



Tennessee Valley Authority, Post Office Box 2000, Soddy-Daisy, Tennessee 37384-2000

October 6, 2010

ES-501

Mr. Richard S. Baldwin
U.S. Nuclear Regulatory Commission
Marquis One Tower
245 Peachtree Center Avenue NE, Suite 1200
Atlanta, Georgia 30303-1257

Sequoyah Nuclear Plant, Units 1 and 2
Facility Operating License Nos. DPR-77 and DPR-79
NRC Docket Nos. 50-327 and 50-328

**Subject: Reactor Operator and Senior Reactor Operator Initial Examinations -
05000327/2010302 and 05000328/2010302**

- References:
1. NRC letter to TVA, "Notification of Licensed Operator Initial Examination 05000390/2010302," dated May 7, 2010
 2. NRC letter to TVA, "Operator Licensing Written Examination Approval 05000390/2010301," dated September 27, 2010

As authorized by Reference 2, the Tennessee Valley Authority (TVA) administered a written examination to a group of licensed operator applicants on September 29, 2010. In accordance with Examination Standard (ES) 501, "Initial Post-Examination Activities," of NUREG 1021, "Operator Licensing Examination Standards for Power Reactors," the enclosures contain information related to the examination as listed:

Enclosure 1 - the ungraded written examinations (i.e., each applicant's original answer and examination cover sheets). Since TVA did not formally grade the exams, a completed Form ES-403-1, "Written Examination Grading Quality Checklist," is not being provided.

Enclosure 2 - clean copy of each applicant's answer sheet.

Enclosure 3 - the master examination(s) and answer key(s), annotated to indicate any changes made while administering and grading the examination(s).

[REDACTED]

U.S. Nuclear Regulatory Commission
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Enclosure 4 - any questions asked by and answers given to the applicants during the written examination (ES-402).

Enclosure 5 - any substantive comments made by the applicants following the written examination, with an explanation concerning why the comment was accepted or rejected (ES-402).

Enclosure 6 - the written examination seating chart (ES-402).

Enclosure 7 - the results of the written examination performance analysis that was performed, with recommended substantive changes (ES-403).

Enclosure 8 - original Form(s) ES-201-3, "Examination Security Agreement," the Examination Security Agreement Form ES-201-3 will be provided after obtaining the post-examination signatures.

Enclosure 9 - request for a correction to the SRO ADMIN D JPM answer key with supporting documentation.

Because of the administratively confidential nature of the enclosed material, it is requested that the information contained in the enclosures be withheld from public disclosure in accordance with 10 CFR 2.390(a)(6). There are no commitments contained in this submittal. TVA's principal contact regarding Operations Training matters is Mike Buckner.

Should you require additional information regarding this matter, please contact Mr. Buckner at (423) 843-4208 or contact Beth A. Wetzel at (423) 843-7170.

Sincerely,



Christopher R. Church
Site Vice-President
Sequoyah Nuclear Plant

[REDACTED] # [REDACTED]

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BAW:JWP:SKD

Enclosures

Bcc (w/o Enclosures):

C. R. Church, POB 2B-SQN

C. T. Ware, STC 2H-SQN

R. M. Krich, LP 4G-C

J. R. Parker, STC 2A-SQN (with Enclosures)

P. R. Simmons, POB 2A-SQN

B. A. Wetzel, OPS 4C-SQN

EDMS, WT CA-K (with Enclosures)

[REDACTED] [REDACTED]

I: Operator License\2010\ Post Exam Information 100510



Tennessee Valley Authority, Post Office Box 2000, Soddy-Daisy, Tennessee 37379-2000

June 11, 2010

10 CFR 55.5
10 CFR 55.49

Mr. Luis A. Reyes
Regional Administrator Region II
U.S. Nuclear Regulatory Commission
Marquis One Tower
245 Peachtree Center Ave., NE Suite 1200
Atlanta, Georgia 30303-1257

Attention: Mr. M. T. Widmann

Sequoyah Nuclear Plant, Units 1 and 2
Facility Operating License Nos. DPR-77 and DPR-79
NRC Docket Nos. 50-327 and 50-328

Subject **Reactor and Senior Reactor Operator Initial Examinations -
05000327/2010302 and 05000328/2010302**


As requested by NRC's letter to the Tennessee Valley Authority dated May 7, 2010, the enclosure to this letter provides the license examination information for the Sequoyah Nuclear Plant (SQN) Reactor and Senior Reactor Operator operating test scheduled to be administered the weeks of September 6, 2010 and September 20, 2010. The written examination is scheduled to be administered the week of September 29, 2010. The outlines, examinations and tests have been approved by an authorized SQN representative.

There are no commitments contained in this submittal. In accordance with 10 CFR 55.49 and NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," appropriate measures have been taken to ensure examination integrity and security. Accordingly, it is requested that this letter and the enclosed documents be withheld from public disclosure until the examinations are completed.

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TVA's principal contact regarding the license examinations is Mr. Michael Buckner, SQN Operations Training. Should you require additional information regarding this matter, please contact Mr. Buckner at (423) 843-4178 or Beth A. Wetzel at (423) 843-7170.

Sincerely,



Christopher R. Church
Site Vice-President
Sequoyah Nuclear Plant

Enclosure:

Operating Examinations for Reactor Operator and Senior Reactor Operator
Candidates

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June 11, 2010

NRT:SKD

cc: R. M. Cook, LP 4K-C (w/o enclosure)
R. M. Krich, LP 4K-C (w/o enclosure)
K. Langdon, POB 2B-SQN (w/o enclosure)
P. R. Simmons, POB 2A-SQN, (w/o enclosure)
C. T. Ware, STC 2H-SQN
EDMS, WT CA-K

[REDACTED]

[REDACTED]

ENCLOSURE

**TENNESSEE VALLEY AUTHORITY
SEQUOYAH NUCLEAR PLANT (SQN)
UNITS 1 AND 2**

**OPERATING EXAMINATIONS FOR REACTOR OPERATOR (RO)
AND SENIOR REACTOR OPERATOR (SRO) CANDIDATES**

License Examinations Outlines:

- ES-201-2 - Examination Outline Quality Checklist**
- ES-201-3 - Examination Security Agreement**
- ES-301-1 - Administrative Topics Outline**
- ES-301-2 - Control Room/In-Plant Systems Outline**
- ES-301-5 - Transient and Event Checklists (7)**
- ES-D-1 - Scenario Outlines (7)**
- ES-401-4 - Record of Rejected K/As for RO and SRO exams**
- Written Exam Outline Development Methodology**



Tennessee Valley Authority, Post Office Box 2000, Soddy-Daisy, Tennessee 37384-2000

July 21, 2010

10 CFR 55.5
10 CFR 55.49

Mr. Luis A. Reyes
Regional Administrator Region II
U.S. Nuclear Regulatory Commission
Marquis One Tower
245 Peachtree Center Ave., NE, Suite 1200
Atlanta, Georgia 30303-1257

Attention: Mr. M. T. Widmann

Sequoyah Nuclear Plant, Units 1 and 2
Facility Operating License Nos. DPR-77 and DPR-79
NRC Docket Nos. 50-327 and 50-328

Subject: **Reactor and Senior Reactor Operator Initial Examinations -
05000327/2010302 and 05000328/2010302**

As requested by NRC's letter to Preston D. Swafford dated May 7, 2010, the enclosure to this letter provides the information for the Reactor and Senior Reactor Operator initial examinations scheduled to be administered the weeks of September 13, 2010, and September 20, 2010. The written part of the examination is scheduled to be administered the week of September 27, 2010.

There are no commitments contained in this submittal. In accordance with 10 CFR 55.49 and NUREG 1021, "Operator Licensing Examination Standards for Power Reactors," appropriate measures have been taken to ensure examination integrity and security. Accordingly, it is requested that the enclosed documents be withheld from public disclosure until the examinations are completed.

TVA's principal contact regarding the license examinations is Steve Smith, SQN Operations Training. Should you require additional information regarding this matter, please contact Mr. Smith at (423) 843-4107 or Beth A. Wetzel at (423) 843-7170.

Sincerely,

Christopher R. Church
Site Vice President
Sequoyah Nuclear Plant

Enclosure:

Operating Examinations for Reactor Operator and Senior Reactor Operator
Candidates

ENCLOSURE

**TENNESSEE VALLEY AUTHORITY
SEQUOYAH NUCLEAR PLANT
UNITS 1 AND 2**

**OPERATING EXAMINATIONS FOR REACTOR OPERATOR (RO)
AND SENIOR REACTOR OPERATOR (SRO) CANDIDATES**

**Written Examination - RO and SRO Portions Including Student Reference Material
and Answer Key**

Job Performance Measures for RO and SRO Examinations

Seven Simulator Examinations

ES-201-3 - Examination Security Agreement Updates

ES-301-2 - Control Room/In-Plant Systems Outline

ES-301-2 - Supplemental Control Room/In-Plant Systems Outline

ES-301-3 - Operating Test Quality Checklist

ES-301-4 - Simulator Scenario Quality Checklist

ES-301-5 - Transient and Event Checklist

ES-301-6 - Competencies Checklist

ES-401-6 - Written Examination Quality Checklist

Requested reference materials as agreed with the Chief Examiner

ENCLOSURE

**SEQUOYAH NUCLEAR PLANT
UNITS 1 AND 2**

Reactor Operator and Senior Reactor Operator Initial Examinations
Supplemental Substantive Comments (ES-402)

SEQUOYAH NUCLEAR PLANT JOB PERFORMANCE MEASURE

SRO ADMIN D

**Classify the Event per the REP
(SGTR with Failed S/G Safety)**

**RO/SRO
JOB PERFORMANCE MEASURE**

Task: Classify the Event per the REP (SGTR with Failed S/G Safety)

Task #: (SRO) 3440030302; (SRO) 3440190302

Task Standard: The event is classified as a GENERAL EMERGENCY based on Loss of 3 fission barriers (SGTR with Failed S/G Safety).

Time Critical Task: YES: X NO: _____

K/A Reference/Ratings: 2.4.38 (2.4/4.4)
2.4.44 (2.4/4.4)

Method of Testing:

Simulated Performance: _____ **Actual Performance:** X

Evaluation Method:

Simulator _____ **In-Plant** _____ **Classroom** X

Main Control Room _____ **Mock-up** _____

Performer: _____
Trainee Name

Evaluator: _____ / _____
Name / Signature DATE

Performance Rating: SAT: _____ UNSAT: _____

Validation Time: _____ **Total Time:** _____

Performance Time: **Start Time:** _____ **Finish Time:** _____

COMMENTS

SPECIAL INSTRUCTIONS TO EVALUATOR:

1. Critical steps are identified in step SAT/UNSAT column by bold print 'Critical Step'.
2. Any UNSAT requires comments
3. Ensure operator performs the following required actions for **SELF-CHECKING**;
 - a. Identifies the correct unit, train, component, etc.
 - b. Reviews the intended action and expected response.
 - c. Compares the actual response to the expected response.

Tools/Equipment/Procedures Needed:

EPIP-1 thru EPIP-5, for each student in classroom
FR Procedures
Steam Tables, for each student in classroom
Clock must be available in classroom that all examinees and evaluator can see

References:

	Reference	Title	Rev No.
1.	EPIP-1	Emergency Plan Classification Matrix	43
2.	EPIP-5	General Emergency	39

=====

READ TO OPERATOR

DIRECTIONS TO TRAINEE:

I will explain the initial conditions, and state the task to be performed. All steps of this JPM shall be performed in a classroom or in the simulator (simulator will not be set up to match the scenario). The evaluator will provide initiating cues and any other data that may be needed. Time begins when directed by evaluator. When the declaration has been made, raise your hand, the evaluator will record the time, and then you may continue the procedure. Raise your hand again when you have completed the TVA Initial Notification Form, to the point of notifying the ODS. If during the performance of the JPM you have any questions raise your hand and the evaluator will assist you.

INITIAL CONDITIONS:

1. Unit 2 is at 100% RTP and stable.
2. Unit 1 has experienced a Reactor trip and Safety Injection.
3. Security reports that at the time of the trip, steam started blowing from the roof of the Unit 1 east valve vault and steam flow is still in progress at this time.
4. Steam Generator #2 is isolated per E-3, Steam Generator Tube Rupture.
5. CRO has informed you that SG #2 pressure is slowly lowering.
6. Containment pressure is 0.1 psig and steady.
7. RCS pressure is 1500 psig.
8. Core exit TCs 532 °F and slowly rising.
9. The most recent Chem Lab sample of RCS indicates that RCS activity has risen to 345 µCi/gm Equivalent Iodine-131.
10. Emergency Paging System (EPS) is not available in MCR.
11. There are no indications of an Onsite Security Event.

INITIATING CUES:

1. You are the Unit 1 US and have assumed the duties of the SED position, until the TSC is staffed.
2. You are to perform each of the following:
 - a. Classify this event per EPIP-1 and
 - b. Fill out TVA Initial Notification Form and make Protective Action Recommendations, if any.

This is a time critical JPM, Time begins when directed by evaluator.

Job Performance Checklist:

STEP / STANDARD	SAT / UNSAT
<p><u>STEP 1.:</u> Refers to EPIP-1 to determine level of event.</p> <p><u>STANDARD:</u> Operator refers to EPIP-1, Section 1, Fission Product Barrier Matrix. Operator determines that they have met the conditions of:</p> <p style="padding-left: 40px;">1.1.2 Loss, "Primary Coolant Activity Level" 1.2.3 Loss, "SGTR" 1.3.4 Loss, "Containment Bypass"</p> <p>Declaration of event must be made in 15 minutes from the time the task was accepted.</p> <p>Record Time of Declaration: _____</p> <p>Time from Task Acceptance to Declaration: _____</p> <p>Utilizing "Emergency Class Criteria," operator determines the need to declare a General Emergency based on Loss of all 3 barriers. Time of declaration is recorded when the operator raises his/her hand.</p> <p>This is a critical step to arrive at the correct classification within 15 minutes.</p> <p><u>COMMENT:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p> <p>Task Start Time</p> <p>_____</p>
<p><u>STEP 2.:</u> Implements EPIP-5 GENERAL EMERGENCY, section 3.1, [1] If TSC is OPERATIONAL, (SED transferred to TSC), THEN GO TO .</p> <p><u>STANDARD:</u> Operator should recall that the TSC has not been manned per the initiating cues, N/As this step and moves on to the next step.</p> <p><u>COMMENT:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 3.</u> [2] RECORD time of declaration. TIME _____</p> <p><u>NOTE:</u> Operator may have already stated time of declaration, but must enter time properly in EPIP-5 form.</p> <p><u>STANDARD:</u> Operator enters proper time that declaration was made.</p> <p><u>COMMENT:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist:

STEP / STANDARD	SAT / UNSAT
<p>Evaluator Note: Candidate may choose to N/A entire step based on Initiating Cue of EPS not available, if so then N/A JPM step 4 and go to JPM step 9. If step 3 is completed then the following will apply.</p>	
<p>STEP 4: [3] Activate Emergency Paging System (EPS).</p> <p>STANDARD: Operator recalls from initial conditions, that EPS is not available from the control room, N/As step and continues on to next step.</p> <p>COMMENT:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>STEP 5: [3] Activate Emergency Paging System (EPS). [a] IF EPS has already been activated, then go to step 4.</p> <p>STANDARD: Operator recalls from initial conditions, that EPS has not been previously activated and N/As step.</p> <p>COMMENT:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>STEP 6: [3] Activate Emergency Paging System (EPS). [b] If ongoing onsite Security events may present risk to the emergency responders, Then consult with Security to determine if site access is dangerous to the life and health of emergency responders.</p> <p>STANDARD: Operator recalls from initial conditions, that there are no site security threats present and N/As step.</p> <p>COMMENT:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>STEP 7: [3] Activate Emergency Paging System (EPS). [c] If ongoing events makes site access dangerous to the life and health of emergency responders, Then select staging area button on the EPS terminal INSTEAD of the EMERGENCY button.</p> <p>STANDARD: Operator recalls from initial conditions, that EPS system not available, so N/As step.</p> <p>COMMENT:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

Job Performance Checklist:

STEP / STANDARD	SAT / UNSAT
<p><u>STEP 8.:</u> [3] Activate Emergency Paging System (EPS). [c] ACTIVATE EPS using touch screen terminal. IF EPS fails to activate, THEN continue with step 4.</p> <p><u>STANDARD:</u> Operator recalls from initial conditions, that EPS system not available, so N/As step.</p> <p><u>COMMENT:</u></p>	<p>_____ SAT _____ UNSAT</p>
<p><u>STEP 9.:</u> [4] EVALUATE Protective Action Recommendations using (Appendix B)</p> <p><u>STANDARD:</u> Operator determines from Appendix B, logic chart in EPIP-5, Note 1: if conditions are unknown then answer is NO, then appropriate protective action recommendation is RECOMMENDATION 2.</p> <p>This step is critical to arrive at the correct PAR recommendation</p> <p><u>COMMENT:</u></p>	<p>___ SAT ___ UNSAT</p> <p>Critical Step</p>



Job Performance Checklist:

STEP / STANDARD	SAT / UNSAT
<p><u>Evaluator Note:</u> When candidate raises their hand to ask for MET tower data, hand them a copy of the MET TOWER LINK data sheet for their use in developing the affected sectors for Protective Action Recommendations.</p>	
<p><u>STEP 10.:</u> [5] Complete Appendix C, TVA Initial Notification of General Emergency.</p> <p><u>STANDARD:</u> Operator completes the Appendix C through step 8, using information from turnover sheet and EPIP-1, prior to Notifying the ODS.</p> <ol style="list-style-type: none"> 1. This is a Drill 2. This is [Their name, Shift Manager (SED) Sequoyah has declared a General Emergency affecting Unit 1. 3. EAL Designators: LOSS 1.1.2 and LOSS 1.2.3, and LOSS 1.3.4. 4. Brief description of incident: [Primary Coolant Activity Level, SGTR AND Containment Bypass]. 5. Radiological Conditions [Releases above federally approved limits or Release information not known] (either is correct) 6. Event Declared: [Time and Date] 7. Meteorological Conditions are: Wind direction at 46 meters [Southwest at 231 degrees] AND wind speed at 46 meters [6.1 mph] (wind speed not critical) (from Met Tower Data; 46 meters; 15 minute average readings) 8. Protective Action Recommendation: [2 - Evacuate 2 mile radius and 5 miles downwind A-1, B-1, C-1, D-1, B-2, B-5, and shelter remainder of 10 mile EPZ], consider issuance of POTASSIUM IODIDE in accordance with the State Plan. 9. Please repeat back the information you have received to ensure accuracy. 10. Fax information to ODS <p>This is a critical step to ensure information is accurate.</p> <p><u>COMMENT:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p> <p>Critical Step</p>

Job Performance Checklist:

STEP / STANDARD	SAT / UNSAT
<p>STEP 11.: [6] Notify ODS.</p> <p><u>NOTE:</u> Evaluator Enter time call is made to the ODS _____. Time from Declaration (step 1) to ODS Notification_____.</p> <p><u>STANDARD:</u> Candidate raises their hand as signal that they have completed TVA initial Notification form and are ready to Notify the ODS. ODS should be notified within 10 min after declaration of the event.</p> <p>This is a critical step to (complete forms within 10 min) to ensure required notifications are completed within required time.</p> <p><u>Cue:</u> This completes the JPM.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p> <p>Critical Step</p> <p>Stop Time: _____</p>

READ TO OPERATOR

DIRECTIONS TO TRAINEE:

I will explain the initial conditions, and state the task to be performed. All steps of this JPM shall be performed in a classroom or in the simulator (simulator will not be set up to match the scenario). The evaluator will provide initiating cues and any other data that may be needed. Time begins when directed by evaluator. When the declaration has been made, raise your hand, the evaluator will record the time, and then you may continue the procedure. Raise your hand again when you have completed the TVA Initial Notification Form, to the point of notifying the ODS. If during the performance of the JPM you have any questions raise your hand and the evaluator will assist you.

INITIAL CONDITIONS:

1. Unit 2 is at 100% RTP and stable.
2. Unit 1 has experienced a Reactor trip and Safety Injection.
3. Security reports that at the time of the trip, steam started blowing from the roof of the east valve vault and steam flow is still in progress at this time.
4. Steam Generator #2 is isolated per E-3, Steam Generator Tube Rupture.
5. CRO has informed you that SG #2 pressure is slowly lowering.
6. Containment pressure is 0.1 psig and steady.
7. RCS pressure is 1500 psig.
8. Core exit TCs 532 °F and slowly lowering.
9. The most recent Chem Lab sample of RCS indicates that RCS activity has risen to 345 µCi/gm Equivalent Iodine-131.
10. Emergency Paging System (EPS) is not available in MCR.
11. There are no indications of an Onsite Security Event.

INITIATING CUES:

1. You are the Unit 1 US and have assumed the duties of the SED position, until the TSC is staffed.
2. You are to perform each of the following:
 - a. Classify this event per EPIP-1

And

- b. Fill out TVA Initial Notification Form and make Protective Action Recommendations, if any.

This is a time critical JPM, Time begins when directed by evaluator

Based on recently discovered data the following correction to SRO Admin D, "Classify the Event per the REP (SGTR with Failed SG Safety), answer key is requested. From the original answer key, the following items were inadvertently identified as the expected data that would be entered on the EPIP-5, General Emergency, Appendix C – TVA Initial Notification of General Emergency:

Line 4 Brief description of the Event: was initially identified as critical, however as identified on TRN-11.10, "Annual Requalification Examination Development Documentation," Appendix M, the EAL designator is the critical part of the event notification form since these numbers would be used by the outside agencies to correctly determine the events in progress. This is explained on page 2 of Appendix M, Item E. The brief description, although helpful, is not used to identify the event(s) in progress. Thus line 4 would not be critical data and constitute a failure for the Shift manager.

Line 5 With the dose equivalent I-131 level given in the Initial Conditions (345 $\mu\text{Ci/gm}$) it would be reasonable that either "Release above federally approved limits" or "Release information not known" could be checked during the initial notification. This would apply to both Airborne Release Offsite and Liquid Release Offsite columns. The original key only had "Release information not known" column checked. Either of these boxes checked is acceptable and would be considered a correct response.

Line 7 the original "Wind Direction is FROM" value was incorrectly identified as the instantaneous wind speed at 46 meters vs the 15 minute average speed used by the Shift Manager when using ICS data to identify the sectors which could be affected by a release from the site during an accident. Also, the wind speed was inadvertently identified as critical data when filling out the notification form. Since it is only wind direction that is required to correctly identify the affected sectors, not the speed of the wind, the wind speed is for information only but is not required (critical) data. Also, as indicated on Appendix M, Item F, "Minor discrepancies in the wind speed and direction provided on the emergency notification forms need not count as a missed notification opportunity provided the discrepancy would not result in providing an incorrect PAR." Therefore, the correct answer key for line 7 would be the 15 minute average wind direction at 46 meters [critical data] and the same elevation wind speed would be information only, [not critical].

Revised Answer Key

**Appendix C
TVA INITIAL NOTIFICATION OF GENERAL EMERGENCY**

1. This is a Drill This is an Actual Event - Repeat - This is an Actual Event

2. This is _____, Sequoyah has declared a **GENERAL EMERGENCY**
affecting: Unit 1 Unit 2 Both Unit 1 and Unit 2

3. EAL Designator(s): Loss 1.1, 2 and Loss 1.2, 3 and Loss 1.3, 4 or (L-1.1, 2 and L-1.2, 3 and L-1.3, 4)

4. Brief Description of the Event: (Not Critical) - Primary Coolant Activity, S&TR and Containment Bypass

5. Radiological Conditions: (Check one under both Airborne and Liquid column.)

<p style="text-align: center;">Airborne Releases Offsite</p> <input type="checkbox"/> Minor releases within federally approved limits ¹ <input checked="" type="checkbox"/> Releases above federally approved limits ¹ <input checked="" type="checkbox"/> Release information not known <small>(¹Tech Specs)</small>	or	<p style="text-align: center;">Liquid Releases Offsite</p> <input type="checkbox"/> Minor releases within federally approved limits ¹ <input checked="" type="checkbox"/> Releases above federally approved limits ¹ <input checked="" type="checkbox"/> Release information not known <small>(¹Tech Specs)</small>
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6. Event Declared: _____ Time: _____ Date: _____

7. The Meteorological Conditions are: (Use 46 meter data from the Met Tower)

Wind Direction is FROM: 231 degrees Wind Speed: 6.3 m.p.h
15 min average NOT Critical

8. Provide Protective Action Recommendation: (Check either 1 or 2 or 3.)

R E C 1	WIND FROM *DEGREES DIRECTION (item 7) (Mark)	R E C 2
<input type="checkbox"/> Recommendation 1 <ul style="list-style-type: none"> • EVACUATE LISTED SECTORS (2 mile Radius and 10 miles downwind) • SHELTER remainder of 10 mile EPZ • CONSIDER issuance of POTASSIUM IODIDE in accordance with the State Plan. 		<input checked="" type="checkbox"/> Recommendation 2 <ul style="list-style-type: none"> • EVACUATE LISTED SECTORS (2 mile Radius and 5 mile downwind) • SHELTER remainder of 10 mile EPZ • CONSIDER issuance of POTASSIUM IODIDE in accordance with the State Plan.
A-1, B-1, C-1, D-1, C-2, -6, -7, -8, D-2, -3, -5, -6	12 - 49	A-1, B-1, C-1, D-1, C-2, D-2
A-1, B-1, C-1, D-1, D-2, -3, -4, -5, -6	50 - 70	A-1, B-1, C-1, D-1, D-2
A-1, B-1, C-1, D-1, A-3, -4, D-2, -3, -4, -5	71 - 112	A-1, B-1, C-1, D-1, A-3, D-2
A-1, B-1, C-1, D-1, A-2, -3, -4, -5, -6, D-4	113 - 146	A-1, B-1, C-1, D-1, A-2, A-3,
A-1, B-1, C-1, D-1, A-2, -3, -4, -5, -6, B-2	147 - 173	A-1, B-1, C-1, D-1, A-2, A-3, B-2
A-1, B-1, C-1, D-1, A-2, -5, -6, B-2, -3, -4	174 - 214	A-1, B-1, C-1, D-1, A-2, B-2,
A-1, B-1, C-1, D-1, B-2, -3, -4, -5, -6, -7, -8	215 - 258	<input checked="" type="checkbox"/> A-1, B-1, C-1, D-1, B-2, B-5,
A-1, B-1, C-1, D-1, B-2, -3, -5, -6, -7, -8, C-2, -3, -4, -5, -6	259 - 331	A-1, B-1, C-1, D-1, B-2, B-5, C-2
A-1, B-1, C-1, D-1, B-5, C-2, -3, -4, -5, -6, -7, -8	332 - 11	A-1, B-1, C-1, D-1, B-5, C-2

Recommendation 3
▶ SHELTER all sectors.
▶ CONSIDER issuance of Potassium Iodide in accordance with the State Plan.

9. Please repeat back the information you have received to ensure accuracy.

10. When completed, FAX this information to the ODS or TEMA as required by Sections 3.1 or 3.2.

Applicant Handout

MET-TOWER LINK

DOSE
CALC
MET DATA

WIND
DIRECTION

INSTANTANEOUS 15 MIN AVG

AIR TEMPERATURE: 91.70 DEG F 91.99

WIND SPEED: 5.7 MPH 6.2

WIND DIRECTION FROM: 226 DEGREES 225

RAINFALL

LAST HOUR: 0.00 INCHES

LAST 15 MIN: 0.00 INCHES

AIR TEMPERATURE: 92.23 DEG F 92.58

WIND SPEED: 4.5 MPH 6.3

WIND DIRECTION FROM: 237 DEGREES 231

10 METER DEW POINT

(HOURLY AVG): 70.04 DEG F

SOLAR RADIATION

(HOURLY AVG): 0.99 LANGLEYS /MIN

AIR TEMPERATURE: 93.15 DEG F 93.69

WIND SPEED: 5.0 MPH 6.3

WIND DIRECTION FROM: 270 DEGREES 235

RIVER

STABILITY
DELTA-T's

91 METER

EL. 1047'

46 METER

EL. 897'

10 METER

EL. 780'

PREVIOUS
(F7)

CANCEL
(ESC)

F1= CLEAR

F2=

F3= HISTORY

F4=

F5=

F6=

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**Appendix M
(Page 1 of 3)**

Annual Examination EPIP Classification Documentation

Shift Managers Only

NOTE: This form is designed to be used for 1 scenario only.

SM/SED: _____ Scenario#: _____ Date: ____ / ____ / ____ Page ____ of ____

1. CLASSIFICATION]: _____ NOUE ALERT SAE GE
 EAL ACTION DESIGNATOR: _____ PAR: _____ (GE only)
 CONDITIONS THAT INDICATE EAL REACHED: _____
 a. TIME CONDITIONS INDICATED IN CONTROL ROOM: _____
 b. TIME SM/SED DETERMINED EAL: _____
 c. 'b' minus 'a' = ≤ 15 minutes: YES NO
 d. Correct classification determined: YES NO
 e. EAL Designator: _____ Correct: YES NO
 f. PAR: _____ Correct: YES NO NA
 g. EPIP Notification form accurately completed: YES NO
 h. TIME ODS NOTIFIED _____ 'h' minus 'b' = ≤ 5 minutes YES NO

2. CLASSIFICATION]: _____ NOUE ALERT SAE GE
 EAL ACTION DESIGNATOR: _____ PAR: _____ (GE only)
 CONDITIONS THAT INDICATE EAL REACHED: _____
 a. TIME CONDITIONS INDICATED IN CONTROL ROOM: _____
 b. TIME SM/SED DETERMINED EAL: _____
 c. 'b' minus 'a' = ≤ 15 minutes: YES NO
 d. Correct classification determined: YES NO
 e. EAL Designator: _____ Correct: YES NO
 f. PAR: _____ Correct: YES NO NA
 g. EPIP Notification form accurately completed: YES NO
 h. TIME ODS NOTIFIED _____ 'h' minus 'b' = ≤ 5 minutes YES NO

3. CLASSIFICATION]: _____ NOUE ALERT SAE GE
 EAL ACTION DESIGNATOR: _____ PAR: _____ (GE only)
 CONDITIONS THAT INDICATE EAL REACHED: _____
 a. TIME CONDITIONS INDICATED IN CONTROL ROOM: _____
 b. TIME SM/SED DETERMINED EAL: _____
 c. 'b' minus 'a' = ≤ 15 minutes: YES NO
 d. Correct classification determined: YES NO
 e. EAL Designator: _____ Correct: YES NO
 f. PAR: _____ Correct: YES NO NA
 g. EPIP Notification form accurately completed: YES NO
 h. TIME ODS NOTIFIED _____ 'h' minus 'b' = ≤ 5 minutes YES NO

Comments: _____

Signature below indicates that the above information is correct to the best of my knowledge:

 PRINT/TYPER NAME

 PRINT/TYPER NAME

 EVALUATOR SIGNATURE

 REVIEWER SIGNATURE

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**Appendix M
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Annual Examination EPIP Classification Documentation

1.0 INSTRUCTIONS

1.1 General

- A. Performance Indicator data is required to be entered into the INPO data base monthly in accordance with SPP-3.4. All examination forms shall be completed, signed, and provided to Emergency Preparedness for entry into the data base by the last working day of each month in which they were collected.
- B. Operating shift simulator training evaluations may be included in this indicator only when the scope requires classification. Classification, Protective Action Recommendation (PAR) notifications, and PARs may be included in this indicator if they are performed to the point of filling out the appropriate forms and demonstrating sufficient knowledge to perform the actual notification. However, there is no intent to disrupt ongoing operator qualification programs. Appropriate operator training evolutions should be included in the indicator only when Emergency Preparedness aspects are consistent with training goals.
- C. In advance to initiation of the examination of NRC Drill and Exercise Performance (DEP) Indicators, the Shift Manager must be notified by the evaluator.
- D. EP and Operations Training has pre-established that for all training evaluations, mark EPIP Initial Notification forms with "THIS IS A DRILL." In order to avoid confusion, brief the Shift Manager before the examination.
- E. The description of the event causing the classification may be brief and need not include all plant conditions. The EAL number is the actual description.
- F. Minor discrepancies in the wind speed and direction provided on the emergency notification forms need not count as a missed notification opportunity provided the discrepancy would not result in providing an incorrect PAR.
- G. Simulation of notification to offsite agencies is allowed. It is not expected that State/Local agencies be available to support all drills conducted. The drill should reasonably simulate the contact, and the participants should demonstrate their ability to use the equipment. Simulation of ODS/State notification is considered complete when the SM has demonstrated to the Instructor that he has initiated his contact to the ODS or State.
- H. If an event has occurred that resulted in an emergency classification where no EAL was exceeded, the incorrect classification should be considered a missed opportunity. The subsequent notification should be considered an opportunity and evaluated on its own merit.
- I. During drill performance, the crew might not classify an event exactly the way that the scenario specifies. This could be due to conservative decision making, Emergency Director Judgment, or a simulator-driven scenario that has the potential for multiple "forks." Situations can arise in which assessment of classification opportunities is subjective because of deviation from the expected scenario path. In such cases, evaluators should document the rationale supporting their decision for eventual NRC inspection. Evaluators must determine if the classification was appropriate to the event as presented to the participants and in accordance with approved emergency plan and implementing procedures.

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**Appendix M
(Page 3 of 3)**

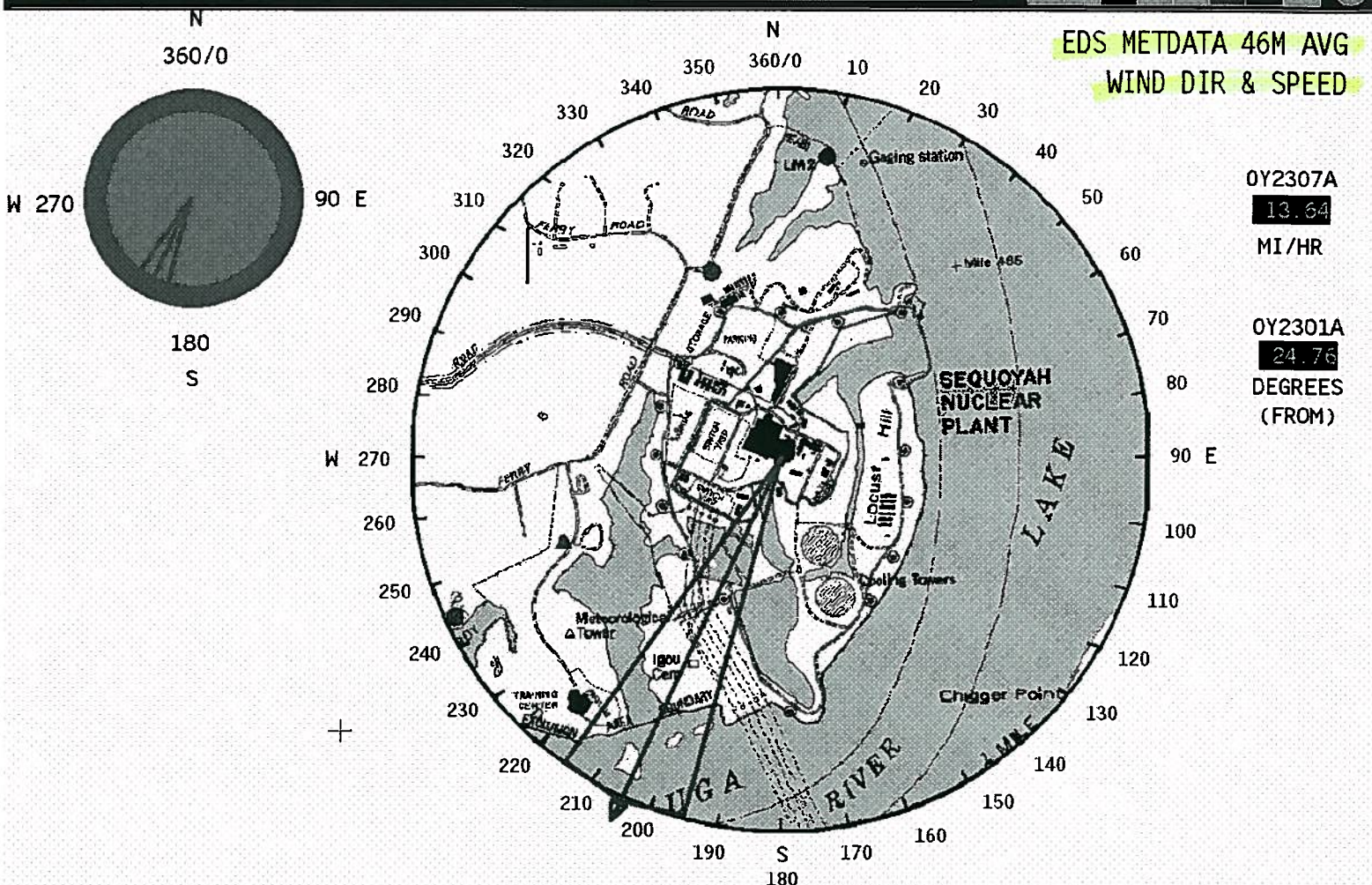
Annual Examination EPIP Classification Documentation

1.1 General (continued)

- J. If an instructor intervenes, coaches, or prompts the performance of an individual to make an independent and correct classification, notification, or PAR, the DEP PI opportunity is a failure.
- K. Even though an incorrect Classification has occurred, the associated notification opportunity can be successfully demonstrated. The opportunity for notification can be counted successful if the (incorrect) classification information was communicated correctly.
- L. Contact Emergency Preparedness for clarification or issues or questions.

1.2 Specific Instructions

- A. Use additional forms if necessary to document a scenario.
- B. Before the examination scenario, complete Scenario Identification, Date, SM/SED of the examination form. Utilize Instructor Notes to clarify issues.
- C. During the examination, complete classifications of the examination form.
- D. Evaluate examination results of the examination form.
- E. If any question(s) is answered NO, then explain why in the notes section of the examination form.
- F. Collect all applicable EPIP Notification Forms and keep with examination forms.
- G. Include all scenario deviations for audit and recommend scenario revisions based upon new EALs identification or incorrect EALs that might be within the exam scenario.
- H. Scenarios should be written such that effective evaluation can take place. Complex scenarios with multiple "forks" and the use of emergency director judgment/conservative decision-making might result the need for careful evaluation and documentation.
- I. If personnel notes are used for the evaluation and conclusion, then transcribe the portions of notes necessary to produce an auditable data set onto the applicable form or attach documentation.



PREVIOUS (F7) CANCEL (ESC) F1-CLEAR F2- F3- F4- F5- F6-
 PG UP PG DN TT057 WK=ANONYMOUS SEC LVL=15 PRIM/BACKCPU I MODE 1 SQN PEDS 2

*wind speed and direction used for PAR ~~recommendations~~ ^{data}
 recommendations are 15 min average from 46 meters.*

SQN	TENNESSEE VALLEY AUTHORITY NUCLEAR POWER RADIOLOGICAL EMERGENCY PLAN	NP-REP APPENDIX B Page B-13 Revision 91
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<i>Section</i>	1.0	FISSION PRODUCT BARRIER MATRIX
<i>Event</i>	1.1	FUEL CLAD BARRIER
<i>IC</i>	1.2	Primary Coolant Activity Level
<i>Mode</i>		1,2,3,4
<i>Description</i>		<p>LOSS:</p> <p>RCS sample activity is >300 $\mu\text{Ci/gm}$ dose equivalent Iodine -131.</p> <p>Potential LOSS:</p> <p>Not Applicable.</p>
<i>Basis</i>		<p>LOSS:</p> <p>The "Loss" IC addresses the condition of high RCS activity. If the reading of RCS activity is > 300 $\mu\text{Ci/gm}$ it is well above expected iodine spikes and corresponds to about 2% to 5% fuel clad damage. This amount of clad damage indicates that significant clad heating has occurred.</p> <p>Potential LOSS:</p> <p>These is no "Potential Loss" IC associated with this item.</p>
<i>Escalation</i>		Not Applicable.
<i>References</i>		NUMARC/NESP-007, Rev 2, 1/92 per REG GUIDE 1.101

[REDACTED]

ENCLOSURE 9

**REQUEST FOR A CORRECTION TO THE SRO ADMIN D JPM ANSWER KEY WITH
SUPPORTING DOCUMENTATION**



Tennessee Valley Authority, Post Office Box 2000, Soddy-Daisy, Tennessee 37379-2000

November 15, 2010

ES-501

Mr. Richard S. Baldwin
U.S. Nuclear Regulatory Commission
Marquis One Tower
245 Peachtree Center Avenue, NE, Suite 1200
Atlanta, Georgia 30303-1257

Sequoyah Nuclear Plant, Units 1 and 2
Facility Operating License Nos. DPR-77 and DPR-79
NRC Docket Nos. 50-327 and 50-328

Subject: Reactor Operator and Senior Reactor Operator Initial Examinations - 05000327/2010302 and 05000328/2010302

Reference: NRC letter to TVA, "Reactor Operator and Senior Reactor Operator Initial Examinations - 05000327/2010302 and 05000328/2010302," dated October 6, 2010

In accordance with Examination Standard (ES) 501, "Initial Post-Examination Activities," of NUREG 1021, "Operator Licensing Examination Standards for Power Reactors," substantive comments related to the examination were provided in the referenced letter. The purpose of this letter is to provide supplemental information to the substantive comments submitted in the referenced letter. The enclosure provides the supplemental information as discussed with Craig Kontz of your staff on November 5, 2010.

There are no commitments contained in this submittal. Should you require additional information regarding this matter, please contact Michael Buckner at (423) 843-4208 or contact Beth A. Wetzel at (423) 843-7170.

NOV 16 2010

U.S. Nuclear Regulatory Commission
Page 2
November 15, 2010

Sincerely,

A handwritten signature in black ink, appearing to read "Chris R. Church". The signature is fluid and cursive, with a large initial "C" and "R".

Christopher R. Church
Site Vice-President
Sequoyah Nuclear Plant

Enclosure: Reactor Operator and Senior Reactor Operator Initial Examinations
Supplemental Substantive Comments (ES-402)

BAW:NRT:SKD
Enclosure

The following provides supplemental information to the NRC post examination questions.

NRC Question 1

Simulator Job Performance Measure (JPM) G - Need new evaluation criteria and basis for evaluating the applicants use of Abnormal Operating Procedure (AOP) - M.04 Appendix E with centrifugal charging pump (CCP) and volume control tank (VCT) for establishing make-up. The issues of capacity (flow rate and overall available volume) need to be addressed as an alternative for residual heat removal (RHR) from the refueling water storage tank (RWST).

TVA Response 1

This JPM was developed as an alternate path JPM such that when the candidates determined that the Appendix A criteria for establishing flow from the RWST through the CCPs in Step 1 could not be established, the candidate would then move on to Step 2 and establish makeup flow from the RWST through an alternate path using the RHR pumps. After reviewing the step sequence and the use of check boxes as each step is performed, **it would be reasonable and logical that a candidate would go back to Step 5 of the AOP after not being able to open the suction valves from the RWST to the CCPs and conclude that the next step should be the guidance in Step 5 response not obtained (RNO) column that directs the candidate to perform Appendix E of AOP-M.04.** This is not the direction given to the candidate in the JPM initiating cues, (which was "to establish makeup to the refueling cavity from the RWST as soon as possible") however; the direction to perform Appendix E does have a logical flow path.

Although making up to the refueling cavity using a CCP taking suction from the VCT does reduce the rate of makeup to that of VCT makeup flow (~120 gpm given the plant conditions for the JPM) vs potential makeup from injection by using a CCP taking suction from the RWST (~ 400 gpm) or RHR pumps (~3000 gpm), the rate of makeup flow was not a critical task of the JPM. Since the candidates did not know what the leak rate was, they would not know if Appendix A or Appendix E flow path was adequate until after determining if refueling cavity level was recovering or not. Determining a change in refueling cavity level to indicate how effective the makeup is in recovering level was not part of the JPM, only establishing makeup flow.

The site would evaluate the candidate as satisfactory if they assumed that makeup flow from the RWST could not be established when the CCP suction valves would not open using Appendix A and then applied the Step 5 RNO column direction of implementing Appendix E.

A revised copy of JPM G, with the alternate method of makeup to the refueling cavity using Appendix E is attached.

NRC Question 2

Administrative JPM A.1.A – Overtime Restrictions – TVA Standard Programs and Processes (SPP) - 1.5, Section 3.2.1.A.5, requires “At least a 34 hour break in any 9 calendar day period.”

- a. How is this requirement applied / implemented at the station?
- b. How should this requirement have been applied / evaluated for the schedule given in the JPM?

TVA Response 2(a)

The actual application at the station is by using a “Personnel Qualification and Scheduling” software program in the Shift Operations Management System (eSOMS). This program has the criteria identified in NPG-SPP-03.21, Fatigue Management and Work Hour Limits. This is the official program used to track worker hours (actual and projected) to ensure the site is complying with the requirements of Title 10 Code of Federal Regulations (CFR) Part 26, Fitness for Duty Programs.

The application of Section 3.2.1.A.5 of “At least a 34 hour break in any 9 calendar day period” is actually a 216-hour period. The computer program evaluates the 34-hour break based on the start of work following a break of at least 34 continuous hours. Therefore, the computer program would evaluate the 216 hours since the end of the last break of at least 34 continuous hours for another break of at least 34 continuous hours in length.

TVA Response 2(b)

Normally any hours scheduled to be worked (or planned to be worked) are processed using eSOMS to determine if any of the established criteria from Section 3.2.1 would be violated.

The JPM as administered had the candidates do a manual calculation of a work schedule based on the hours presented. During development and validation it was determined that two critical tasks (work hour violations) were present. It was not identified that a violation of Item 3.2.1.A.5 (a 34 hr break in any 9 calendar day period) had been committed. The work hours given in the JPM were processed through the eSOMS software and the computer program did identify the two predetermined work hour violations, (one on May 30, 2010, for a violation of greater than 26 hours in 48 hour period and one on June 4, 2010, for a violation of greater than 72 hours in a 7 day period); however, it did not identify a violation of Item 3.2.1.A.5.

The procedure requires evaluating any 9 calendar days and it would appear that a violation of the 34 hour break in any 9 day requirement may occur on June 7, 2010. However, because of evaluating the 34 hour break in 9-day period at the end of the workday or start of the next work day, not during a non-workday, there is a greater than 34 hour break for the work hours listed in the JPM. If a candidate determined that a potential violation did occur for this instance it would be a conservative call and would actually need to be verified through the use of the official tracking tool (eSOMS). This would not constitute a failure by the candidate, only an item which would need further evaluation.

per. →

SEQUOYAH NUCLEAR PLANT
September 2010 NRC Exam

SIM G (RO\SRO)

Initiate Makeup to the Refueling Cavity
(rev. 1)

**RO/SRO
JOB PERFORMANCE MEASURE**

Task: Initiate Makeup to the Refueling Cavity

Task #: 3210110401 (RO)

Task Standard: Makeup to the refueling cavity via the RHR Pumps is initiated per AOP-M.04.(preferred method)
Makeup to the refueling cavity via the CCPs and VCT is initiated per AOP-M.04. (alternate)

Time Critical Task: YES: NO: X

K/A Reference/Ratings: 036AA2.02 (3.4/4.1) 004A4.08 (3.8/3.4)
036AK3.03 (3.7/4.1)

Method of Testing:

Simulated Performance: _____ **Actual Performance:** X

Evaluation Method:

Simulator X **In-Plant** _____ **Classroom** _____

Main Control Room _____ **Mock-up** _____

Performer: _____
Trainee Name

Evaluator: _____ / _____
Name / Signature DATE

Performance Rating: SAT: _____ UNSAT: _____

Validation Time: 15 minutes **Total Time:** _____

Performance Time: **Start Time:** _____ **Finish Time:** _____

COMMENTS

SPECIAL INSTRUCTIONS TO EVALUATOR:

1. Critical steps are identified in step SAT/UNSAT column by bold print 'Critical Step'.
2. Any UNSAT requires comments
3. Initialize the simulator to IC-114 and complete the following setup.
4. **Override # AN:OVRDN_584 to ON**, to bring in alarm for SPENT FUEL PIT LEVEL.
5. **Override ZAOLI68320, ZAOLI68321, ZAOLI68335A, ZAOLI68339A at 50** to simulate PZR at refueling level.
6. **Override ZAOP16866A, ZAOP16869, ZAOP16862 at 35** to simulate refuel flood up pressure.
7. **Override AN:OVRDN_1695 to OFF** to keep midloop high level alarm from alarming.
8. **Override (FCV-62-135 & 136, CCP Suction from VCT, CLOSED. (ZLOHS62135A_Green f:ON, ZLOHS62136A_Green f:ON, ZDIHS62135A f:0 (close), ZDIHS62136A f:0 (close))**
9. Insure operator performs the following required actions for **SELF-CHECKING**;
 - a. Identifies the correct unit, train, component, etc.
 - b. Reviews the intended action and expected response.
 - c. Compares the actual response to the expected response.
10. Add Caution Order tag to FCV-63-1 per 0-GO-13 App. O. (jumpers placed to remove seal in)

Tools/Equipment/Procedures Needed:

AOP-M.04, Section 2.0, 2.1, and Appendix A & B

REFERENCES:

1.	AOP-M.04, Sect 2.1 & Appendix A	Refueling Malfunctions	Rev No. 9
2.	AOP-M.04, Sect 2.1 & Appendix E	Refueling Malfunctions	Rev No. 9

Task Number	Task Title	Cont TRN
3210110401 (RO)	Initiate Makeup to the Refueling Cavity	

=====

Job Performance Checklist

STEP/STANDARD	SAT/UNSAT
<p>STEP 12: A.1.c. OPEN the following valves: FCV-62-135 and 136. CCP suction from RWST</p> <p>STANDARD: Operator pushes HSs (1-HS-62-135A and 1-HS-62-136A) IN and turns to the OPEN position and determines that neither valve opens Green lights remain LIT for FCVs-62-135 and 136.</p> <p>Cue: If required, acknowledge and ask for recommended path to complete task.</p> <p>This step is critical to attempt a supply to the refueling cavity makeup flowpath and then for the UO to determine the valve failure so the alternate path may be utilized.</p> <p>COMMENTS:</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p>Evaluator Note: The candidate should recommend using the alternate method of filling Reactor Cavity by performing step 2 of Appendix A,</p> <p>OR the candidate may determine that response was not obtained due to suction valves not opening, flow from RWST is not available and returns to AOP step 5, RNO column. (If candidate returns to step 5, RNO to perform Appendix E, then go to JPM step 20)</p>	
<p>STEP 13: Operator reports to US that neither CCP suction from the RWST will open.</p> <p>Cue: <i>After operator reports not being able to open CCP suction valves, report as the US that you will contact Maintenance Shift Supervisor to investigate the cause of the valve failure.</i></p> <p>STANDARD: Operator determines that step 2 of Appendix A is appropriate action to take or returns to step 5 RNO column for next action.</p> <p>COMMENTS:</p>	<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist

STEP/STANDARD

SAT/UNSAT

NOTE: The following are from Appendix A, Section A, Step 2 of AOP-M.04.

<p><u>STEP 14:</u> A.2. IF initiating makeup from RWST using RHR Pump suction, THEN PERFORM the following:</p> <p style="padding-left: 40px;">a. VERIFY RWST level greater than 8%.</p> <p><u>STANDARD:</u> Operator verifies RWST level greater than 8% using one or more of the RWST level indicators located on M-6.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 15:</u> A.2. IF initiating makeup from RWST using RHR Pump suction, THEN PERFORM the following:</p> <p style="padding-left: 40px;">b. OPEN FCV-63-1, RWST supply</p> <p><u>STANDARD:</u> Operator uses HS-63-1A and opens FCV-63-1, Observes Red light ON, Green light OFF.</p> <p>This step is critical to provide a makeup flowpath from the RWST to the refueling cavity.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>

Job Performance Checklist

STEP/STANDARD	SAT/UNSAT
<p>STEP 16: A.2. IF initiating makeup from RWST using RHR Pump suction, THEN PERFORM the following:</p> <p>CLOSE one the following valves:</p> <ul style="list-style-type: none">FCV-74-1, RHR suction from Hot Leg No. 4 orFCV-74-2, RHR suction from Hot Leg No. 4 <p>STANDARD: Operator uses HS-74-1A and CLOSES FCV-74-1, Observes Red light OFF, Green light ON. OR Operator uses HS-74-2A and CLOSES FCV-74-2, Observes Red light OFF, Green light ON</p> <p>This step is critical to isolate the normal RHR suction flowpath and to swap over to the RWST suction flowpath.</p> <p>COMMENTS:</p>	<p>___ SAT ___ UNSAT</p> <p>Critical Step</p>
<p>STEP 18: A.2.d VERIFY flow to RCS.</p> <p>STANDARD: Operator verifies flow into the RCS by observing flow on 1-FI-63-91B or 1-FI-63-92B.</p> <p>COMMENTS:</p>	<p>___ SAT ___ UNSAT</p>

Job Performance Checklist

STEP/STANDARD	SAT/UNSAT
<p>STEP 19: Inform the US of flow from RWST to RCS/Refueling Cavity.</p> <p>STANDARD: Operator informs US and/or SM that flow has been established from RWST to Spent Fuel Pit.</p> <p>Cue: <i>After operator reports that flow has been established, State "This completes the JPM."</i></p> <p>COMMENTS:</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Stop Time ___</p>
<p>Evaluator Note: If candidate went back to Step 5 RNO start evaluation here</p>	
<p>STEP 20: <u>2.1.5.a RNO:</u> IF RWST NOT available, THEN PERFORM the following:</p> <p>1) INITIATE makeup using normal charging with CCP suction aligned to VCT USING App. E, Refueling Cavity Makeup Using Normal Charging.</p> <p>STANDARD: Operator transitions to App E to initiate makeup using normal charging.</p> <p>COMMENTS:</p>	<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist

STEP/STANDARD	SAT/UNSAT
<p>NOTE: The following steps are from Appendix E, of AOP-M.04.</p>	
<p>STEP 21: App E 1. ENSURE FCV-62-81, Letdown Back Pressure Control Valve CLOSED.</p> <p>STANDARD: Operator places Manual/Auto toggle switch to Manual on controller 1-HIC-62-81A and then moves toggle to the right until valve position indicator is fully CLOSED (indicator needle stops moving to the right)</p> <p>This is a critical step to stop letting down water from RHR system to conserve RCS inventory.</p> <p>COMMENTS:</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p>STEP 22: 2. ENSURE FCV-62-83, RHR Letdown CLOSED.</p> <p>STANDARD: Operator turns setpoint dial fully clockwise and observes position indicator goes fully to CLOSE (left) position .</p> <p>COMMENTS:</p>	<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 23:</u> 3. ENSURE one of the following valves OPEN:</p> <p style="padding-left: 40px;">FCV-62-85, Charging FCV to Loop 1 OR FCV-62-86, Charging FCV to Loop 4</p> <p><u>STANDARD:</u> Operator verifies FCV-62-86 is Open by observing switch for FCV-62-86 in the Open position and Red light On.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 24:</u> 4. ENSURE the following valves OPEN:</p> <p style="padding-left: 40px;">FCV-62-90, Charging isolation FCV-62-91, Charging isolation</p> <p><u>STANDARD:</u> Operator verifies FCV-62-90 and FCV-62-91 are Open by observing switch for each valve in A-Auto position and Red light On, Green light off for each valve.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>Evaluator Note: The VCT makeup rate will be limited to ~ 120 gpm for normal auto makeup, if charging is increased above this value then VCT makeup will be required.</p>	

Job Performance Checklist

STEP/STANDARD	SAT/UNSAT
<p>STEP 25: 5. ENSURE VCT makeup initiated as necessary to maintain VCT level above 20%:</p> <p>STANDARD: Operator verifies VCT level above 20% and notes the need to monitor level to ensure normal makeup initiates as necessary.</p> <p>COMMENTS:</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>STEP 26: 6. ENSURE the following valves OPEN:</p> <p>FCV-62-132, CCP Suction from VCT</p> <p>FCV-62-133, CCP Suction from VCT</p> <p>STANDARD: Operator verifies that FCV-62-132 and FCV-62-133 are OPEN by observing control switches in A-Auto position and Red light ON, Green light Off</p> <p>COMMENTS:</p>	<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist

STEP/STANDARD

SAT/UNSAT

<p><u>STEP 27:</u> 7. ENSURE the following valves CLOSED:</p> <p>FCV-62-135, CCP Suction from RWST</p> <p>FCV-62-136, CCP Suction from RWST</p> <p><u>STANDARD:</u> Operator verifies that FCV-62-135 and FCV-62-136 are CLOSED by observing control switch indications Green light ON, Red light Off.</p> <p>Evaluator Note: valves are failed closed per the previous JPM malfunction</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 28:</u> 8. ENSURE CCP running.</p> <p><u>STANDARD:</u> Operator verifies that 1B-B CCP running by observing control switch in A-Auto position and Red light ON, Green light Off, and normal running amps, discharge pressure, for plant conditions.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>Evaluuator Note: If candidate establishes greater than 120 gpm charging flow to the RCS in the next step, normal makeup flow will not be able to maintain VCT level greater than 20% and they will eventually lose this source of makeup water if VCT level cannot be maintained.</p>	

Job Performance Checklist

STEP/STANDARD	SAT/UNSAT
<p>STEP 29: 9. ADJUST FCV-62-89 and FCV-62-93 to establish desired flow to RCS.</p> <p>STANDARD: Operator adjusts charging flow by positioning control dial (turning dial counter clockwise) on 1-HC-82-93A to open FCV-62-93 to establish ~120 gpm flow to the RCS.</p> <p>This step is critical to ensure that makeup flow is being provided to the RCS to attempt to makeup for inventory loss due to the Reactor Cavity Seal.</p> <p>COMMENTS:</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p>STEP 30: Inform the US of flow from VCT to RCS/Refueling Cavity.</p> <p>STANDARD: Operator informs US and/or SM that flow has been established from VCT to RCS/Refueling Cavity.</p> <p>Cue: <i>After operator reports that flow has been established, State "This completes the JPM."</i></p> <p>COMMENTS:</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Stop Time ___</p>

End Of JPM

READ TO OPERATOR

DIRECTIONS TO TRAINEE:

I will explain the initial conditions, and state the task to be performed. I will provide initiating cues and reports on other actions when directed by you. All steps shall be performed for this task. When you complete the task successfully, the objective for this job performance measure will be satisfied. 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:

1. Unit 1 is in mode 6 performing refueling operations. Approximately 1/2 of the core has been off-loaded at this time.
2. There is one fuel assembly in transit to the spent fuel pit from the core. It is presently in the upender cart in transit to the spent fuel pit.
3. The refueling SRO in the reactor building has just informed you that there is an obvious drop in reactor cavity level.
4. A dedicated operator that has been assigned to monitor vessel level instruments, informs you that there is a decreasing trend in Reactor cavity level indicators.

INITIATING CUES:

1. The refueling SRO reports a confirmed reactor cavity seal failure is occurring.
2. Alarm on panel 1-M-6D (D3) "SPENT FUEL PIT LEVEL HIGH-LOW" has just actuated.
3. The refueling SRO has requested makeup to the refueling cavity from the RWST as soon as possible
4. The US directs you to perform AOP-M.04, Refueling Malfunctions (single performer method).
5. Inform the refueling SRO (and Unit SRO) as soon as makeup is initiated.

READ TO OPERATOR

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Job Performance Checklist

STEP/STANDARD

SAT/UNSAT

NOTE: If operator responds using AR-M6-D window D-3. AUO is dispatched to the SFP to investigate the alarm. Operator determines that AOP-M.04 is the appropriate procedure.

<p>STEP 1: Obtain the appropriate procedure.</p> <p>STANDARD: Operator obtains a copy of AOP-M.04.</p> <p>COMMENTS:</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Start Time ___</p>
<p>STEP 2: 1. EVALUATE the following Tech Specs for applicability:</p> <ul style="list-style-type: none"> • 3.9.8.2, RHR - Low Water Level • 3.9.10, Rx Vessel Water Level • 3.9.11, Refueling Operations - Spent Fuel Pit Water Level <p>Cue: <i>The US will evaluate the Tech Specs for applicability</i></p> <p>STANDARD: Operator notifies US of the need to evaluate these three Tech Spec items.</p> <p>COMMENTS:</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>STEP 3: 2. EVALUATE EPIP-1, Emergency Plan Initiating Conditions Matrix.</p> <p>Cue: <i>The SM will evaluate the Emergency Plan</i></p> <p>STANDARD: Operator notifies US/SM of the need to evaluate the Emergency Plan.</p> <p>COMMENTS:</p>	<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist

STEP/STANDARD	SAT/UNSAT
<p>STEP 4: 3. Diagnose conditions to determine appropriate section, of AOP-M.04, to perform.</p> <p>STANDARD: Based on plant indications and initial conditions, determines that section 2.1 must be performed and proceeds to page 4.</p> <p>COMMENTS:</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>Caution 1: Loss of Spent Fuel Pit or Refueling Cavity level and subsequent loss of shielding may result in extremely high dose rates in Containment and Spent Fuel Pit areas.</p>	
<p>Caution 2: If the reactor cavity water level drops to flange elevation with upender in vertical position, the top 0.25 inch of upender will extend above surface of water.</p>	
<p>Note: Fuel Handling SRO, personnel required to place fuel in safe location, and Radcon personnel remain (if possible) until required actions are completed.</p>	
<p>STEP 5: 2.1.1 ANNOUNCE to all non-essential personnel to evacuate Containment and AB el. 734 Refuel Floor.</p> <p>Cue: <i>The SM would like you to make that announcement.</i></p> <p>STANDARD: Operator makes this announcement.</p> <p>COMMENTS:</p>	<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist

STEP/STANDARD	SAT/UNSAT
<p>STEP 6: 2.1.2 ENSURE the following personnel notified that seal failure has occurred:</p> <ul style="list-style-type: none"> • Control Room • RADCON - to monitor refueling area and Aux Bldg as required • Fuel Handling Supervisor <p><u>Cue:</u> <i>The SM will ensure all control room personnel and the Fuel Handling Supervisor are aware of the event and that RADCON begins monitoring CNMT and the Aux Bldg.</i></p> <p><u>STANDARD:</u> Operator ensures these people are notified.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>Caution: Failure to maintain RWST level greater than 5% may cause CCPs or RHR pumps to lose suction.</p>	
<p>STEP 7: 2.1.3 MAINTAIN Refueling Cavity level as necessary:</p> <ol style="list-style-type: none"> a. INITIATE makeup from RWST using Appendix A, "Filling Refueling Cavity from RWST." b. <p><u>Cue:</u> <i>US directs makeup from RWST using CCP</i></p> <p><u>STANDARD:</u> Operator obtains a copy of Appendix A Section A of AOP-M.04.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>NOTE:The following are from Appendix A, Filling Refueling Cavity From RWST, Section A of AOP-M.04.</p>	
<p>STEP 8: A.1.a. VERIFY RWST level greater than 8%.</p> <p><u>STANDARD:</u> Operator verifies RWST level greater than 8% using one or more of the RWST level indicators located on M-6.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 9:</u> A.1.b. ENSURE the following charging valves OPEN: FCV-62-90</p> <p><u>STANDARD:</u> Operator verifies FCV-62-90 open by observing 1-HS-62-90A RED light LIT.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT ___ UNSAT</p>
<p><u>STEP 10:</u> A.1.b. ENSURE the following charging valves OPEN: FCV-62-91</p> <p><u>STANDARD:</u> Operator verifies FCV-62-91 open by observing 1-HS-62-91A RED light LIT</p> <p><u>COMMENTS:</u></p>	<p>___ SAT ___ UNSAT</p>
<p><u>STEP 11:</u> A.1.b. ENSURE the following charging valves OPEN: FCV-62-85 OR FCV-62-86</p> <p><u>STANDARD:</u> Operator verifies FCV-62-85 or 86 is open by observing 1-HS-62-85A or 1-HS-62-86A RED light LIT.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT ___ UNSAT</p>