OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

STATION: SALEM

SYSTEM: Generic Administrative Topics – Equipment Control

TASK: Determine Component Operability and Technical Specification Action Statement(s)

TASK NUMBER: 112670302

JPM NUMBER: 19-01 NRC SRO-A3

ALTERNATE PATH: ☐

K/A NUMBER: G 2.2.37

IMPORTANCE FACTOR: RO: ____ SRO: 4.6

APPLICABILITY:
EO ☐ **RO** ☐ **STA** ☐ **SRO** ☒

EVALUATION SETTING/METHOD: Classroom / Simulate

REFERENCES: S1.OP-SO.DG-0005, Rev. 10 (checked 1-16-20)
Salem Unit 1 Tech Specs 3.8.1.1 & S1.OP-SO.SW-0005 Rev 47

TOOLS AND EQUIPMENT: None

VALIDATED JPM COMPLETION TIME: 15 minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: N/A

Developed By:	**R. Chan** **Instructor**	**Date:**	**1-16-20**
Validated By:	**Moore / Chapman** **SME or Instructor**	**Date:**	**1-16-20 / 6-17-20**
Approved By:	**N/A** **Training Department**	**Date:**	
Approved By:	**N/A** **Operations Department**	**Date:**	

ACTUAL JPM COMPLETION TIME:

ACTUAL TIME CRITICAL COMPLETION TIME:

PERFORMED BY: ______________________

GRADE: ☐ **SAT** ☐ **UNSAT**

REASON, IF UNSATISFACTORY:

EVALUATOR'S SIGNATURE: **DATE:**

REVISION HISTORY

JPM NUMBER: 19-01 NRC SRO-A3

Rev #	Date	Description	Validation Required
00	9-4-18	**This is a NEW JPM**. Added revision history and simulator setup pages. Editorial comments from IP 71111.11 FASA.	Yes
01	12-4-18	Incorporated NRC Prep week comments. Comment is enhancements to clarify a question and re-validation is not required.	No
02	8-6-19	**MODIFIED** JPM to use SW component failure.	Yes
03	6-17-20	Deleted Part 2 of the JPM per NRC Prep Week comments to reduce duration time.	No

SIMULATOR SETUP INSTRUCTIONS

SYSTEM: Generic Administrative Topics – Equipment Control

TASK: Determine Component Operability and Technical Specification Action Statement(s)

TASK NUMBER: 112670302

SIMULATOR IC: **N/A**

MALFUNCTIONS / REMOTES: N/A

OVERRIDES: N/A

SPECIAL INSTRUCTIONS:

- **ENSURE** copy of S1.OP-SO.DG-0005 **and** Unit 1 Technical Specifications are available per candidate**.**

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

SYSTEM: Generic Administrative Topics – Equipment Control

TASK: Determine Component Operability and Technical Specification Action Statement(s)

TASK NUMBER: 112670302

INITIAL CONDITIONS:

- Salem 1 is at 100% power.
- 13 SW Pump is C/T for motor replacement. Tagged at 0300 hours today.
- 1A EDG fails its Surveillance Test and was declared **INOPERABLE** today at 1200 hours.

INITIATING CUE:

- You are the Unit 1 CRS.
- What Technical Specification Action statement(s) are applicable and why?

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.

Task Standard for Successful Completion:

1. **Determines T/S 3.8.1.1 actions b1 (1 hour), b3 (24 hours), b4 (72 hours) is applicable. The candidate provides correct supporting information to T/S action and IAW attached answer key.**

NAME: ____________________

DATE: ____________________

SYSTEM: Generic Admin - Emergency Plan

TASK: Classify the Emergency and complete the ICMF

* #	STEP NO.	STEP (Shaded area denotes Critical Step) (* Critical Step) (# Sequential Critical Step)	STANDARD (Bolded area identifies Task Standard)	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	CUE:	**<u>EVALUATOR'S CUE</u>:** **PROVIDE** copies of: ▪ S1.OP-SO.DG-0005 ▪ S1.OP-SO.SW-0005			
	CUE:	**PROVIDE** the operator the initiating cue <u>AND</u> **ENTER** START TIME AFTER operator repeats back the Initiating Cue. **START TIME:____________________**			
*	**PART 1**	What Technical Specification Action statement(s) are applicable <u>and</u> why?	**Candidate determines the following Tech Spec action statement(s) are applicable:** **3.8.1.1 Action b.1 (1 hour), b.3 (24 hours), and b.4 (72 hours) for 1A EDG Inoperable.** **<u>Evaluator's Note</u>:** TS 3.7.4.1 is not applicable at this time with 13 SW Pump Inoperable since you still meet the requirements for having two Operable SW Loops Operable (one pump per bus and two pumps per bay Operable). Therefore, TS 3.8.1.1.b2 is not applicable at this time.		

SYSTEM: Generic Admin - Emergency Plan
TASK: Classify the Emergency and complete the ICMF

* #	STEP NO.	STEP (Shaded area denotes Critical Step) (* Critical Step) (# Sequential Critical Step)	STANDARD (Bolded area identifies Task Standard)	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	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 JPM after Candidate submits the response to you.**		

EXHIBIT 1
(Page 1 of 4)

LCO 3.8.1.1 – AC ELECTRICAL POWER SOURCES
PLANT CONFIGURATION EXAMPLES

Emergency Diesel Generators - T/S 3.8.1.1, Action b.2

This Action for an inoperable EDG is comparable to the deleted T/S Section 3.0.5, except that 4 hours are now provided for component evaluation and repair, instead of 2 hours. The overall intent of T/S 3.8.1.1, Action b.2 is threefold:

1) Allows operation to be governed by LCO 3.8.1.1, rather than the individual action statements for each affected system or component.

2) Provides direction for a unit shutdown (6 hours to Mode 3, following 30 hours to Mode 5) that obviates the need for entry into TS Section 3.0.3.

3) Provides assurance that a loss of offsite power, during the period that an EDG is inoperable, will NOT result in a complete loss of safety function.

When an EDG is declared inoperable and T/S 3.8.1.1, Action b.2 is applied, there are 3 possible outcomes:

1) All affected components remain operable,

2) Certain affected components are declared inoperable and those component T/S Action Statements are entered,

3) The unit is shutdown (6 hours to Mode 3, following 30 hours to Mode 5).

The application of T/S 3.8.1.1, Action b.2 varies depending on the components involved, and is best illustrated by example. All examples assume Mode 1 operation and that no repairs are made.

ANSWER KEY

Case Studies from S1.OP-SO.DG-0005, Exhibit 1:

Case #1

1A EDG is declared inoperable and all other components are operable.

Since all required redundant systems and components are operable, the loads on 1A EDG remain operable. Given the performance of the required surveillance, the EDG must be restored to operable status within 72 hours IAW T/S 3.8.1.1, Action b.4.

Special Case D – Service Water

11 SW Pump is declared inoperable at 0300 hrs. 1A EDG is declared inoperable at 0600 hrs.

Since the required redundant equipment that contributes to "one pump per bus and two pumps per bay" is OPERABLE, then 15 & 16 SW Pumps remain OPERABLE. Given the performance of the required surveillance, 1A EDG must be restored to OPERABLE status within 72 hours IAW T/S 3.8.1.1, Action b.4.

If a loss of offsite power occurred after 1A EDG became inoperable, 12 & 14 SW Pumps would be running and the safety function would be satisfied.

Special Case E – Service Water

11 & 13 SW Pumps are both declared inoperable at 0300 hrs and the 72-hour Action is entered.
1A EDG is declared inoperable at 0600 hrs.

Since required redundant equipment is inoperable, 15 & 16 SW Pumps should be declared inoperable by 1000 hrs. One SW Loop, however, is still OPERABLE; e.g.; 2 pumps on 2 separate buses. Given the performance of the required surveillance, 1A EDG must be restored to OPERABLE status within 72 hours IAW T/S 3.8.1.1, Action b.4. In addition, either 11 OR 13 SW Pump must be repaired within the original 72-hour limit.

If a loss of offsite power occurred after 1A EDG was declared inoperable, 12 & 14 SW Pumps would be running and the safety function would be satisfied.

ANSWER KEY

S1.OP-SO.DG-0005(Q)

ATTACHMENT 1
(Page 1 of 3)

REDUNDANT EQUIPMENT LIST

1A BUS COMPONENTS	1B BUS COMPONENTS	1C BUS COMPONENTS	TECH SPEC
1A EDG	1B EDG	1C EDG	3.8.1.1
1A VITAL BUS	1B VITAL BUS	1C VITAL BUS	3.8.2.1
15 SW PUMP <u>OR</u> 16 SW PUMP (1)	13 SW PUMP <u>OR</u> 14 SW PUMP (1)	11 SW PUMP <u>OR</u> 12 SW PUMP (1)	3.7.4.1
11 SI PUMP	N/A	12 SI PUMP	3.5.2
11 CC PUMP	12 CC PUMP	13 CC PUMP	3.7.3.1
11 RHR PUMP	12 RHR PUMP	N/A	3.5.2, 3.5.3, 3.4.1.3, 3.4.1.4
11 CS PUMP	N/A	12 CS PUMP	3.6.2.1
1CS16, SPR ADD TK DSCH V	N/A	1CS17, SPR ADD TK DSCH V	3.6.2.2
11 AF PUMP (2)	12 AF PUMP (2)	N/A	3.7.1.2
N/A	11 CV PUMP	12 CV PUMP	3.1.2.1, 3.1.2.2, 3.1.2.3, 3.1.2.4, 3.5.2, 3.5.3
11 CHILLER	12 CHILLER	13 CHILLER	3.7.10
11 CH PUMP	12 CH PUMP	N/A	3.7.10
11 CTL EMER A/C SUP FAN	N/A	12 CTL EMER A/C SUP FAN	3.7.6.1
N/A	12 ABV SUP FAN	11 ABV SUP FAN	3.7.7.1
11 ABV EXH FAN	12 ABV EXH FAN	13 ABV EXH FAN	3.7.7.1
11 CFCU (3)	12 CFCU and 14 CFCU (3)	13 CFCU and 15 CFCU (3)	3.6.2.3 (3)
11 FHB EXH FAN	12 FHB EXH FAN	N/A	3.9.12
11 BAT PUMP	N/A	12 BAT PUMP	3.1.2.2,
11 H2 RECOMBINER	12 H2 RECOMBINER	N/A	3.6.4.2
11 FO TRANSFER PUMP	12 FO TRANSFER PUMP	N/A	3.8.1.1.b.2, Action f.

(1) One SW Pump may be inoperable on each redundant bus to satisfy T/S 3.7.4.1. However, at least 2 SW Pumps per Bay are required [Refer to S1.OP-SO.SW-0005(Q)].

(2) 13 AF Pump is considered a redundant pump to 11 & 12 AF Pump and must be OPERABLE when 1A <u>OR</u> 1B DG is to be removed from service. T/S 3.7.1.2 is applicable when 13 AF Pump is inoperable. Refer to Exhibit 1.

(3) Three CFCUs are required to be OPERABLE to satisfy the Safety Function (Refer to Exhibit 1 for Fan Coil Units).

Attachment 2, Service Water System Operability Guidelines

A. Technical Specification

3.7.4.1 At least two independent Service Water loops shall be OPERABLE.

Guidelines

OPERABLE Service Water loops require; "A" a combination of OPERABLE Service Water Pumps, AND "B" valves and piping, as detailed below:

1. Pump Requirements:

   a. In order to have two independent OPERABLE Service Water loops, the following SW pumps are required as a minimum:

      (1) One OPERABLE SW pump powered from the A vital bus, **AND**

      (2) One OPERABLE SW pump powered from the B vital bus, **AND**

      (3) One OPERABLE SW pump powered from the C vital bus, **AND**

      (4) Two OPERABLE SW pumps per Bay.

   b. In order to have one OPERABLE SW loop, the following SW pumps are required as a minimum:

      (1) One OPERABLE SW pump powered from the A vital bus **AND** one OPERABLE SW pump powered from the B vital bus,

      OR

      (2) One OPERABLE SW pump powered from the A vital bus **AND** one OPERABLE SW pump powered from the C vital bus,

      OR

      (3) One OPERABLE SW pump powered from the B vital bus, **AND** one OPERABLE SW pump powered from the C vital bus

PART 1

ANSWER KEY

What Technical Specification Action statement(s) are applicable and why?
T/S 3.8.1.1, Actions b.1 (1 hour), b.3 (24 hours), and b.4 (72 hours)
Why?
Two (2) SW Loops remain Operable.
Enter TS LCO for 1A EDG Inoperable only; redundant SW Loops are operable.

Supporting Bases:

- With 13 SW Pump Inoperable; TWO SW Loops remain Operable based on meeting the requirements for one SW Pump powered from each vital bus and two SW Pumps Operable per Bay as defined in S1.OP-SO.DG-0005, Attachment 2, page 102.

C Bus	**C Bus**	**B Bus**	**B Bus**	**A Bus**	**A Bus**
11	**12**	**13 C/T**	**14**	**15**	**16**
#1 SW Bay Pumps			**#3 SW Bay Pumps**		

IAW S1.OP-SO.SW-0005, Attachment 2, in order to have two independent OPERABLE Service Water loops, the following SW pumps are required as a minimum:

(1) One OPERABLE SW pump powered from the A vital bus, **AND**

YES - 15 & 16 SW Pumps are Operable

(2) One OPERABLE SW pump powered from the B vital bus, **AND**

YES - 14 SW Pump is Operable

(3) One OPERABLE SW pump powered from the C vital bus, **AND**

YES - 11 & 12 SW Pumps are Operable

(4) Two OPERABLE SW pumps per Bay.

#1 SW Bay – YES -11 & 12 SW Pumps are Operable

#3 SW Bay – YES - 15 & 16 SW Pumps are Operable

Part 1 - Continued

- **Since 1A EDG is declared INOPERABLE and ALL other components are Operable (i.e., TWO SW Loops remain Operable), THEN T/S 3.8.1.1, Actions b.1 (1 hour), b.3 (24 hours), and b.4 (72 hours) are applicable.**

- With TWO SW Loops OPERABLE, the required redundant system or component remains Operable and T/S 3.8.1.1, Action b.2 is not applicable.

- **This condition is Special Case D** – Service Water or Case #1 from S1.OP-SO.DG-0005, Exhibit 1. 1A EDG must be restored to Operable status within 72 hours IAW T/S 3.8.1.1, Action b.4.

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

JPM#: 19-01 NRC SRO-A3

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

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

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

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

RC 4. Initial setup conditions are identified.

RC 5. Initiating and terminating Cues are properly identified.

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

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

RC 8. Verify the procedure referenced by this JPM matches the most current revision of that procedure: Procedure Rev. __10___ Date ___1-16-20____

RC 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.

N/A 11. When JPM is revalidated, SME or Instructor sign and date JPM cover page.

SME/Instructor:	R. Chan	Date:	1-16-20
SME/Instructor:	R. Moore	Date:	1-16-20
SME/Instructor:	M. Chapman	Date:	6-17-20

INITIAL CONDITIONS:

- Salem 1 is at 100% power.
- 13 SW Pump is C/T for motor replacement. Tagged at 0300 hours today.
- 1A EDG fails its Surveillance Test and was declared **INOPERABLE** today at 1200 hours.

INITIATING CUE:

- You are the Unit 1 CRS.
- What Technical Specification Action statement(s) are applicable <u>and</u> why?