

**CATAWBA 2008
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE**

DRAFT

JPM 1R ADMIN

Determine NCP Start Requirements

CANDIDATE

EXAMINER

**CATAWBA
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE**

Task Using Data Book Figure 9 (Permissible Successive Attempts to Start Motors)
determine the allowed starting time for NCP.

Alternate Path ☐ YES ☐ NO ☒ N/A **Time Critical** ☐ YES ☒ NO

Evaluation Location ☐ Simulator ☐ In-Plant ☒ Classroom **Safety Function** _____ ☒ N/A

Evaluation Method ☒ Perform ☐ Simulate **Validation Time** 10 minutes

JPM Type ☐ Bank ☒ New ☐ Modified

K/A 2.1.32 Ability to explain and apply all system limits and precautions (3.4/3.8)

Standard Determines 1B NCP can be started first at 1742.

References OP/1/A/6150/001 (Filling and Venting the Reactor Coolant System) rev 099
OP/1/A/6150/002A (Reactor Coolant Pump Operation) rev 058
Unit 1 Data book Figure 9 (Permissible Successive Attempts to Start Motors) rev 001

Candidate _____

Start Time _____ **End Time** _____ **Duration** _____

Performance Rating ☐ Satisfactory ☐ Unsatisfactory

Examiner _____
(Printed Name) (Signature) (Date)

Comments

READ TO OPERATOR

DIRECTION TO TRAINEE:

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

INITIAL CONDITIONS:

NC system venting is in progress per OP/1/A/6150/001 (Filling and Venting the Reactor Coolant System) Enclosure 4.3 (Reactor Coolant System Venting). At 1725 the crew reaches a step in Enclosure 4.3 which requires the start of either NCP 1A or NCP 1B. The OAC is not available.

INITIATING CUE:

Given the run history for these pumps today:

<u>Pump</u>	<u>Start Time</u>	<u>Shutdown Time</u>	<u>Run Time</u>
NCP 1A	1456	1456	20 seconds
NCP 1A	1535	1536	1 minute
NCP 1A	1650	1659	9 minutes
NCP 1B	1502	1502	20 seconds
NCP 1B	1602	1603	1 minute
NCP 1B	1704	1712	8 minutes

State which pump can be started the earliest and at what time it can be started?

START TIME: _____

1	<p>Determines the number of starts for each of the NCPs in the previous 2 hours.</p> <p><u>STANDARD</u></p> <p>Determines that 1A NCP has been started 3 times and 1B NCP 2 times.</p> <p><u>COMMENTS</u></p>	<p>CRITICAL STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>
2	<p>Determines how much idle time is required prior to each pumps restart.</p> <p><u>STANDARD</u></p> <p>1A must have 1 hour idle time following shutdown. 1B must have 30 minute idle time following shutdown.</p> <p><u>COMMENTS</u></p>	<p>CRITICAL STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>
3	<p>Calculates earliest start time for each pump.</p> <p><u>STANDARD</u></p> <p>1A NCP stopped at 1659 + 60 minutes = 1759 1B NCP stopped at 1712 + 30 minutes = 1742</p> <p><u>1B NCP can be started first at 1742.</u></p> <p><u>COMMENTS</u></p>	<p>CRITICAL STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>

TIME STOP: _____

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

INITIAL CONDITIONS:

NC system venting is in progress per OP/1/A/6150/001 (Filling and Venting the Reactor Coolant System) Enclosure 4.3 (Reactor Coolant System Venting). At 1725 the crew reaches a step in Enclosure 4.3 which requires the start of either NCP 1A or NCP 1B. The OAC is not available.

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NCP 1A	1535	1536	1 minute
NCP 1A	1650	1659	9 minutes
NCP 1B	1502	1502	20 seconds
NCP 1B	1602	1603	1 minute
NCP 1B	1704	1712	8 minutes

State which pump can be started the earliest and at what time it can be started?

**CATAWBA 2008
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE**

DRAFT

JPM 1S ADMIN

Determine Work Hours Extension Requirements

CANDIDATE

EXAMINER

**CATAWBA
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE**

Task Determine if a work hours extension is required and if so, which limits are exceeded.

Alternate Path ☐ YES ☐ NO ☒ N/A **Time Critical** ☐ YES ☒ NO

Evaluation Location ☐ Simulator ☐ In-Plant ☒ Classroom **Safety Function** _____ ☒ N/A

Evaluation Method ☒ Perform ☐ Simulate **Validation Time** 30 minutes

JPM Type ☐ Bank ☐ New ☒ Modified CNS 2005 NRC Exam

K/A 2.1.5 Ability to use procedures related to shift staffing, such as minimum crew complement, overtime limitations, etc. (2.9*/3.9)

Standard Determines that Jerry and Chad will require a "C" extension and Jerry will also require a 'D' extension. (Stating the verbal description of the limit instead of the corresponding letter is acceptable)

References NSD-200, Overtime Control Rev 9

Candidate _____

Start Time _____ **End Time** _____ **Duration** _____

Performance Rating ☐ Satisfactory ☐ Unsatisfactory

Examiner _____
(Printed Name) (Signature) (Date)

Comments

READ TO OPERATOR

DIRECTION TO TRAINEE:

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INITIAL CONDITIONS:

Given the following work history:

- Tom and Chad were on vacation Monday through Wednesday.
- Jerry worked the previous 3 days in a day-staff position with a total of 32 hours with no turnover hours.
- Hursel was off Monday and worked overtime Tuesday and Wednesday with a total of 26 hours including a total of 2 hours of turnover time.

Operator	Arrives	Finishes T/O	Starts T/O	Leaves
Thursday				
Jerry	0615	0630	1845	1900
Tom	0630	0700	1830	1845
Chad	0645	0700	1845	1915
Hursel	0630	0645	1815	1830
Friday				
Jerry	0645	0715	1800	1815
Tom	0615	0630	1845	1900
Chad	0600	0615	1600	1615
Hursel	0645	0700	1915	1930
Saturday				
Jerry	0400	0415	1715	1730
Tom	0715	0730	1845	1905
Chad	0515	0530	1915	1930
Hursel	0645	0700	1845	1900
Sunday				
Jerry	0630	0645	1830	1845
Tom	0630	0645	1830	1845
Chad	0630	0645	1830	1845
Hursel	0630	0645	1830	1845

INITIATING CUE:

It is 0800 Sunday morning, and you are the dayshift shift CRS. The OSM has asked you to determine if based on recent work history and the projected work schedule (indicated in grey), any operator(s) on this shift will require a work hours extension and if so, which limits the operator(s) have exceeded.

Assume:

- any required work extensions for days prior to today have already been completed by another SRO.
- The projected work schedule becomes the actual schedule worked.

START TIME: _____

1

Determine if the operators meet any of the following limits:

- a. > 16 hours straight (excluding shift turnover time)
- b. > 16 hours in any 24-hour period (excluding shift turnover time)
- c. > 24 hours (28 hours for MNS and ONS) in any 48-hour period (excluding shift turnover time)
- d. > 72 hours in any 7-day period (excluding shift turnover time)
- e. < 8-hour break between scheduled work periods (including shift turnover time)

STANDARD

Determines that Jerry and Chad will require a "C" extension and Jerry will also require a 'D' extension.

Operator	Arrives	Done T/O	Starts T/O	Leaves	T/D	Limit 24 after next shift	T/W	Limit 72 after next shift
THUR								
Jerry	0615	0630	1845	1900	12.25			
Tom	0630	0700	1830	1845	11.5			
Chad	0645	0700	1845	1915	11.75			
Hursel	0630	0645	1815	1830	11.5			
FRI								
Jerry	0645	0715	1800	1815	10.75			
Tom	0615	0630	1845	1900	12.25			
Chad	0600	0615	1600	1615	9.75			
Hursel	0645	0700	1915	1930	12.25			
SAT								
Jerry	0400	0415	1715	1730	13	23.5	68.00	79.25
Tom	0715	0730	1845	1905	11.25	23	35	46.75
Chad	0515	0530	1915	1930	13.75	23.5	35.25	47
Hursel	0645	0700	1845	1900	11.75	23.5	59.5	71.25

EXAMINER NOTE: Student may state the actual verbiage of the limit instead of the corresponding letter. This should be considered acceptable.

COMMENTS

CRITICAL STEP

_____ SAT

_____ UNSAT

TIME STOP: _____

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

INITIAL CONDITIONS:

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Hursel	0630	0645	1815	1830
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Jerry	0645	0715	1800	1815
Tom	0615	0630	1845	1900
Chad	0600	0615	1600	1615
Hursel	0645	0700	1915	1930
Saturday				
Jerry	0400	0415	1715	1730
Tom	0715	0730	1845	1905
Chad	0515	0530	1915	1930
Hursel	0645	0700	1845	1900
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Tom	0630	0645	1830	1845
Chad	0630	0645	1830	1845
Hursel	0630	0645	1830	1845

INITIATING CUE:

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Assume:

- any required work extensions for days prior to today have already been completed by another SRO.
- The projected work schedule becomes the actual schedule worked.

**CATAWBA 2008
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE**

DRAFT

JPM 2R2S ADMIN

**Perform a Manual Shutdown Margin Calculation
(Unit at Power)**

CANDIDATE

EXAMINER

**CATAWBA
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE**

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

Alternate Path ☐ YES ☐ NO ☒ N/A **Time Critical** ☐ YES ☒ NO

Evaluation Location ☐ Simulator ☐ In-Plant ☒ Classroom **Safety Function** _____ ☒ N/A

Evaluation Method ☒ Perform ☐ Simulate **Validation Time** 25 minutes

JPM Type ☐ Bank ☐ New ☒ Modified OP-CN-RT-RB-121

K/A 2.1.25 Ability to obtain and interpret station reference materials such as graphs, monographs, and tables which contain performance data (CFR: 41.10 / 43.5 / 45.12) 2.8/3.1

Standard Candidate determines that required shutdown margin is 1300 pcm and current shutdown margin is 1128 pcm, therefore, adequate shutdown margin does not exist per the Unit 1 Core Operating Limits Report

References OP/0/A/6100/006 (Reactivity Balance Calculation), Rev. 73
Unit 1 Reactor Operating Data Book (R.O.D.)

VERIFY ROD BOOK VALUES MATCH JPM PRIOR TO ADMINISTRATION

Candidate _____

Start Time _____ **End Time** _____ **Duration** _____

Performance Rating ☐ Satisfactory ☐ Unsatisfactory

Examiner _____
(Printed Name) (Signature) (Date)

Comments

READ TO OPERATOR

DIRECTION TO TRAINEE:

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

INITIAL CONDITIONS:

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

Current plant conditions are as follows:

- Power level = 80%
- Boron Concentration: 959 ppm
- Core burnup: 200 EFPD
- Shutdown rod bank position: 226 steps
- Control rod bank A: 226 steps
- Control rod bank B: 226 steps
- Control rod bank C: 226 steps
- Control rod bank D: 200 steps

INITIATING CUE:

You have just been informed by the Control Room SRO that the following rods are untrippable:

- G-13
- K-2
- P-4

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

START TIME: _____

1	<p>Candidate obtains a copy of OP/0/A/6100/006 (Reactivity Balance Calculation) and from initiating cue and determines that Enclosure 4.3 is applicable.</p> <p><u>STANDARD</u></p> <p>Candidate obtains a copy of OP/0/A/6100/006 (Reactivity Balance Calculation).</p> <p><u>EXAMINER NOTE</u></p> <p>When the candidate locates the appropriate procedure, give him/her a copy of OP/0/A/6100/006.</p> <p><u>COMMENTS</u></p>	<p>CRITICAL STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>
2	<p>Limits and Precautions have been reviewed.</p> <p><u>STANDARD</u></p> <p>Examinee reviews Limits and Precautions.</p> <p><u>EXAMINER CUE</u></p> <p>If asked by candidate, inform them that T-AVG is being maintained within $\pm 1^\circ \text{F}$ of T-REF.</p> <p><u>COMMENTS</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

3	<p>OP/0/A/6100/006 Encl 4.3 Step 2.1</p> <p>Determine the following information:</p> <p>STANDARD</p> <p>Operator records the following data using the initial conditions.</p> <ul style="list-style-type: none"> Unit: 1 Date/Time: Current Date/Time Present Power: 80% NC System Boron Concentration 959 ppm Current Burnup: 200 EFPD Present Control Bank Position: 200 SWD, Control Bank D Present Shutdown bank Position: ALL @ 226 Quantity of misaligned rods: 0 Number of untrippable RCCA(s): 3 Untrippable RCCA(s) core location(s): G-13, K-2, P-4 <p>COMMENTS</p>	<p>CRITICAL STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>
4	<p>OP/0/A/6100/006 Encl 4.3 Step 2.3.1.1</p> <p>Determine total available rod worth. (Step 2.2 is N/A due to REACTBAL unavailable)</p> <p>STANDARD</p> <p>Determine total available rod worth to be 5084 pcm per section 5.7 of Reactor Operating Data (R.O.D.) Manual.</p> <p>COMMENTS</p>	<p>CRITICAL STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>
5	<p>OP/0/A/6100/006 Encl 4.3 Step 2.3.1.2</p> <p>If only one RCCA is untrippable, determine reactivity worth</p> <p>STANDARD</p> <p>Determines there are multiple untrippable RCCA's and does not perform step 2.3.1.2.</p> <p>COMMENTS</p>	<p>CRITICAL STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>

6	<p>OP/0/A/6100/006 Encl 4.3 Step 2.3.1.3</p> <p>IF there are multiple untrippable RCCA's, perform the following:</p> <p>Determine untrippable RCCA of step 2.1.10 with the highest reactivity worth penalty. (Section 5.8 of R.O.D. Manual)</p> <p>STANDARD</p> <p>Refers to section 5.8 of the R.O.D. Manual. Determines RCCA <u>G-13</u> rod worth is 232 pcm, <u>P-4</u> rod worth is 28 pcm and RCCA <u>K-2</u> Rod worth is 290 pcm.</p> <p><u>Chooses K-2 / 290 pcm.</u></p> <p>COMMENTS</p>	<p>CRITICAL STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>
7	<p>OP/0/A/6100/006 Encl 4.3 Step 2.3.1.3</p> <p>Determine maximum stuck rod worth during cycle (Section 5.7 of the R.O.D. manual).</p> <p>STANDARD</p> <p>Determines maximum stuck rod worth during cycle is 895 pcm per section 5.7 of the R.O.D. Manual.</p> <p>COMMENTS</p>	<p>CRITICAL STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>
8	<p>OP/0/A/6100/006 Encl 4.3 Step 2.3.1.3/ 2.3.1.4</p> <p>Calculate total untrippable RCCA reactivity worth penalty for multiple untrippable RCCA's</p> <p>STANDARD</p> <p>Calculates a penalty at 2080 pcm and records.</p> <p>$(3-1) \times (895) + (290) = 2080 \text{ pcm}$</p> <p>COMMENTS</p>	<p>CRITICAL STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>

9	<p>OP/0/A/6100/006 Encl 4.3 Step 2.3.1.5</p> <p>Calculate total untriappable RCCA reactivity worth penalty for multiple untriappable RCCA's</p> <p>STANDARD</p> <p>Determines from Section 5.6.3 of the R.O.D. Manual: (page 1 of 6) Bk D @ 200 steps) Reactivity worth <u>44 pcm (CB)</u> Reactivity worth of HZP, Eq Xenon to be <u>0 pcm (SB)</u></p> <p>Calculates inserted reactivity worth of <u>44 pcm.</u></p> <p>COMMENTS</p>	<p>CRITICAL STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>
10	<p>OP/0/A/6100/006 Encl 4.3 Step 2.3.1.6</p> <p>Calculate available reactivity worth of trippable rods.</p> <p>STANDARD</p> <p>Determines: Total available rod worth <u>5084 pcm</u> (Step 2.3.1.1) Untriappable RCCA penalty <u>2080 pcm</u> (Step 2.3.1.4) Inserted Rod Worth <u>44 pcm</u> (Step 2.3.1.5) Calculates available worth of trippable RCCA's is <u>2960 pcm</u></p> <p>$(5084 \text{ pcm}) - (2080 \text{ pcm}) - (44 \text{ pcm}) = 2960 \text{ pcm}$</p> <p>COMMENTS</p>	<p>CRITICAL STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>
11	<p>OP/0/A/6100/006 Encl 4.3 Step 2.3.1.7</p> <p>Calculate total misaligned RCCA reactivity worth below:</p> <p>STANDARD</p> <p>Determines no rods are misaligned or dropped and calculates <u>0.</u>:</p> <p>COMMENTS</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p>12 OP/0/A/6100/006 Encl 4.3 Step 2.3.2</p> <p>Calculate SDM for present conditions.</p> <p>STANDARD</p> <p>Determines: Determines in step 2.4 available worth of trippable RCA's 2960 pcm Total misaligned RCCA reactivity worth 0 pcm Power defect of 1343 pcm per section 5.9 of R.O.D. Manual Transient Flux Redistribution Allowance of 489 pcm per Section 5.7 of the R.O.D. Manual.</p> <p>Calculates present SDM of 1128 pcm</p> <p>(2960 pcm) – (0 pcm) - (1343 pcm) – (489 pcm) = 1128 pcm</p> <p>COMMENTS</p>	<p>CRITICAL STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>
<p>13 OP/0/A/6100/006 Encl 4.3 Step 2.3.2</p> <p>Verify present SDM is ≥ 1300 pcm per the applicable Technical Specification via COLR.</p> <p>STANDARD</p> <p>Candidates determines that adequate shutdown margin does not exist since actual is 1128 pcm and the COLR requirement is 1300 pcm.</p> <p>EXAMINER CUE:</p> <p>Another operator will take actions and complete the procedure.</p> <p>COMMENTS</p>	<p>CRITICAL STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>

TIME STOP: _____

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

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- Control rod bank A: 226 steps
- Control rod bank B: 226 steps
- Control rod bank C: 226 steps
- Control rod bank D: 200 steps

INITIATING CUE:

You have just been informed by the Control Room SRO that the following rods are untriappable:

- G-13
- K-2
- P-4

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

**CATAWBA 2008
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE**

DRAFT

JPM 3R ADMIN

**Complete a Unit Vent Flow Manual Calculation per
PT/1/A/4450/017**

CANDIDATE

EXAMINER

**CATAWBA
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE**

Task Calculate Unit Vent flow manually per PT/1/A/4450/017 (Unit Vent Flow Manual Calculation).

Alternate Path ☐ YES ☐ NO ☒ N/A **Time Critical** ☐ YES ☒ NO

Evaluation Location ☒ Simulator ☐ In-Plant ☐ Classroom **Safety Function** _____ ☒ N/A

Evaluation Method ☒ Perform ☐ Simulate **Validation Time** 10 minutes

JPM Type ☐ Bank ☐ New ☒ Modified MNS 2007 NRC exam (A3)

K/A 2.2.12 Knowledge of surveillance procedures. (CFR: 41.10 / 45.13) (3.0/3.4)

Standard Unit Vent flow is calculated to be 117450 scfm +/- 2000.

References PT/1/A/4450/017 (Unit Vent Flow Manual Calculation) rev 012
SLC 16.11-7 (Radioactive Gaseous Effluent Monitoring Instrumentation)

Candidate _____

Start Time _____ **End Time** _____ **Duration** _____

Performance Rating ☐ Satisfactory ☐ Unsatisfactory

Examiner _____
(Printed Name) (Signature) (Date)

Comments

SIMULATOR SETUP

Use SNAP _____
Fail VFP 5310 to 0
Place OOS sticker on VFP 5310 (1A VF Flow)
SET VA FLOW TO 56000

READ TO OPERATOR

DIRECTION TO TRAINEE:

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

INITIAL CONDITIONS:

- Both Units are operating at 100% power.
- No VQ release is in progress.
- No GWRs are in progress.
- The Waste Evaporator and Recycle Evaporator are secured.
- The Unit Vent Stack Flow Rate Meter is inoperable.
- Auxiliary Building NLO has called the control room to report 1ABUXF Discharge Air Flow (1ABUX-AFMD-1) is reading 27000 scfm.

INITIATING CUE:

Calculate Unit Vent flow per PT/1/A/4450/017 (Unit Vent Flow Manual Calculation) Enclosure 13.1.

START TIME: _____

	<u>EXAMINER NOTE</u> When candidate locates PT/1/A/4450/017, hand out a copy of the PT provided.	
1	<p>Operator locates and records VA System flow.</p> <p><u>STANDARD</u></p> <p>Operator locates 1VAP5280 on 1MC-3 and records <u>56,000 scfm.</u></p> <p><u>COMMENTS</u></p>	<p>CRITICAL STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>
2	<p>Operator locates and records VE 1A flow to stack.</p> <p><u>STANDARD</u></p> <p>Locates 1VEP5180, notes VE 1A is shutdown and records <u>0 scfm.</u></p> <p><u>COMMENTS</u></p>	<p>CRITICAL STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>
3	<p>Operator locates and records VE 1B flow to stack.</p> <p><u>STANDARD</u></p> <p>Locates 1VEP5200, notes VE 1B is shutdown and records <u>0 scfm.</u></p> <p><u>COMMENTS</u></p>	<p>CRITICAL STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>
4	<p>Operator locates and records VF 1A flow to stack.</p> <p><u>STANDARD</u></p> <p>Locates 1VFP5310, notes VF reading is OOS and uses <u>33130 scfm</u> from enclosure 13.2.</p> <p><u>COMMENTS</u></p>	<p>CRITICAL STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>

5	<p>Operator locates and records VF 1B flow to stack.</p> <p><u>STANDARD</u></p> <p>Locates 1VFP5340, notes VF 1B is shutdown and records <u>0 scfm.</u></p> <p><u>COMMENTS</u></p>	<p>CRITICAL STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>
6	<p>Records 1ABUX-AMFD-1 flow.</p> <p><u>STANDARD</u></p> <p>Records <u>27000 scfm</u> based on initial cue.</p> <p><u>COMMENTS</u></p>	<p>CRITICAL STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>
7	<p>Operator records VP flows.</p> <p><u>STANDARD</u></p> <p>Based on initial cues VP is secured. Flows recorded as <u>0 scfm or N/A.</u></p> <p><u>COMMENTS</u></p>	<p>CRITICAL STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>
8	<p>Operator records WG flow and VQ flow.</p> <p><u>STANDARD</u></p> <p>Based on initial cues records flow as <u>0 scfm or N/A</u></p> <p><u>COMMENTS</u></p>	<p>CRITICAL STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>

9	<p>Operator records TL flow</p> <p><u>STANDARD</u></p> <p>Based on initial cue and procedure notes records <u>1260 scfm.</u></p> <p><u>COMMENTS</u></p>	<p>CRITICAL STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>
10	<p>Operator records NB and WL flows.</p> <p><u>STANDARD</u></p> <p>Based on initial cues records flow as <u>0 scfm or N/A.</u></p> <p><u>COMMENTS</u></p>	<p>CRITICAL STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>
11	<p>Operator records ZJ flow to stack.</p> <p><u>STANDARD</u></p> <p>Based on initial cue and procedure notes records <u>60 scfm.</u></p> <p><u>COMMENTS</u></p>	<p>CRITICAL STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>
12	<p>Calculate total vent flow.</p> <p><u>STANDARD</u></p> <p>Calculates total vent flow to stack as <u>117450 scfm.</u></p> <p>$(56000)+(33130)+(27000)+(1260)+(60) = 117450$</p> <p>Due to reading instruments, <u>115450 -119450 scfm</u> is considered acceptable.</p> <p><u>COMMENTS</u></p>	<p>CRITICAL STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>

<div data-bbox="185 121 240 155" data-label="Text">13</div> <div data-bbox="204 165 725 203" data-label="Text">Complete PT and submit to WCCSRO.</div> <div data-bbox="181 216 354 252" data-label="Section-Header"><u>STANDARD</u></div> <div data-bbox="204 264 1268 304" data-label="Text">Records that acceptance criteria is met and signs off remaining procedure steps.</div> <div data-bbox="181 367 438 403" data-label="Section-Header"><u>EXAMINER NOTE</u></div> <div data-bbox="204 415 1273 487" data-label="Text">Candidate may create a Discrepancy Sheet based on gauge VFP5310 having an OOS sticker on it. Although not required, it is <u>not</u> incorrect to submit one.</div> <div data-bbox="181 499 365 535" data-label="Section-Header"><u>COMMENTS</u></div>	<div data-bbox="1299 165 1533 201" data-label="Section-Header">CRITICAL STEP</div> <div data-bbox="1295 249 1464 287" data-label="Text">_____ SAT</div> <div data-bbox="1295 317 1507 354" data-label="Text">_____ UNSAT</div>
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TIME STOP: _____

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

INITIAL CONDITIONS:

- Both Units are operating at 100% power.
- No VQ release is in progress.
- No GWRs are in progress.
- The Waste Evaporator and Recycle Evaporator are secured.
- The Unit Vent Stack Flow Rate Meter is inoperable.
- Auxiliary Building NLO has called the control room to report 1ABUXF Discharge Air Flow (1ABUX-AFMD-1) is reading 27000 scfm.

INITIATING CUE:

Calculate Unit Vent flow per PT/1/A/4450/017 (Unit Vent Flow Manual Calculation) Enclosure 13.1.

**CATAWBA 2008
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE**

DRAFT

JPM 3S ADMIN

**Determine SLC requirements and complete a Unit
Vent Flow Manual Calculation per PT/1/A/4450/017.**

CANDIDATE

EXAMINER

**CATAWBA
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE**

Task Determine SLC actions and calculate Unit Vent flow manually per PT/1/A/4450/017 (Unit Vent Flow Manual Calculation).

Alternate Path ☐ YES ☐ NO ☒ N/A **Time Critical** ☐ YES ☒ NO

Evaluation Location ☒ Simulator ☐ In-Plant ☐ Classroom **Safety Function** _____ ☒ N/A

Evaluation Method ☒ Perform ☐ Simulate **Validation Time** 14 minutes

JPM Type ☐ Bank ☒ New ☐ Modified

K/A 2.2.12 Knowledge of surveillance procedures. (CFR: 41.10 / 45.13) (3.0/3.4)

Standard Determine SLC action D applies. Perform the Unit Vent Flow PT within 4 hours and restore OOS meter to operable within 30 days. Unit Vent flow is calculated to be 117450 scfm +/- 2000 scfm.

References PT/1/A/4450/017 (Unit Vent Flow Manual Calculation) Rev 012
SLC 16.11-7 (Radioactive Gaseous Effluent Monitoring Instrumentation)
PT/1/A/4600/002A (Mode 1 Periodic Surveillance Items) Rev 208

Candidate _____

Start Time _____ **End Time** _____ **Duration** _____

Performance Rating ☐ Satisfactory ☐ Unsatisfactory

Examiner _____
(Printed Name) (Signature) (Date)

Comments

SIMULATOR SETUP

Use SNAP _____
Fail VFP 5310 to 0
Place OOS sticker on VFP 5310 (1A VF Flow)
SET VA FLOW TO 56000

READ TO OPERATOR

DIRECTION TO TRAINEE:

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

INITIAL CONDITIONS:

- Both Units are operating at 100% power.
- No VQ release is in progress.
- No GWRs are in progress.
- The Waste Evaporator and Recycle Evaporator are secured.
- All systems are in normal alignment.

INITIATING CUE:

The RO performing the Unit 1 Mode 1 Periodic Surveillance notified you that flow on OAC point C1A1104 was 94000 scfm during the Unit Vent Stack Flow Rate Meter Channel Check. Determine what actions (if any) are required to comply with SLCs and the method used to verify any required actions.

START TIME: _____

1	<p>Determines if any applicable SLCs exist.</p> <p>STANDARD</p> <p>Operator determines directly or through reference to Daily Surveillance PT that SLC 16.11-7 action D applies. This requires PT/1/A/4450/017 (Unit Vent Flow Manual Calculation) be performed every 4 hours and the instrument returned to operable within 30 days.</p> <p>Student may also state that Action K applies (30 day report).</p> <p>EXAMINER CUE</p> <p>OSM requests that you complete an Enclosure 13.1 of PT/1/A/4450/017.</p> <p>EXAMINER NOTE</p> <p>When candidate locates a copy of PT/1/A/4450/017, provide him with the partially completed copy provided.</p> <p>COMMENTS</p>	<p>CRITICAL STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>
2	<p>Operator locates and records VA System flow.</p> <p>STANDARD</p> <p>Operator locates 1VAP5280 on 1MC-3 and records <u>56,000 scfm.</u></p> <p>COMMENTS</p>	<p>CRITICAL STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>
3	<p>Operator locates and records VE 1A flow to stack.</p> <p>STANDARD</p> <p>Locates 1VEP5180, notes VE 1A is shutdown and records <u>0 scfm.</u></p> <p>COMMENTS</p>	<p>CRITICAL STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>

4	<p>Operator locates and records VE 1B flow to stack.</p> <p><u>STANDARD</u></p> <p>Locates 1VEP5200, notes VE 1B is shutdown and records <u>0 scfm.</u></p> <p><u>COMMENTS</u></p>	<p>CRITICAL STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>
5	<p>Operator locates and records VF 1A flow to stack.</p> <p><u>STANDARD</u></p> <p>Locates 1VFP5310, notes VF reading is OOS and uses <u>33130 scfm</u> from enclosure 13.2.</p> <p><u>COMMENTS</u></p>	<p>CRITICAL STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>
6	<p>Operator locates and records VF 1B flow to stack.</p> <p><u>STANDARD</u></p> <p>Locates 1VFP5340, notes VF 1B is shutdown and records <u>0 scfm.</u></p> <p><u>COMMENTS</u></p>	<p>CRITICAL STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>
7	<p>Determines need to get 1ABUX-AMFD-1 flow reading locally.</p> <p><u>STANDARD</u></p> <p>NLO dispatched.</p> <p>EXAMINER CUE: 1ABUX-AMFD-1 reads 27000 scfm.</p> <p><u>COMMENTS</u></p>	<p>CRITICAL STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>

8	<p>Records 1ABUX-AMFD-1 flow.</p> <p><u>STANDARD</u></p> <p>Records <u>27000 scfm</u> based on examiner cue.</p> <p><u>COMMENTS</u></p>	<p>CRITICAL STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>
9	<p>Operator records VP flows.</p> <p><u>STANDARD</u></p> <p>Based on initial cues VP is secured. Flows recorded as <u>0 scfm or N/A.</u></p> <p><u>COMMENTS</u></p>	<p>CRITICAL STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>
10	<p>Operator records WG flow and VQ flow.</p> <p><u>STANDARD</u></p> <p>Based on initial cues records flow as <u>0 scfm or N/A</u></p> <p><u>COMMENTS</u></p>	<p>CRITICAL STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>
11	<p>Operator records TL flow</p> <p><u>STANDARD</u></p> <p>Based on initial cue and procedure notes records <u>1260 scfm.</u></p> <p><u>COMMENTS</u></p>	<p>CRITICAL STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>

12	<p>Operator records NB and WL flows.</p> <p><u>STANDARD</u></p> <p>Based on initial cues records flow as <u>0 scfm or N/A.</u></p> <p><u>COMMENTS</u></p>	<p>CRITICAL STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>
13	<p>Operator records ZJ flow to stack.</p> <p><u>STANDARD</u></p> <p>Based on initial cue and procedure notes records <u>60 scfm.</u></p> <p><u>COMMENTS</u></p>	<p>CRITICAL STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>
14	<p>Calculate total vent flow.</p> <p><u>STANDARD</u></p> <p>Calculates total vent flow to stack as <u>117450 scfm.</u></p> <p>$(56000)+(33130)+(27000)+(1260)+(60) = 117450$</p> <p><u>EXAMINER NOTE</u></p> <p>Due to reading instruments, <u>115450 -119450 scfm</u> is considered acceptable.</p> <p><u>COMMENTS</u></p>	<p>CRITICAL STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>

15	<p>Complete PT and submit to WCCSRO.</p> <p><u>STANDARD</u></p> <p>Records that acceptance criteria is met and signs off remaining procedure steps.</p> <p><u>COMMENTS</u></p>	<p>CRITICAL STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>
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TIME STOP: _____

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

INITIAL CONDITIONS:

- Both Units are operating at 100% power.
- No VQ release is in progress.
- No GWRs are in progress.
- The Waste Evaporator and Recycle Evaporator are secured.
- All systems are in normal alignment.

INITIATING CUE:

The RO performing the Unit 1 Mode 1 Periodic Surveillance notified you that flow on OAC point C1A1104 was 94000 scfm during the Unit Vent Stack Flow Rate Meter Channel Check. Determine what actions (if any) are required to comply with SLCs and the method used to verify any required actions.

**CATAWBA 2008
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE**

DRAFT

JPM 4R4S ADMIN

**Calculate the Maximum Permissible Stay Time
Within Duke Power ALERT Administrative Dose
Limits**

CANDIDATE

EXAMINER

**CATAWBA
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE**

Task Calculate the maximum permissible stay time within Duke Power ALERT administrative dose limits.

Alternate Path ☐ YES ☐ NO ☒ N/A **Time Critical** ☐ YES ☒ NO

Evaluation Location ☐ Simulator ☐ In-Plant ☒ Classroom **Safety Function** _____ ☒ N/A

Evaluation Method ☒ Perform ☐ Simulate **Validation Time** 7 minutes

JPM Type ☐ Bank ☒ New ☐ Modified

K/A 2.3.4 Knowledge of radiation exposure limits and contamination control, including permissible levels in excess of those authorized. (CFR: 43.4 / 45.10) 2.5/3.1

Standard Stay time is correctly calculated and the Duke Power ALERT administrative dose limit is not exceeded (reference NSD 507).

References Duke Power Company, Radiation Worker Training Student Guide
NSD 507 rev 13

Candidate _____

Start Time _____ **End Time** _____ **Duration** _____

Performance Rating ☐ Satisfactory ☐ Unsatisfactory

Examiner _____
(Printed Name) (Signature) (Date)

Comments

READ TO OPERATOR

DIRECTION TO TRAINEE:

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

INITIAL CONDITIONS:

An individual has been assigned to perform work in the RCA. The individual's current annual dose is 1374 mR. The area where the work is to be performed has the following radiological characteristics:

- General area dose rate – 55 mR/hr
- Airborne contamination – 8 DAC

This individual is the only person onsite who is currently qualified to perform the work, however he is NOT respirator qualified. Due to the critical nature of the work, RP will perform additional monitoring to allow the work to proceed without requiring a respirator.

INITIATING CUE:

Calculate the maximum permissible time the individual can work in this area without exceeding the Duke Power ALERT administrative dose limit.

START TIME: _____

1	<p>Calculates overall dose rate for comparison to limit and current dose.</p> <p><u>STANDARD</u></p> <p>8 DAC-hr x 2.5mR/DAC-hr + 55 mR/hr = <u>75 mR/hr total</u></p> <p><u>COMMENTS</u></p>	<p>CRITICAL STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>
2	<p>Determines available dose to reach the DPC ALERT dose limit.</p> <p><u>STANDARD</u></p> <p>1600 (alert limit) -1374 (current dose) = <u>226 mR</u></p> <p><u>COMMENTS</u></p>	<p>CRITICAL STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>
3	<p>Determines the maximum permissible stay time within the DPC ALERT dose limit.</p> <p><u>STANDARD</u></p> <p>226 mR/hr / 75mR/hr = <u>3.01 hours (3 hours is acceptable)</u></p> <p><u>COMMENTS</u></p>	<p>CRITICAL STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>

TIME STOP: _____

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

INITIAL CONDITIONS:

An individual has been assigned to perform work in the RCA. The individual's current annual dose is 1374 mR. The area where the work is to be performed has the following radiological characteristics:

- General area dose rate – 55 mR/hr
- Airborne contamination – 8 DAC

This individual is the only person onsite who is currently qualified to perform the work, however he is NOT respirator qualified. Due to the critical nature of the work, RP will perform additional monitoring to allow the work to proceed without requiring a respirator.

INITIATING CUE:

Calculate the maximum permissible time the individual can work in this area without exceeding the Duke Power ALERT administrative dose limit.

**CATAWBA 2008
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE**

DRAFT

JPM 5S ADMIN

**Upgrade an Emergency Classification and
Complete an Emergency Notification Form**

CANDIDATE

EXAMINER

Task	Upgrade to a higher emergency classification and complete an Emergency Notification Form.
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K/A	2.4.41 Knowledge of the emergency action level thresholds and classifications (CFR: 43.5 / 45.11) 2.3/4.1
Standard	Candidate classifies the event as an Alert within 15 minutes of starting the JPM, and correctly completes the follow-up notification form within 15 minutes of determining the classification.
References	RP/0/A/5000/001 (Classification of Emergency) rev 019 RP/0/A/5000/003 (Alert) rev 042 RP/0/A/5000/006A (Notification of States and Counties from the Control Room) rev 023

Comments

READ TO OPERATOR

DIRECTION TO TRAINEE:

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

INITIAL CONDITIONS:

- Unit 1 was shutdown three days ago and is now in Mode 5 with loops filled.
- Reactor Coolant temperature was 143° F.
- "A" train ND, KC and RN in service.
- 1B ND pump is red tagged for repairs and unavailable.
- An Unusual Event was declared at 0830 per 4.7.U.1 (Natural and Destructive Phenomena Affecting the Protected Area) when Security reported a tornado touched down on the northeast side of the Protected Area.
- At 0850, the unit entered AP/1/A/5500/19 (Loss of Residual Heat Removal System) after an electrical transient caused 1A ND pump breaker to fail.
- Reactor coolant temperature has started to increase.

INITIATING CUE:

Reactor Coolant temperature is currently at 181° F and increasing.

Based on the current plant status, determine the emergency classification and prepare an Emergency Notification Form for transmittal.

This JPM is Time Critical.

START TIME: _____ (When initiating cue is read to candidate)

1	<p>Compare actual plant conditions to the Emergency Action Levels listed, then declare the appropriate Emergency Class as indicated.</p> <p><u>STANDARD</u></p> <p>Candidate uses RP-01 and from the initial conditions, determines the unit is in an Alert based on Enclosure 4.4 page 2 of 3:</p> <p>4.4.A.2 Inability to Maintain Plant In Cold Shutdown Operating Mode 5: (4.4.A.2-1 Total Loss of ND AND Uncontrolled reactor coolant temperature rise to greater than 180°F.)</p> <p><u>EXAMINER NOTE</u></p> <p>To meet the critical step, the candidate must make the declaration within 15 minutes of the START TIME recorded above. When candidate determines classification, record the time for this critical step. _____</p> <p><u>EXAMINER NOTE</u></p> <p>If candidate correctly states 4.4.A.2 as the classification, provide the preprinted sheet for this classification, otherwise, provide a blank ENF.</p> <p><u>COMMENTS</u></p>	<p>CRITICAL STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>
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Complete an Emergency Notification Form for the classification level determined.

CRITICAL STEP*

STANDARD

Candidate refers to RP/0/A/5000/06A "Notification of States and Counties from the Control Room and completes the ENF per the guidelines in Enclosure 4.3 within 15 minutes of the time recorded in Step 1 of the JPM.

_____ SAT

_____ UNSAT

Line 1: Actual Event checked, Message #2

Line 2: Initial checked

Line 3: Catawba Nuclear Station

Line 4: Alert checked and enters appropriate information from event number 4.4.A.2

Line 5: None checked

Line 6: None checked

Line 7: N/A checked

Line 8: Stable or Degrading

Line 9: Not filled in (no data)

*Line 10: Mark Declaration and enters date and time event is declared.

Line 11: Unit 1

Line 12: Enters 0% and time reactor shutdown (3 days ago)

Lines 13-16: leaves these blank

*Line 17: signs as Emergency Coordinator with date and time.

EXAMINER CUE

If asked, state that "surveys are not yet available".

EXAMINER NOTE

To meet the critical step, the candidate must complete an Emergency Notification Form and submit it for transmittal within 15 minutes of the time recorded in Step 1 of the JPM. When the candidate submits the form, record the time for this critical step. _____

COMMENTS

TIME STOP: _____

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

INITIAL CONDITIONS:

- Unit 1 was shutdown three days ago and is now in Mode 5 with loops filled.
- Reactor Coolant temperature was 143° F.
- "A" train ND, KC and RN in service.
- 1B ND pump is red tagged for repairs and unavailable.
- An Unusual Event was declared at 0830 per 4.7.U.1 (Natural and Destructive Phenomena Affecting the Protected Area) when Security reported a tornado touched down on the northeast side of the Protected Area.
- At 0850, the unit entered AP/1/A/5500/19 (Loss of Residual Heat Removal System) after an electrical transient caused 1A ND pump breaker to fail.
- Reactor coolant temperature has started to increase.

INITIATING CUE:

Reactor Coolant temperature is currently at 181° F and increasing.

Based on the current plant status, determine the emergency classification and prepare an Emergency Notification Form for transmittal.

This JPM is Time Critical.