nearest 0.1 second, from switch actuation until the closed status light is lit and the open status light goes out for

the following dampers:

- 1) XVB-3A-AH.
- 2) XVB-4A-AH.

STEP STANDARD:

Stops XFN-30A, EMERG FLTR FAN and times closure of XVB-3A-AH.

CUES:

Evaluator Cue: Cue applicant that another operator will time XVB-4A-AH. Cue applicant after XFN-30A is stopped that XVB-4A-AH closed in 1.1 seconds.

COMMENTS:

CRITICAL: Yes

SEQUENCED: Yes

SAT ☐

UNSAT ☐

STEP: 11

Record the following on Attachment IA:

- 1) The closed stroke time for XVB00003A-AH.
- 2) The closed stroke time for XVB00004A-AH.
- 3) The stop time for XFN-30A, EMERG FLTR FAN A.

STEP STANDARD:

Records closure time for:

- 1) XVB-3A-AH ~1 seconds (Critical that <2.0 sec).
- 2) XVB-4A-AH. ~1 second (Critical that <2.0 sec).
- 3) XFN-30A, EMERG FLTR FAN A stop time.

CUES:

Evaluator Note: Because of time compression used for the 15 minute run of the ventilation system the time that is recorded here may/or may not be correct.

COMMENTS:

CRITICAL: Yes

SEQUENCED: Yes

SAT ☐

UNSAT ☐

STEP: 12

Return XFN-30A, EMERG FLTR FAN A, to AUTO.

STEP STANDARD:

XFN-30A, EMERG FLTR FAN A is in AUTO.

CUES:

Evaluator Note: It is critical that XFN-30A is returned to Auto to allow an automatic start in an accident.

COMMENTS:

CRITICAL: Yes

SEQUENCED: Yes

SAT ☐

UNSAT ☐

STEP: 13

Procedure Note: 1) Starting XFN-32A-AH, SPLY FAN A, will open XVB-3A-AH and XVB-4A-AH.
2) The stroke time testing of XVB00003A-AH and XVB00004A-AH must be performed concurrently with the starting of XFN-32A-AH, SPLY FAN A. This will require two operators to simultaneously time open XVB-3A-AH and XVB-4A-AH.

Restart XFN-32A, SPLY FAN A, and measure the stroke time to the nearest 0.1 second, from switch actuation until the open status light is lit and the closed status light goes out for the following dampers:

- 1) XVB-3A-AH.
- 2) XVB-4A-AH.

STEP STANDARD:

Starts XFN-32A, EMERG FLTR FAN and times opening of XVB-3A-AH.

CUES:

Evaluator Cue: Cue applicant that another operator will time XVB-4A-AH. Cue applicant after XFN-32A is started that XVB-4A-AH opened in 3.9 seconds.

Evaluator Note: Applicant must hold the fan in start until the dampers open and the fan starts.

COMMENTS:

CRITICAL: Yes

SEQUENCED: Yes

SAT ☐

UNSAT ☐

STEP: 14

Record the following on Attachment IA:

- 1) The open stroke time for XVB00003A-AH.
- 2) The open stroke time for XVB00004A-AH.

STEP STANDARD:

Records opening time for:

- 1) XVB-3A-AH. (critical that be between 4.3 and 10.0 seconds, malfunction is for 7 seconds).
- 2) XVB-4A-AH. (critical that is <5.8 seconds).

CUES:

Evaluator Cue: If applicant determines that open stroke time requires an immediate retest, cue applicant to continue with this test to close it out and the CRS will direct another operator to perform the retest.

COMMENTS:

CRITICAL: No

SEQUENCED: Yes

SAT ☐

UNSAT ☐

STEP: 15

Record the following damper positions on Attachment IA:

- 1) XDP-22A-AH.
- 2) XDP-23A-AH.
- 3) XDP-24A-AH.

STEP STANDARD:

Records the following positions on Attachment IA:

- 1) XDP-22A-AH: OPEN
- 2) XDP-23A-AH: CLOSED
- 3) XDP-24A-AH: CLOSED

CUES:

COMMENTS:

CRITICAL: No

SEQUENCED: Yes

SAT ☐

UNSAT ☐

STEP: 16

Verify that the TRAIN A BYP annunciator is clear for ESF VENTILATING SYSTEMS BYPASSED, and record the status on Attachment IA.

STEP STANDARD:

Records on Attachment IA that TRAIN A BYP annunciator is clear.

CUES:

COMMENTS:

CRITICAL: No

SEQUENCED: Yes

SAT ☐

UNSAT ☐

STEP: 17

Momentarily place the following CMPT, RELAY AND SAS/CPU-1,2 ventilation switches to OA:

- 1) CHANNEL A.
- 2) CHANNEL B.

STEP STANDARD:

Places the following CMPT, RELAY AND SAS/CPU-1,2 ventilation switches to OA:

- 1) CHANNEL A.
- 2) CHANNEL B.

CUES:

COMMENTS:

CRITICAL: No

SEQUENCED: Yes

SAT ☐

UNSAT ☐

STEP: 18

Momentarily place the following CONTROL ROOM VENTILATION switches to OA:

- 1) LOOP A ISOL TRAIN A.
- 2) LOOP A ISOL TRAIN B.
- 3) LOOP B ISOL TRAIN A.
- 4) LOOP B ISOL TRAIN B.

STEP STANDARD:

Places the following CONTROL ROOM VENTILATION switches to OA:

- 1) LOOP A ISOL TRAIN A.
- 2) LOOP A ISOL TRAIN B.
- 3) LOOP B ISOL TRAIN A.
- 4) LOOP B ISOL TRAIN B.

CUES:

COMMENTS:

CRITICAL: No

SEQUENCED: Yes

SAT ☐

UNSAT ☐

STEP: 19

Restore Control Room ventilation to the desired train in service per SOP-505.

STEP STANDARD:

Determines from the initial cue that it is desired to leave "A" train running and that it is already in service.

CUES:

COMMENTS:

Examiner ends JPM at this point.

JPM SETUP SHEET

JPM NO: NJPA-209

DESCRIPTION: 2013 NRC RO A2: PERFORM "A" TRAIN CONTROL ROOM EMERGENCY AIR
CLEANUP SYSTEM OPERABILITY TEST.

IC SET: 338/10

INSTRUCTIONS:

Start with IC-10.

Event #1:
X16I036S==1
VLV-AH131P Final =0% Ramp=4 sec Delete in 1 sec.

Event #2:
X16I035T==1
VLV-AH131P Final =100% Ramp=7 sec Delete in 1 sec.

Saved to IC-338 for 2013 NRC Exam.

COMMENTS:

JPM BRIEFING SHEET

OPERATOR INSTRUCTIONS:

INITIAL CONDITION: 100% power MOL. Monthly testing of the "A" train of control room emergency filtration system is required in accordance with STP-124.001, CONTROL ROOM EMERGENCY AIR CLEANUP SYSTEM OPERABILITY TEST. Local verification of valve position indication is not required. RM-A1 is operable and is NOT being testing in parallel using STP-360.032, CONTROL ROOM SUPPLY AIR ATMOSPHERE RADIATION MONITOR. "A" train Control Room Normal Air Handling unit is in service in accordance with SOP-505, CONTROL BUILDING VENTILATION SYSTEM.

INITIATING CUES: The CRS directs you to perform STP-124.001, CONTROL ROOM EMERGENCY AIR CLEANUP SYSTEM OPERABILITY TEST, Section 6.1 and to restore the "A" train to operation after the test. Another operator is available to measure stroke times for XVB00004A-AH, CONTROL RM OUTSIDE AIR INTAKE ISOL VLV.

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

V.C. SUMMER NUCLEAR STATION JOB PERFORMANCE MEASURE

JPM NO: **NJPA-066C**

2013 NRC SRO A1-a: PERFORM NIS POWER
RANGE HEAT BALANCE

APPROVAL:

APPROVAL DATE:

REV NO: 2

CANDIDATE: _____

EXAMINER: _____

TASK:

015-007-02-01 PERFORM CALORIMETRIC AND HEAT BALANCE CALCULATION

TASK STANDARD:

The applicant determines that reactor power is between 26.3% and 26.5%.

TERMINATING CUE: Reactor Power is calculated or the JPM is returned to the examiner.***PREFERRED EVALUATION LOCATION******PREFERRED EVALUATION METHOD***

CLASSROOM

PERFORM

REFERENCES:

STP-102.002

NIS POWER RANGE HEAT BALANCE

<i>INDEX NO.</i>	<i>K/A NO.</i>		<i>RO</i>	<i>SRO</i>
015000A101	A1.01	NIS calibration by heat balance	3.5	3.8
1940012145	2.1.45	Ability to identify and interpret diverse indications to validate the response of another indicator.	4.3	4.3

TOOLS:STP-102.002, NIS POWER RANGE HEAT BALANCE
Steam Tables
Station Curve Book Figure V-16.***EVALUATION TIME***

40

TIME CRITICAL

No

10CFR55: 45.a.4

TIME START: _____

TIME FINISH: _____

PERFORMANCE TIME: _____

PERFORMANCE RATING:

SAT: _____

UNSAT: _____

CANDIDATE: _____***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, THIS JOB PERFORMANCE MEASURE WILL BE SATISFIED.

SAFETY CONSIDERATIONS: NONE.

INITIAL CONDITION: The plant is being started up after an outage. The plant is at 25% power. GOP-4A, POWER OPERATION (MODE 1 - ASCENDING), requires that STP-102.002, NIS POWER RANGE HEAT BALANCE be completed. Initial conditions for performance of STP-102.002 have been met. The CALM function on IPCS is not available. Pertinent plant data has been recorded on Attachment II.

INITIATING CUES: Calculate Reactor Power in percent using STP-102.002 Attachment III, REACTOR POWER CALCULATION.

HAND JPM BRIEFING SHEET TO OPERATOR AT THIS TIME!

STEPS

CRITICAL: Yes

SEQUENCED: Yes

SAT ☐

UNSAT ☐

STEP: 1

Calculates Feedwater flow rates.

STEP STANDARD:

Calculates the following ranges for the various loops:

A Loop: 9.97E5 - 9.98E5

B Loop: 9.77E5 - 9.78E5

C Loop: 9.87E5 - 9.88E5

CUES:

Evaluator Note: K2002 is found on Figure V-16 of the station curve book to be 987.497.

COMMENTS:

CRITICAL: Yes

SEQUENCED: Yes

SAT ☐

UNSAT ☐

STEP: 2

Calculates Blowdown Flow Rates.

STEP STANDARD:

Calculates the following ranges for the various loops:

A Loop: 9200 - 9300

B Loop: 8100 - 8200

C Loop: 10000 - 10100

CUES:

Evaluator Note: K2001 is found on Figure V-16 of the station curve book to be 370.680.

COMMENTS:

CRITICAL: Yes

SEQUENCED: Yes

SAT ☐

UNSAT ☐

STEP: 3

Calculate Main Steam Flow Rates.

STEP STANDARD:

Calculates the following ranges for the various loops:

A Loop: 9.87E5 - 9.89E5

B Loop: 9.68E5 - 9.70E5

C Loop: 9.76E5 - 9.78E5

CUES:

COMMENTS:

CRITICAL: No

SEQUENCED: Yes

SAT ☐

UNSAT ☐

STEP: 4

Calculate Average Steam Pressures.

STEP STANDARD:

Calculates the following ranges for the various loops:

A Loop: 1058 - 1059

B Loop: 1057 - 1058

C Loop: 1055 - 1056

CUES:

COMMENTS:

CRITICAL: No

SEQUENCED: Yes

SAT ☐

UNSAT ☐

STEP: 5

Convert Steam Pressures to PSIA.

STEP STANDARD:

Calculates the following ranges for the various loops:

A Loop: 1075 - 1077

B Loop: 1074 - 1076

C Loop: 1072 - 1074

CUES:

Evaluator Note: K2040 is found on Figure V-16 of the station curve book to be 2.470.

Evaluator Note: K2057 is found on Figure V-16 of the station curve book to be 2.700.

Evaluator Note: K2000 is found on Figure V-16 of the station curve book to be 2.270.

COMMENTS:

CRITICAL: Yes

SEQUENCED: Yes

SAT ☐

UNSAT ☐

STEP: 6

Determine Enthalpies of Saturated Steam.

STEP STANDARD:

Calculates the following ranges for the various loops:

A Loop: 1189 - 1191

B Loop: 1189 - 1191

C Loop: 1189 - 1191

CUES:

COMMENTS:

CRITICAL: Yes

SEQUENCED: Yes

SAT ☐

UNSAT ☐

STEP: 7

Determines enthalpies of Feedwater.

STEP STANDARD:

Calculates the following ranges for the various loops:

A Loop: 290 - 295

B Loop: 290 - 295

C Loop: 290 - 295

CUES:

COMMENTS:

CRITICAL: Yes

SEQUENCED: Yes

SAT ☐

UNSAT ☐

STEP: 8

Determines Steam Generators Enthalpy Rise.

STEP STANDARD:

Calculates the following ranges for the various loops:

A Loop: 899 - 901

B Loop: 899 - 901

C Loop: 899 - 901

CUES:

COMMENTS:

CRITICAL: No

SEQUENCED: Yes

SAT ☐

UNSAT ☐

STEP: 9

Determine Blowdown Heat Loss

STEP STANDARD:

Calculates the following items:

Total Blowdown Flow Rate: 74

Average Feedwater Enthalpy: 290 - 295

Blowdown Heat Loss: $5.4E-3$ - $5.6E-3$

CUES:

Evaluator Note: The blowdown heat loss is so small that it is not critical to it.

Evaluator Note: K2025 is found on Figure V-16 of the station curve book to be 544.670.

COMMENTS:

CRITICAL: Yes

SEQUENCED: Yes

SAT ☐

UNSAT ☐

STEP: 10

Calculates Steam Generator Powers.

STEP STANDARD:

Calculates the following ranges for the various loops:

A Loop: 260 - 261.2

B Loop: 255 - 256.2

C Loop: 257 - 258.3

CUES:

COMMENTS:

CRITICAL: Yes

SEQUENCED: Yes

SAT ☐

UNSAT ☐

STEP: 11

Calculate Reactor Power.

STEP STANDARD:

Reactor power is calculated to be: 26.3 - 26.5%

CUES:

Evaluator Note: K2010 is found on Figure V-16 of the station curve book to be 3.189.

Evaluator Note: K2011 is found on Figure V-16 of the station curve book to be 0.027.

Evaluator Note: K2008 is found on Figure V-16 of the station curve book to be 14.757.

Evaluator Note: K2009 is found on Figure V-16 of the station curve book to be 0.477.

COMMENTS:

Examiner ends JPM at this point.

JPM SETUP SHEET

JPM NO: NJPA-066C

DESCRIPTION: 2013 NRC SRO A1-a: PERFORM NIS POWER RANGE HEAT BALANCE

IC SET:

INSTRUCTIONS:

COMMENTS:

JPM BRIEFING SHEET

OPERATOR INSTRUCTIONS:

INITIAL CONDITION: The plant is being started up after an outage. The plant is at 25% power. GOP-4A, POWER OPERATION (MODE 1 - ASCENDING), requires that STP-102.002, NIS POWER RANGE HEAT BALANCE be completed. Initial conditions for performance of STP-102.002 have been met. The CALM function on IPCS is not available. Pertinent plant data has been recorded on Attachment II.

INITIATING CUES: Calculate Reactor Power in percent using STP-102.002 Attachment III, REACTOR POWER CALCULATION.

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

V.C. SUMMER NUCLEAR STATION JOB PERFORMANCE MEASURE

JPM NO: **NJPA-035A**

2013 NRC SRO A1-b: PERFORM A QPTR
CALCULATION WITH DROPPED ROD

APPROVAL:

APPROVAL DATE:

REV NO: 5

CANDIDATE: _____

EXAMINER: _____

TASK:

015-004-02-01 PERFORM A QUADRANT POWER TILT RATIO (QPTR) CALCULATIO

TASK STANDARD:

QPTR has been calculated between 1.02 and 1.05 This is due to potential rounding errors.

TERMINATING CUE: STP-108.001 completed.***PREFERRED EVALUATION LOCATION******PREFERRED EVALUATION METHOD***

CLASSROOM

PERFORM

REFERENCES:

STP-108.001

QUADRANT POWER TILT RATIO

<i>INDEX NO.</i>	<i>K/A NO.</i>		<i>RO</i>	<i>SRO</i>
015000A104	A1.04	Quadrant power tilt ratio	3.5	3.7
1940012137	2.1.37	Knowledge of procedures, guidelines, or limitations associated with reactivity management.	4.3	4.6

TOOLS:STP-108.001, QUADRANT POWER TILT RATIO
CALCULATOR
FIGURE V-3A FROM CURVE BOOK
Technical Specifications***EVALUATION TIME***

20

TIME CRITICAL

No

10CFR55: 45.a.13

TIME START: _____

TIME FINISH: _____

PERFORMANCE TIME: _____

PERFORMANCE RATING:

SAT: _____

UNSAT: _____

CANDIDATE:

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, THIS JOB PERFORMANCE MEASURE WILL BE SATISFIED.

SAFETY CONSIDERATIONS:

INITIAL CONDITION: The plant was operating at 100% power.
Control Bank B Rod F4 has dropped.
Control Bank D position is 230 steps.
IPCS is not available.
The following detector currents and indicated power readings exist on the power range NI's with them selected to 4000 micro-A/SLOW:

N-41	Detector A: 255	Detector B: 257	Power: 95%
N-42	Detector A: 297	Detector B: 307	Power: 96%
N-43	Detector A: 254	Detector B: 264	Power: 86%
N-44	Detector A: 341	Detector B: 315	Power: 96%

INITIATING CUES: Perform a QPTR surveillance test, in accordance with STP-108.001, QUADRANT POWER TILT RATIO step 6.2 and determine if acceptance criteria are met.

HAND JPM BRIEFING SHEET TO OPERATOR AT THIS TIME!

STEPS

CRITICAL: No

SEQUENCED: Yes

SAT ☐

UNSAT ☐

STEP: 1

Record the expected detector current for 100% power for each excore detector using VCS Curve Book Figure V-3A.

STEP STANDARD:

Locates Figure V-3A in the VCS Curve Book. Records the detector current values for 100% power from the Figure V-3A that is provided by the examiner. (Detector A is the upper detector, Detector B is the lower detector.)

N41	Detector A: 264.52	Detector B: 275.75
N42	Detector A: 302.78	Detector B: 322.71
N43	Detector A: 288.02	Detector B: 307.82
N44	Detector A: 346.28	Detector B: 330.10

CUES:

Evaluator Note: FIGURE V-3A should be part of the JPM package for classroom performance.

COMMENTS:

CRITICAL: No

SEQUENCED: Yes

SAT ☐

UNSAT ☐

STEP: 2

Ensure that all detector range selector switches are selected to 4000 microA/SLOW.

STEP STANDARD:

Determines that data given in the initial conditions was taken at the right settings.

CUES:

Evaluator Note: The initial conditions of the JPM provide this information.

COMMENTS:

CRITICAL: No

SEQUENCED: Yes

SAT ☐

UNSAT ☐

STEP: 3

Record the actual excore detector readings from the digital meters on Attachment II.

STEP STANDARD:

Records on Attachment II of STP-108.001.

N41 Detector A: 255 Detector B: 257

N42 Detector A: 297 Detector B: 307

N43 Detector A: 254 Detector B: 264

N44 Detector A: 341 Detector B: 315

CUES:

Evaluator Note: The initial conditions of the JPM provide this information.

COMMENTS:

CRITICAL: No

SEQUENCED: Yes

SAT ☐

UNSAT ☐

STEP: 4

Record Reactor Power on Attachment II.

STEP STANDARD:

Records reactor power on Attachment II.

CUES:

Evaluator Note: A note on Attachment II states that with IPCS not available reactor power should come from the NI's. The applicant may record any number of power readings (between 86 and 100%) because the dropped rod has caused different NI readings.

COMMENTS:

CRITICAL: No

SEQUENCED: Yes

SAT ☐

UNSAT ☐

STEP: 5

Record Control Bank D rod position on Attachment II.

STEP STANDARD:

Records "230" on Attachment II.

CUES:

Evaluator Note: Control Bank D position is given as part of initial conditions

COMMENTS:

CRITICAL: Yes

SEQUENCED: Yes

SAT ☐

UNSAT ☐

STEP: 6

Divide actual readings by expected currents to get normalized readings.

STEP STANDARD:

Divides actual Detector A current by the Expected Upper Current at 100% for N41, N42, N43 and N44 and records on Attachment II.

CUES:

Examiner Note: See key for expected numbers.

COMMENTS:

CRITICAL: Yes

SEQUENCED: Yes

SAT ☐

UNSAT ☐

STEP: 7

Divide the sum of the normalized readings by the number of detectors to obtain average normalized reading.

STEP STANDARD:

Adds normalized readings for N41, N42, N43, and N44 (Detector "A"s) and records on Attachment II. Divides that value by 4 to obtain the average normalized reading and records that value on Attachment II.

CUES:

Examiner Note: See key for expected numbers.

COMMENTS:

CRITICAL: Yes

SEQUENCED: Yes

SAT ☐

UNSAT ☐

STEP: 8

Divide the highest normalized reading by the average normalized reading to obtain quadrant power tilt ratio.

STEP STANDARD:

Divides the maximum normalized reading by the average normalized reading and records on Attachment II.

CUES:

Examiner Note: See key for expected numbers.

COMMENTS:

CRITICAL: Yes

SEQUENCED: Yes

SAT ☐

UNSAT ☐

STEP: 9

Record the larger of the upper and lower quadrant power tilt ratio.

STEP STANDARD:

Record the larger of the upper and lower quadrant power tilt ratio on Attachment II.

CUES:

Examiner Note: See key for expected numbers.

COMMENTS:

CRITICAL: No

SEQUENCED: Yes

SAT ☐

UNSAT ☐

STEP: 10

Complete Attachment I and attach Attachments I and II to the STTS sheet.

STEP STANDARD:

Signs and dates Attachment II.

CUES:

Examiner Cue: Cue applicant that another operator will perform the independent verification.

COMMENTS:

CRITICAL: Yes

SEQUENCED: Yes

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STEP: 11

Determines if the ACCEPTANCE CRITERIA is met.

STEP STANDARD:

Determines that QPTR exceeds 1.02 and so acceptance criteria are not met. Does NOT initial Section 8.0 of Attachment I. Determines that action a of TS 3.2.4 applies.

a. With the QUADRANT POWER TILT RATIO determined to exceed 1.02 but less than or equal to 1.09:

1. Calculate the QUADRANT POWER TILT RATIO at least once per hour until either:

- a) The QUADRANT POWER TILT RATIO is reduced to within its limit, or
- b) THERMAL POWER Is reduced to less than 50% of RATED THERMAL POWER.

2. Within 2 hours either:

- a) Reduce the QUADRANT POWER TILT RATIO to within its limit, or
- b) Reduce THERMAL POWER at least 3% from RATED THERMAL POWER for each 1% of Indicated QUADRANT POWER TILT RATIO in excess of 1.0 and similarly reduce the Power Range Neutron Flux-High Trip Setpoints within the next 4 hours.

3. Verify that the QUADRANT POWER TILT RATIO is within its limit within 24 hours after exceeding the limit or reduce THERMAL POWER to less than 50% of RATED THERMAL POWER within the next 2 hours and reduce the Power Range Neutron Flux-High Trip setpoints to less than or equal to 55% of RATED THERMAL POWER within the next 4 hours.

4. Identify and correct the cause of the out of limit condition prior to increasing THERMAL POWER; subsequent POWER OPERATION above 50% of RATED THERMAL power may proceed provided that the QUADRANT POWER TILT RATIO is verified within its limit at least once per hour for 12 hours or until verified acceptable at 95% or greater RATED THERMAL POWER.

CUES:

Evaluator Cue: If necessary, prompt the applicant to state if the QPTR is acceptable and if not the required action.

COMMENTS:

Examiner ends JPM at this point.

JPM SETUP SHEET

JPM NO: NJPA-035A

DESCRIPTION: 2013 NRC SRO A1-b: PERFORM A QPTR CALCULATION WITH DROPPED
ROD

IC SET:

INSTRUCTIONS:

The values in this JPM will need to be verified for the NI detectors to be from the Curve book Fig. V-3A Revision dated 4/25/2013. If the Curve book contains a later revision, these values will need to be changed.

COMMENTS:

The "actual" values will need to be recalculated if the data sheet for expected value from the curve sheet get revised.

JPM BRIEFING SHEET

OPERATOR INSTRUCTIONS:

INITIAL CONDITION: The plant was operating at 100% power.
Control Bank B Rod F4 has dropped.
Control Bank D position is 230 steps.
IPCS is not available.
The following detector currents and indicated power readings exist on the power range NI's with them selected to 4000 micro-A/SLOW:

N-41	Detector A: 255	Detector B: 257	Power: 95%
N-42	Detector A: 297	Detector B: 307	Power: 96%
N-43	Detector A: 254	Detector B: 264	Power: 86%
N-44	Detector A: 341	Detector B: 315	Power: 96%

INITIATING CUES: Perform a QPTR surveillance test, in accordance with STP-108.001, QUADRANT POWER TILT RATIO step 6.2 and determine if acceptance criteria are met.

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

V.C. SUMMER NUCLEAR STATION JOB PERFORMANCE MEASURE

JPM NO: **NJPA-209A**

2013 NRC SRO A2: REVIEW "A" TRAIN CONTROL
ROOM EMERGENCY AIR CLEANUP SYSTEM
OPERABILITY TEST.

APPROVAL:

APPROVAL DATE:

REV NO: 2

CANDIDATE: _____

EXAMINER: _____

TASK:

088-003-02-01

PERFORM CONTROL ROOM EMERGENCY VENT TEST

TASK STANDARD:

Determines 4 of the 5 following errors/inoperabilities:

- 1) XFN-30 was not run for 15 min.
- 2) XDP-23A-AH did not reposition to CLOSED as desired at the end of the test.
- 3) TRAIN A BYP annunciator status was not clear at the end of the test.
- 4) XVB00003A-AH took too long to close.
- 5) XVB00003A-AH took too long to open.

TERMINATING CUE: Errors/inoperabilites are discovered or the applicant turns in the JPM.***PREFERRED EVALUATION LOCATION***

CLASSROOM

PREFERRED EVALUATION METHOD

PERFORM

REFERENCES:

<i>INDEX NO.</i>	<i>K/A NO.</i>		<i>RO</i>	<i>SRO</i>
1940012212	2.2.12	Knowledge of surveillance procedures.	3.7	4.1

TOOLS:STP-124.001, CONTROL ROOM EMERGENCY AIR CLEANUP
SYSTEM OPERABILITY TEST
GTP-302, INSERVICE TESTING OF VALVES THIRD TEN YEAR
INTERVAL***EVALUATION TIME*** 15 ***TIME CRITICAL*** NO ***10CFR55:*** 45.a.13

TIME START: _____ TIME FINISH: _____ PERFORMANCE TIME: _____

PERFORMANCE RATING:

SAT: _____ UNSAT: _____

CANDIDATE: _____**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, THIS JOB PERFORMANCE MEASURE WILL BE SATISFIED.

SAFETY CONSIDERATIONS: None.

INITIAL CONDITION: 100% power MOL. Monthly testing of the "A" train of control room emergency filtration system was required. RM-A1 remained operable and was not being testing in parallel. The crew performed STP-124.001, CONTROL ROOM EMERGENCY AIR CLEANUP SYSTEM OPERABILITY TEST, Section 6.1 and restored the "A" train to operation after the test.

INITIATING CUES: The SS directs you to review the STP-124.001, CONTROL ROOM EMERGENCY AIR CLEANUP SYSTEM OPERABILITY TEST, and to determine if the acceptance criteria have been met.

HAND JPM BRIEFING SHEET TO OPERATOR AT THIS TIME!

STEPS

CRITICAL: Yes

SEQUENCED: Yes

SAT

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UNSAT

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STEP: 1

Determines that XFN-30 was not run for 15 min.

STEP STANDARD:

Determines that XFN-30 was not run for 15 min.

CUES:

COMMENTS:

CRITICAL: Yes

SEQUENCED: Yes

SAT

☐

UNSAT

☐

STEP: 2

Determines that XDP-23A-AH did not reposition to CLOSED as desired at the end of the test.

STEP STANDARD:

Determines that XDP-23A-AH did not reposition to CLOSED as desired at the end of the test.

CUES:

COMMENTS:

CRITICAL: Yes

SEQUENCED: Yes

SAT ☐

UNSAT ☐

STEP: 3

Determines that TRAIN A BYP annunciator status was not clear at the end of the test.

STEP STANDARD:

Determines that TRAIN A BYP annunciator status was not clear at the end of the test.

CUES:

COMMENTS:

CRITICAL: Yes

SEQUENCED: Yes

SAT ☐

UNSAT ☐

STEP: 4

Determines that XVB00003A-AH took too long to close and to open.

STEP STANDARD:

Determines that XVB00003A-AH took too long to close and to open.

CUES:

Evaluator Cue: If applicant asks for a retest in the open direction, cue the applicant that the retest will be handled by another operator and to continue to investigate the current test.

COMMENTS:

Examiner ends JPM at this point.

JPM SETUP SHEET

JPM NO: NJPA-209A

DESCRIPTION: 2013 NRC SRO A2: REVIEW "A" TRAIN CONTROL ROOM EMERGENCY AIR
CLEANUP SYSTEM OPERABILITY TEST.

IC SET:

INSTRUCTIONS:

COMMENTS:

JPM BRIEFING SHEET

OPERATOR INSTRUCTIONS:

INITIAL CONDITION: 100% power MOL. Monthly testing of the "A" train of control room emergency filtration system was required. RM-A1 remained operable and was not being testing in parallel. The crew performed STP-124.001, CONTROL ROOM EMERGENCY AIR CLEANUP SYSTEM OPERABILITY TEST, Section 6.1 and restored the "A" train to operation after the test.

INITIATING CUES: The SS directs you to review the STP-124.001, CONTROL ROOM EMERGENCY AIR CLEANUP SYSTEM OPERABILITY TEST, and to determine if the acceptance criteria have been met.

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

V.C. SUMMER NUCLEAR STATION JOB PERFORMANCE MEASURE

JPM NO: **NJPA-805**

2013 NRC SRO A4: CLASSIFY EMERGENCY
(CLASSROOM - ALERT - LOSS OF AC) (ENF)

APPROVAL:

APPROVAL DATE:

REV NO: 5

CANDIDATE: _____

EXAMINER: _____

TIME CRITICAL JPM

TASK:

344-019-03-02

CLASSIFY EMERGENCY EVENTS REQUIRING EMERGENCY PLAN
IMPLEMENTATION***TASK STANDARD:***

Emergency classification evaluated as an ALERT based on AC power capability to 7.2 KV ESF buses 1DA and 1 DB reduced to a single power source for more than 15 minutes. This is a time critical JPM and the declaration must be made within 15 minutes, and successful completion of EPP-002, Communication and Notification, Attachment I, Nuclear Power Plant Notification Form, must be made within 15 minutes after the emergency declaration.

TERMINATING CUE: Successful completion of the EPP-002, Communication and Notification, Attachment I, Nuclear Power Plant Notification Form.

PREFERRED EVALUATION LOCATION***PREFERRED EVALUATION METHOD***

CLASSROOM

PERFORM

REFERENCES:

EPP-002

COMMUNICATION AND NOTIFICATION

EPP-001

ACTIVATION AND IMPLEMENTATION OF THE
EMERGENCY PLAN

<i>INDEX NO.</i>	<i>K/A NO.</i>		<i>RO</i>	<i>SRO</i>
0000562429	2.4.29	Knowledge of the emergency plan.	3.1	4.4
0000562441	2.4.41	Knowledge of the emergency action level thresholds and classifications.	2.9	4.6

TOOLS:EPP-002, Communication and Notification, Attachment I, Nuclear
Power Plant Notification Form.***EVALUATION TIME***

30

TIME CRITICAL

YES

10CFR55:

45.a.11

TIME START: _____

TIME FINISH: _____

PERFORMANCE TIME: _____

PERFORMANCE RATING:

SAT: _____

UNSAT: _____

CANDIDATE: _____***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, THIS JOB PERFORMANCE MEASURE WILL BE SATISFIED.

SAFETY CONSIDERATIONS:

INITIAL CONDITION: THIS IS A DRILL.

0600:

The plant was operating at 100%.

DG "A" is tagged out for bearing repair (Day 1 of 2 Day repair).

Parr Hydro Plant 13.8 KV power is temporarily supplying ESF Bus 1DA.

0605:

Electrical Grid problems resulted in a 100% loss of load.

115 KV power to XTF-4 and XTF-5 is lost.

230 KV power to XTF-31 is lost.

The turbine has tripped.

All RCPs tripped.

The Reactor tripped

Reactor Power is < 2% with a negative SUR.

DG "B" has started and is supplying ESF Bus 1DB.

It is currently 0615:

DG "B" just tripped on overspeed.

Met Data - Wind Direction is from 290 degrees

Met Data - Wind Speed is 15 mph

Met Data - Wind Stability is Class B

Met Data - Raining - 0.25 inches accumulation.

THIS IS A DRILL.

INITIATING CUES: 1. Classify the plant event and write down your declaration on this sheet. Notify an examiner when this is done. You will be provided a package from the examiner at that time.

2. Complete a NUCLEAR POWER PLANT EMERGENCY NOTIFICATION FORM (ENF) for the plant event.

THIS IS A TIME CRITICAL JPM!

HAND JPM BRIEFING SHEET TO OPERATOR AT THIS TIME!

STEPS

CRITICAL: Yes

SEQUENCED: Yes

SAT ☐

UNSAT ☐

STEP: 1

Evaluates plant conditions and classifies per EPP-001.

STEP STANDARD:

Classifies event as an ALERT based on:

1. AC power capability to 7.2 KV ESF buses 1DA and 1 DB reduced to a single power source for more than 15 minutes AND,
2. Any additional single power source failure will result in loss of all AC power to both 7.2 KV ESF buses.

Initiating Condition - SA1.1

Detection Method:

1. Single power source to 1 DA AND,
2. Single power source to 1 DB AND,
3. No backup power source available to 1DA or 1 DB for > 15 minutes

CUES:

Evaluator Note: The applicant has 15 min from the end of the Plant Conditions brief, to event classification. If student does not explain basis for the classification, the evaluator must ask him to describe the basis. If the basis is not justified, this constitutes failure, even if the classification is correct, and within time.

Evaluator Note: After the declaration hand the applicant the necessary paperwork to complete the ENF.

COMMENTS:

CRITICAL: Yes

SEQUENCED: Yes

SAT ☐

UNSAT ☐

STEP: 2

Completes Notification Form from EPP-002, Attachment I

STEP STANDARD:

Successfully completes the Nuclear Power Plant Notification Form, EPP-002, Communication and Notification, Attachment I.

CUES:

Evaluator Note: The student has 15 min from the time of the declaration to complete attachment I from EPP-002.

COMMENTS:

Examiner ends JPM at this point.

JPM SETUP SHEET

JPM NO: NJPA-805

DESCRIPTION: 2013 NRC SRO A4: CLASSIFY EMERGENCY (CLASSROOM - ALERT - LOSS OF AC) (ENF)

IC SET:

INSTRUCTIONS:

The following items, as indicated on the Emergency Notification Form (ENF), are considered as "Critical Items":

- 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 Emergency Declaration
- Whether the event is a Drill or Actual Event

COMMENTS:

ASSOCIATED DOCUMENTS:

N:\Databases\JPM\JPA-805_ENF.docx

JPM BRIEFING SHEET

OPERATOR INSTRUCTIONS:

INITIAL CONDITION: THIS IS A DRILL.

0600:

The plant was operating at 100%.

DG "A" is tagged out for bearing repair (Day 1 of 2 Day repair).

Parr Hydro Plant 13.8 KV power is temporarily supplying ESF Bus 1DA.

0605:

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