OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

STATION:	SALEM
SYSTEM:	Generic Admin – Conduct of Operations
TASK:	Determine the amount of the time to borate for 3 stuck control rods and evaluate final BAST levels to determine any applicable TS LCO(s) and action(s)
TASK NUMBER:	N1150510502
JPM NUMBER:	20-01 ILOT SRO A2
ALTERNATE PATH:	[ ]
K/A NUMBER:	2.1.20
IMPORTANCE FACTOR:	RO: SRO: 4.6
APPLICABILITY:	EO [ ] RO [ ] STA [ ] SRO [X]
EVALUATION SETTING/METHOD:	Classroom
REFERENCES:	2-EOP-TRIP-2, Rev 40, S2.OP-TM.ZZ-0002, Rev 8, TS sect 3.1, S2.OP-ST.CVC-0009 R27 and 10 R13 (checked 10-6-21)
TOOLS AND EQUIPMENT:	None
VALIDATED JPM COMPLETION TIME:	10 min
TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS:	N/A
Developed By:	**R. Chan, Instructor** — **Date: 1-10-22**
Validated By:	**M. Protesto, SME or Instructor** — **Date: 1-10-22**
Approved By:	**M. Wadusky (signature on file), Training Department** — **Date: 2-10-22**
Approved By:	**W. Hargrave, Operations Department** — **Date: 1-10-22**

ACTUAL JPM COMPLETION TIME:

ACTUAL TIME CRITICAL COMPLETION TIME:

PERFORMED BY:

GRADE: [ ] **SAT** [ ] **UNSAT**

REASON, IF UNSATISFACTORY:

EVALUATOR'S SIGNATURE: **DATE:**

OPERATOR TRAINING PROGRAM
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REVISION HISTORY

JPM NUMBER: 20-01 ILOT SRO A2

Rev #	Date	Description	Validation Required
00	8-20-21	**NEW JPM for 20-01 ILOT**	Yes
01	1-10-22	Incorporated NRC comments submitted in ES-301-7. JPM will be validated during NRC Prep Week.	Yes

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SIMULATOR SETUP INSTRUCTIONS

SYSTEM: Generic Admin – Conduct of Operations

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TASK NUMBER: N1150510502

SIMULATOR IC: N/A

MALFUNCTIONS/REMOTES/OVERRIDES: N/A

SPECIAL INSTRUCTIONS:

1. Complete copy of Unit 2 TS is required for each applicant.
2. Copies of S2.OP-ST.CVC-0009 and 0010 are available, if requested.

OPERATOR TRAINING PROGRAM
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NAME: _____

DATE: _____

SYSTEM: Generic Admin – Conduct of Operations

TASK: Determine the amount of the time to borate for 3 stuck control rods and evaluate final BAST levels to determine any applicable TS LCO(s) and action(s)

TASK NUMBER: N1150510502

INITIAL CONDITIONS:

- Unit 2 experienced an automatic Reactor Trip from an inadvertent Main Turbine Trip.
- 2SJ2 was tagged for emergent repairs prior to the trip.
- SI is not required and the crew is implementing 2-EOP-TRIP-2, Reactor Trip Response.
- Three Control Rods from Control Bank Delta have failed to FULLY insert.
- RWST Concentration is 2350ppm, and BAST concentration is 6,650 ppm.
- Unit 2 remains in Mode 3 throughout the boration.
- Current BAST levels:
  - 21 BAST level: 70%
  - 22 BAST level: 70%

INITIATING CUE:

- You are the CRS.
- Determine the amount of time Rapid Boration is required IAW 2-EOP-TRIP-2 **Step 4** for the Three Control rods that have failed to insert on Control Bank Delta
  1. How many total minutes of Rapid Boration is required?
  2. What will be the final BAST levels in percent IAW S2.OP-TM.ZZ-0002?
     - Assume the Rapid Boration flowrate remains at 40 GPM for the entire duration required in question 1, and Both BAST's lower equal amounts.
  3. Based on plant conditions after completion of the boration, identify any Tech spec(s) and Tech Spec action statement(s) required related to the boric acid system.

Successful Completion Criteria:
1. All critical steps completed.
2. All sequential steps completed in order.
3. All time-critical steps completed within allotted time.
4. JPM completed within validated time. Completion time may exceed the validated time if satisfactory progress is being made (and NRC concurrence is obtained).

Task Standard for Successful Completion:

1. **Calculates the total boration time for 3 stuck control rods to be 105 minutes**
2. **Determines final BAST tank levels for 21 tank at 43% ± 2% and 22 tank at 43% ± 2%**
3. **Determines that TS LCO 3.1.2.6.a.1 is not met and action is required.**

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* #	STEP NO.	STEP (Shaded area denotes Critical Step) (* Critical Step)	STANDARD (Bolded area identifies Task Standard)	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	CUE	Provide the Following: • EOP TRIP 2 sheet 2 • S2.OP-TM.ZZ-0002 • Unit 2 Technical Specification • Calculator If requested provide the following: • S2.OP-ST.CVC-0009 • S2.OP-ST.CVC-0010			
	CUE	Fill in the JPM Start Time when the student acknowledges the Initiating Cue. **START TIME**:_____			
		The following steps are from 2-EOP-TRIP-2, Major Action for "Control Rod Insertion", Step 4. **<u>Evaluator's Note</u>: Figure 1 is a snapshot that shows the exact EOP steps to follow along.**			

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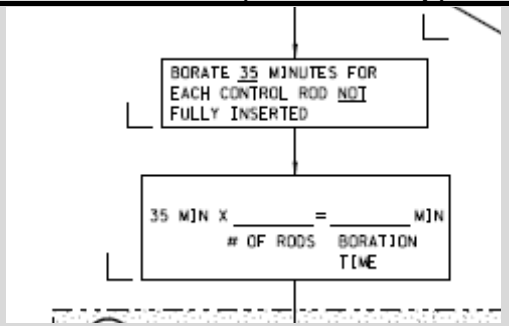
* #	STEP NO.	STEP (Shaded area denotes Critical Step) (* Critical Step)	STANDARD (Bolded area identifies Task Standard)	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
*	1	 **How many total minutes of Rapid Boration is required?**	**Operator Determine based on Cue that 3 control rods have failed to FULLY insert and determines the boration time required is 105 Minutes.** **35 MIN X ___3___ = ___105___ MIN** **# OF RODS BORATION TIME**		
	2.0	What will be the final BAST levels?			
*	2.1	**Determines total volume added to allow them to determine tank level changes.**	**Operator determines the total volume required to be added is 4200 Gallons.** **105 MIN X 40 GPM = 4200 Gallons** **The stem stated that BAST tanks lower in equal amounts. Therefore, the amount that each tank will lower will be;** **4200 gals / 2 = 2100 gallons per tank**		

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* #	STEP NO.	STEP (Shaded area denotes Critical Step) (* Critical Step)	STANDARD (Bolded area identifies Task Standard)	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
*	2.2	**Determining 21 BAST Tanks Final Level (in %):** Operator will be utilizing S2.OP-TM.ZZ-0002 Rev. 8 TANK CAPACITY DATA to interpret the curves from page 6 of 34 and determine level change, additionally operator may perform calculations slightly different than listed below. May just utilize the tank curve to determine volume change per percent level or overall change in level had just one tank been drained and then divide by two. **Figure 2 is snapshot of tank level curve**	**Using Figure 2 to determine final level after 2100 gallons of boric acid used.** **Start Level = 70% = 5500 Gallons** **Amount boric acid used = 2100 Gallons** **Final Level = 5500 -2100 = 3400 gals.** **Using Figure 2 tank curve, 3400 gallons equates to a final tank level of <u>43% (+/-2%)</u>**		
*	2.3	**Determining 22 BAST Tank Final Level (in %)** **<u>Examiners Note</u>: +/-2% acceptance band was determined from the readability error using Figure 2 BAST tank curve. The applicant is required to convert BAST levels to gallons using the curve, and then convert BAST volume in gallons back to % level. In both these determinations, there is a +/-1% readability error (half a 2% increment on the curve) that must be considered each time. Therefore, it was determined that a +/- 2% band would be appropriate to bound the readability errors when using the curve.**	**Using Figure 2 to determine final level after 2100 gallons of boric acid used.** **Start Level = 70% = 5500 Gallons** **Amount boric acid used = 2100 Gallons** **Final Level = 5500 -2100 = 3400 gals.** **Using Figure 2 tank curve, 3400 gallons equates to a final tank level of <u>43% (+/-2%)</u>**		

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* #	STEP NO.	STEP (Shaded area denotes Critical Step) (* Critical Step)	STANDARD (Bolded area identifies Task Standard)	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
*	3	**Based on plant conditions after completion of the boration, identify any Tech specs and Tech Spec action statements required related to the boric acid system.**	**Based on the RWST boron concentration of 2350 ppm and the BAST tank boron concentration of 6650 ppm, the required tank level per TS 3.1.2.6 Figure 3.1-2 will be > 96.5%. The final BAST tank levels are at 86%, which is below the TS required levels combined.** **Operator will determine that the volume does not meet requirements of TS and the following LCO apply;** **LCO 3.1.2.6.a.1 Action a (restore storage system to operable status within 72 hours or Hot Standby within next 6 hours), and**		
	CUE:	WHEN operator informs you the task is complete, OR the JPM has been terminated for other reasons, THEN **RECORD** the STOP TIME. **STOP TIME**:_____	**Terminate the JPM when the operator has completed calculations and evaluates Tech Specs.**		

Figure 1
2-EOP-TRIP-2 SHT 2 step 4

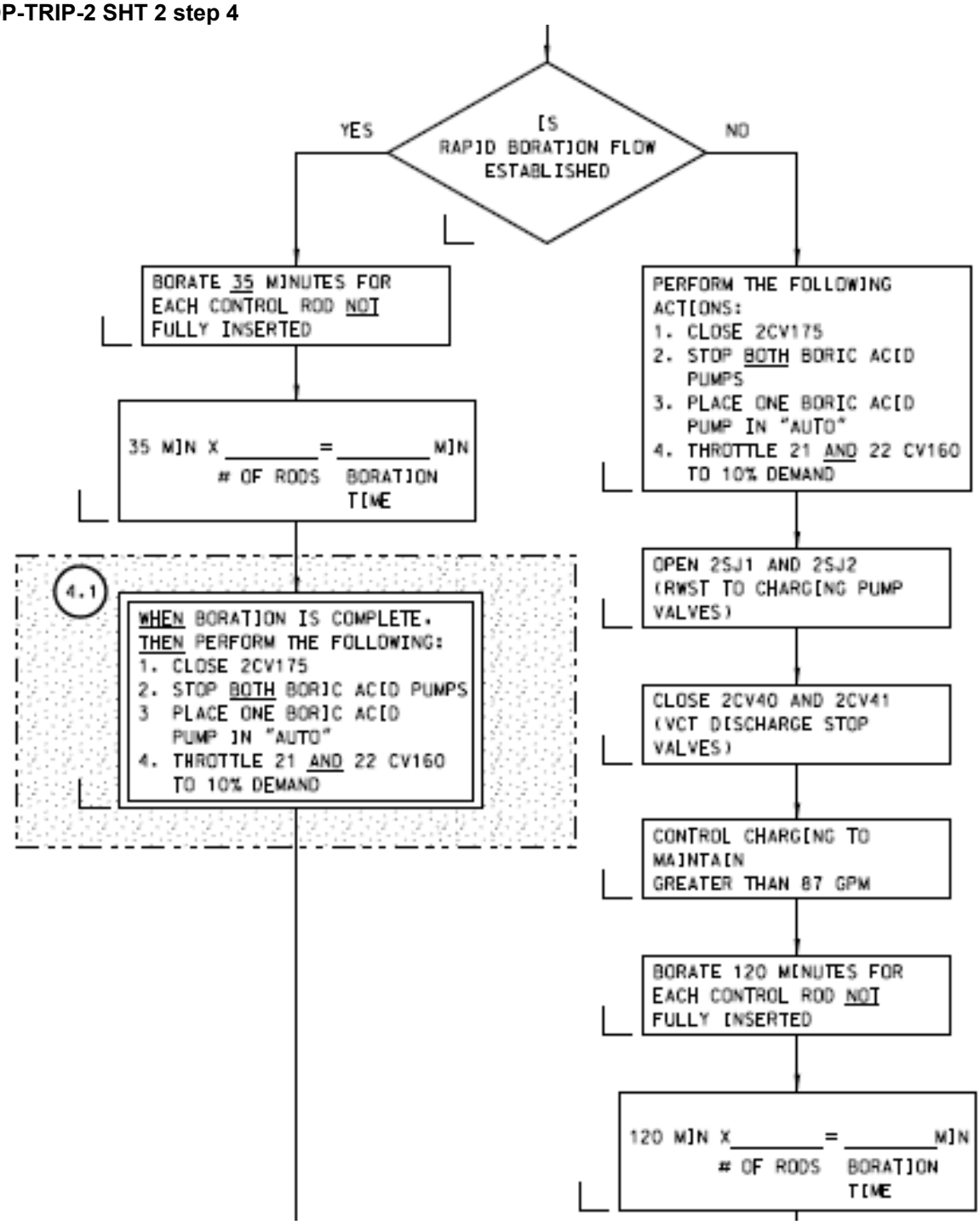


Figure 2
S2.OP-TM.ZZ-0002 page 6 of 34

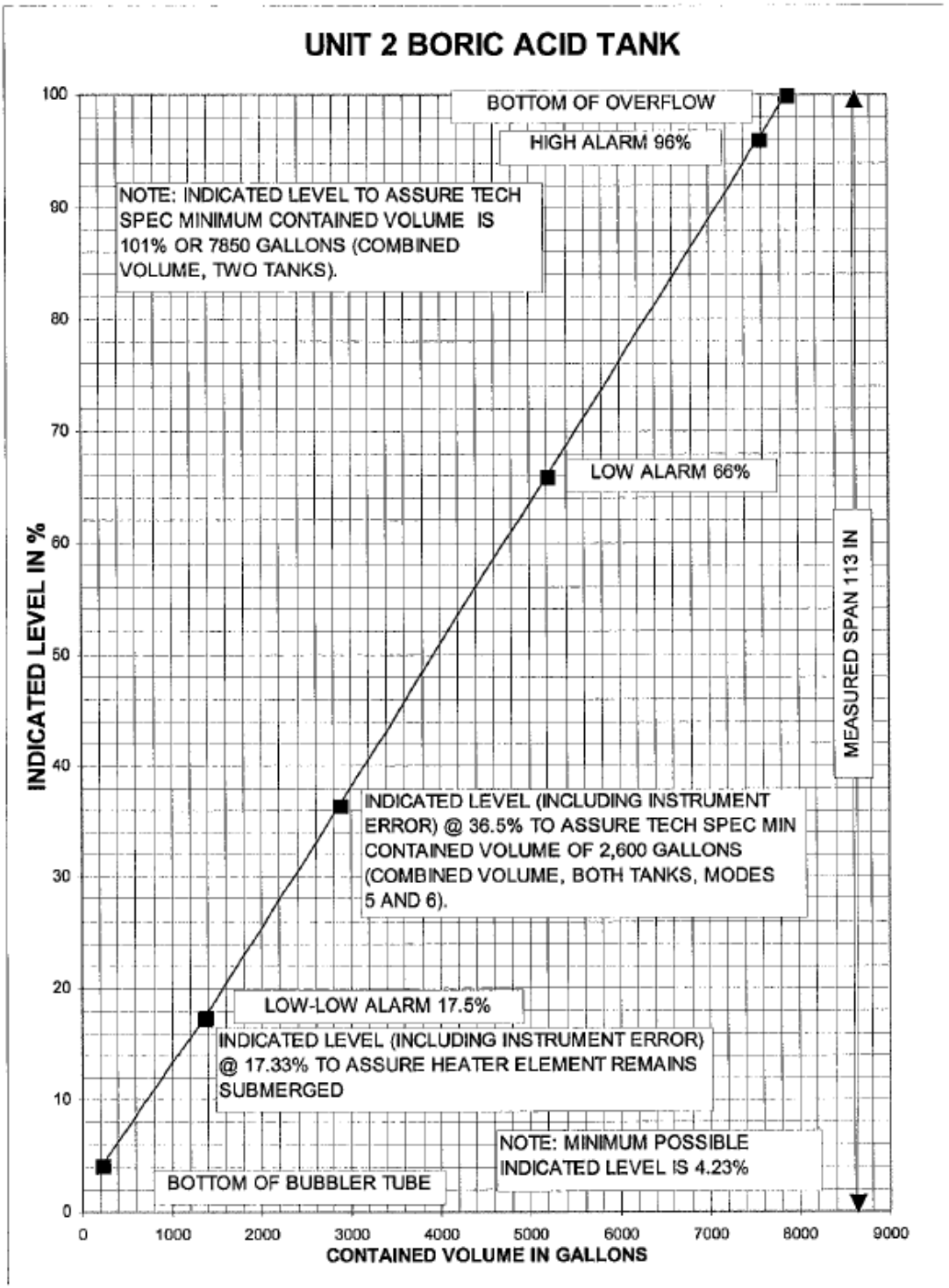


Figure 3 TS 3.1.2.6

REACTIVITY CONTROL SYSTEMS

BORATED WATER SOURCES - OPERATING

LIMITING CONDITION FOR OPERATION

3.1.2.6 As a minimum, the following borated water source(s) shall be OPERABLE as required by Specifications 3.1.2.1 and 3.1.2.2:

a. A boric acid storage system with:

1. A contained volume of borated water in accordance with figure 3.1-2,
2. A Boron concentration in accordance with Figure 3.1-2, and
3. A minimum solution temperature of 63°F.

b. The refueling water storage tank per Specification 3.5.5

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

a. With the boric acid storage system inoperable and being used as one of the above required borated water sources, restore the storage system to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and borated to a SHUTDOWN MARGIN equivalent to at least 1% delta k/k at 200°F; restore the boric acid storage system to OPERABLE status within the next 7 days or be in COLD SHUTDOWN within the next 30 hours.

b. With the refueling water storage tank inoperable, perform the Action in Specification 3.5.5.

SURVEILLANCE REQUIREMENTS

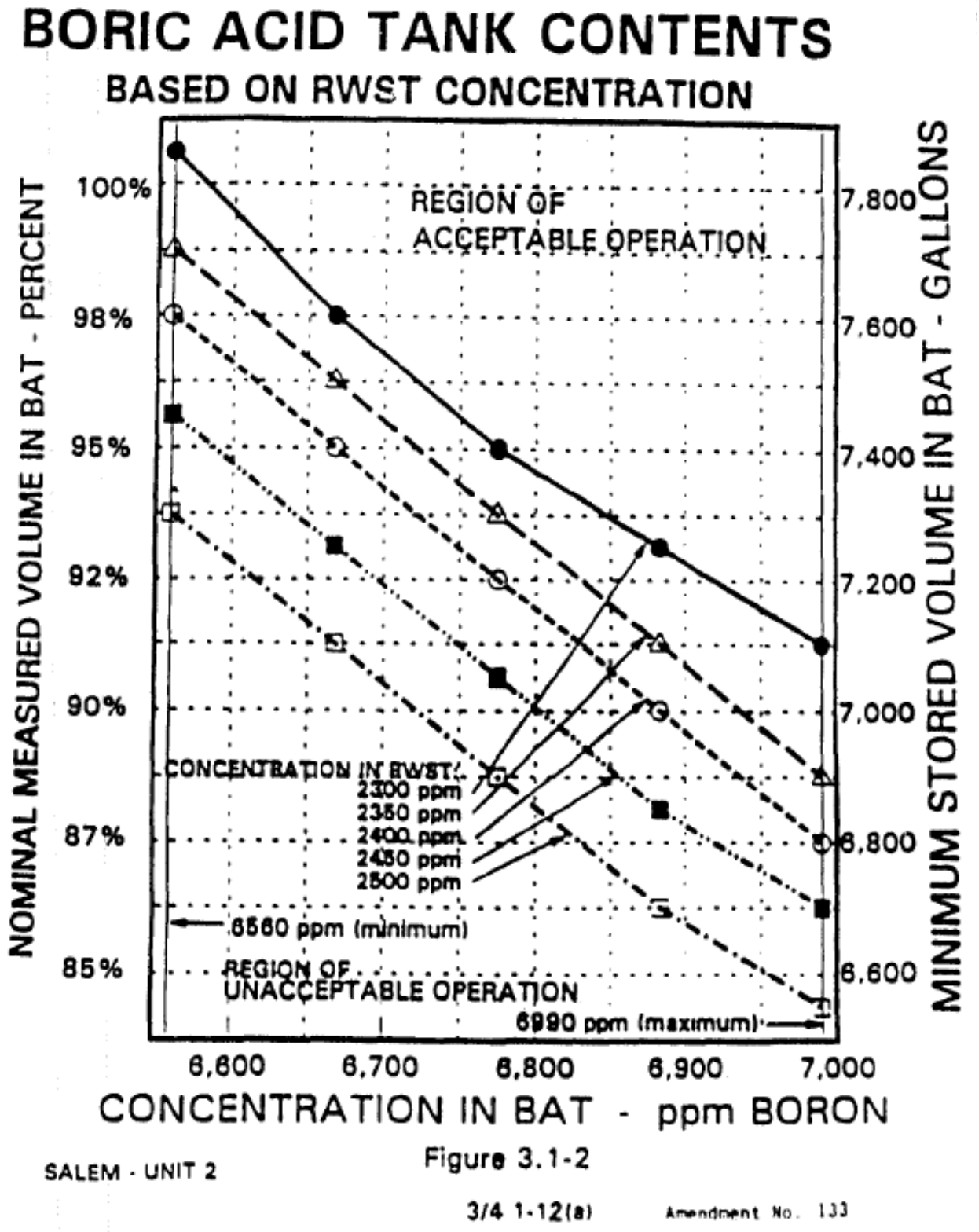
4.1.2.6 Each borated water source shall be demonstrated OPERABLE:

a. For the boric acid storage system, when it is the source of borated water in accordance with the Surveillance Frequency Control Program by:

1. Verifying the boron concentration in each water source.
2. Verifying the water level of each water source, and
3. Verifying the boric acid storage system solution temperature.

b. For the refueling water storage tank per Surveillance Requirement 4.5.5.

Figure 4
TS 3.1.2.6 Figure3.1-2



OPERATIONS DEPARTMENT
JOB PERFORMANCE MEASURE

JPM: 20-01 ILOT SRO A2

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

NOTE: All steps of this checklist should be performed upon initial validation. Prior to JPM usage, revalidate JPM using steps 8 and 11 below.

___KH_____ 1. Task description and number, JPM description and number are identified.

___KH_____ 2. Knowledge and Abilities (K/A) references are included.

___KH_____ 3. Performance location specified. (in-plant, control room, or simulator)

___KH_____ 4. Initial setup conditions are identified.

___KH_____ 5. Initiating and terminating Cues are properly identified.

___KH_____ 6. Task standards identified and verified by SME review.

___KH_____ 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (*).

___KH_____ 8. Verify the procedure referenced by this JPM matches the most current revision of that procedure: Procedure Rev. __40___ Date ___4-1-21_____

___KH_____ 9. Pilot test the JPM:
a. verify Cues both verbal and visual are free of conflict, and
b. ensure performance time is accurate.

____N/A____ 10. If the JPM cannot be performed as written with proper responses, then revise the JPM.

____KH____ 11. When JPM is revalidated, SME or Instructor sign and date JPM cover page.

SME/Instructor: K.Hantho Date: -21

SME/Instructor: Date:

SME/Instructor: Date:

OPERATOR CUE SHEET

Applicant Name: _____

IN NITIAL CONDITIONS:

- Unit 2 experienced an automatic Reactor Trip from an inadvertent Main Turbine Trip.
- 2SJ2 was tagged for emergent repairs prior to the trip.
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    1. How many total minutes of Rapid Boration is required?

       _____ **Minutes**
    2. What will be the final BAST levels in percent IAW S2.OP-TM.ZZ-0002?
        - Assume the Rapid Boration flowrate remains at 40 GPM for the entire duration required in question 1, and Both BAST's lower equal amounts.

       21 BAST level: _____%

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    3. Based on plant conditions after completion of the boration, identify any Tech spec(s) and Tech Spec action statement(s) required related to the boric acid system.