



James A. FitzPatrick Nuclear Power Plant
OPERATIONS TRAINING PROGRAMS
JOB PERFORMANCE MEASURE

S/RO/NLO
APPL. TO

20004233A
JPM NUMBER

TASK TITLE: Close an SORV Remotely by Pulling Fuses.

REV: 6

DATE: 5/21/03

NRC K/A SYSTEM NUMBER: 239002 A2.03 4.1/4.2

JAF TASK NUMBER: 2000402233

JAF QUAL STANDARD NUMBER: 5AOP.115

ESTIMATED COMPLETION TIME: 10 Minutes

SUBMITTED: [Signature]

OPERATION REVIEW: _____

APPROVED: _____

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CANDIDATE NAME: \_\_\_\_\_

S.S. NUMBER: \_\_\_\_\_

JPM Completion:    ☒ (X) Simulated        ☐ ( ) Performed

Location:            ☒ (X) Plant            ☐ ( ) Simulator

DATE PERFORMED: \_\_\_\_\_

TIME TO COMPLETE: \_\_\_\_\_ Minutes

PERFORMANCE EVALUATION:    ☐ ( ) Satisfactory        ☐ ( ) Unsatisfactory

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COMMENTS: (MANDATORY FOR UNSATISFACTORY PERFORMANCE)

EVALUATOR: _____
SIGNATURE/PRINTED

CANDIDATE REVIEW: _____
SIGNATURE

REVIEWED BY: _____
PROGRAM ADMINISTER

DOC. COMPLETE: _____

**JOB PERFORMANCE MEASURE
RECORD AND CHECKLIST**

S/RO/NLO
APPL. TO

20004233A
JPM NUMBER

TASK TITLE: Close an SORV Remotely by Pulling Fuses.

Current Update: 5/21/03
Date

By: RWD
Int.

Outstanding Items:

☐ Technical Review

☐ Additional Information

☐ Questions and Answers

☐ Validation

☐ Procedural Change Required

☐ None

Comments:

Previous Revision Dates:

08/90
03/92
03/93
01/94
09/94
11/95
01/01

**JOB PERFORMANCE MEASURE
REQUIRED TASK INFORMATION**

S/RO/NLO
APPL. TO

20004233A
JPM NUMBER

TASK TITLE: Close an SORV Remotely by Pulling Fuses.

I. SAFETY CONSIDERATIONS

- A. Ensure proper safety equipment and safety procedures are observed.

II. REFERENCES

- A. AOP-36, Stuck Open Relief Valve(s), Rev. 13

III. TOOLS AND EQUIPMENT

- A. Fuse Pullers

IV. SET UP REQUIREMENTS

- A. Make a copy of AOP-36 for use by the candidate.
- B. Obtain Shift Manager's permission prior to performing this task.

V. EVALUATOR NOTES

- A. If performing JPM in the plant, inform the candidate that the conditions of each step need only be properly identified and not actually performed.
- B. The candidate should, at a minimum, identify the change in equipment status light indication when equipment operation is simulated.
- C. Place keeping should be demonstrated by the candidate during the performance of the task.

VI. TASK CONDITIONS

- A. .SORV 02-RV-71A inadvertently opened and remained open.
- B. AOP-36, Stuck Open Relief Valves, was entered and attempts to shut the valve from the 09-4 panel have been unsuccessful, steps C.2.1 through C.2.3.c are completed.
- C. The next step to close the valve is to remove the control power fuses per step C.2.3.d

*** - CRITICAL STEP**

S/RO/NLO 20004233A

TASK TITLE: Close an SORV Remotely by Pulling Fuses.

VII. INITIATING CUE

"Safety Relief Valve 02-RV-71A is stuck open. Control Room actions for closing the valve have been unsuccessful. The Control Room Supervisor directs you to attempt to close 02-RV-71A by removing the four (4) control power fuses per AOP-36".

	STEP	STANDARD	EVALUATION / COMMENT
1.	Obtain a controlled copy of procedure AOP-36, Stuck Open SRV(s)	The candidate obtains a controlled copy of AOP-36. EVALUATOR Hand copy of AOP-36 to candidate	SAT / UNSAT
2.	Identify step C.2.3.(d) as appropriate step	Candidate may use C.2.3.d and Attachment 1 or Posted Attachment 1 inside 09-45 as guidance.	SAT / UNSAT
3.	Proceed to panel 09-45 in the Relay Room and access the panel.	Correct panel located and accessed.	SAT / UNSAT
4.	Using either a controlled copy of AOP-36, Stuck Open Relief Valve(s) or the posted attachment inside panel 09-45, determine the correct fuses to be removed.	Fuses F2(F3A), F12(F4A), F23(F11A), and F34(F12A) in panel 09-45 identified for removal.	SAT / UNSAT
*5.	Remove the control power fuses for 02-RV-71A.	EVALUATOR: When the candidate identifies which fuses are to be removed and describes how to remove them using the fuse pullers, tell the candidate "The fuses are pulled".	SAT / UNSAT
6.	Contact the Control Room and inform them that the fuses have been removed.	EVALUATOR: Acknowledge the communication and as the Control Room Operator inform the candidate that "The SRV now indicates closed".	SAT / UNSAT
EVALUATOR: Terminate the task at this point.			



James A. FitzPatrick Nuclear Power Plant

**OPERATIONS TRAINING PROGRAMS
JOB PERFORMANCE MEASURE**

S/RO/NLO
APPL. TO

20101014
JPM NUMBER

TASK TITLE: Electrically Disarm a CRD

REV: 6

DATE: 5/20/03

NRC K/A SYSTEM NUMBER: 201003 A2.02 3.7/3.8

JAF TASK NUMBER: 2010101014

JAF QUAL STANDARD NUMBER: 503C.203

ESTIMATED COMPLETION TIME: 10 Minutes

SUBMITTED: [Signature]

OPERATION REVIEW: _____

APPROVED: _____

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CANDIDATE NAME: \_\_\_\_\_

S.S. NUMBER: \_\_\_\_\_

JPM Completion:    ☒ (X) Simulated        ☐ ( ) Performed

Location:            ☒ (X) Plant            ☐ ( ) Simulator

DATE PERFORMED: \_\_\_\_\_

TIME TO COMPLETE: \_\_\_\_\_ Minutes

PERFORMANCE EVALUATION:    ☐ ( ) Satisfactory        ☐ ( ) Unsatisfactory

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COMMENTS: (MANDATORY FOR UNSATISFACTORY PERFORMANCE)

EVALUATOR: _____

SIGNATURE/PRINTED

CANDIDATE REVIEW: _____

SIGNATURE

REVIEWED BY: _____

PROGRAM ADMINISTER

DOC. COMPLETE: _____

**JOB PERFORMANCE MEASURE
RECORD AND CHECKLIST**

S/RO/NLO
APPL. TO

20101014
JPM NUMBER

TASK TITLE: Electrically Disarm a CRD

Current Update: 5/20/03
Date

By: RWD
Int.

Outstanding Items:

☐ Technical Review

☐ Additional Information

☐ Questions and Answers

☐ Validation

☐ Procedural Change Required

☐ None

Comments:

Previous Revision Dates:

01/20/89
03/03/92
04/26/93
12/02/93
09/27/94
03/14/00

**JOB PERFORMANCE MEASURE
REQUIRED TASK INFORMATION**

S/RO/NLO
APPL. TO

20101014
JPM NUMBER

TASK TITLE: Electrically Disarm a CRD

I. SAFETY CONSIDERATIONS

- A. Ensure proper safety equipment and safety procedures are observed.

II. REFERENCES

- A. OP-25, CONTROL ROD DRIVE HYDRAULIC SYSTEM, Rev. 70
- B. T/S 3.1.3.C

III. TOOLS AND EQUIPMENT

- A. None

IV. SET UP REQUIREMENTS

- A. None

V. EVALUATOR NOTES

- A. If performing JPM in the plant, inform the candidate that the conditions of each step need only be properly identified and not actually performed.
- B. The candidate should, at a minimum, identify the change in equipment status light indication when equipment operation is simulated.

VI. TASK CONDITIONS

- A. The reactor is at rated power
- B. Control Rod 22-19 was fully withdrawn, but would not couple
- C. The rod has been fully inserted and its HCU is being valved out.
- D. CRD 22-19 must be electrically disarmed as directed by the Shift Manager

*** - CRITICAL STEP**

VII. INITIATING CUE

"The plant is operating at rated power, steady state. It has been discovered that control rod 22-19 is not coupled. Efforts to recouple the control rod to its drive have been unsuccessful. The control rod has been fully inserted and its HCU is being valved out. The Shift manager has directed you to electrically disarm CRD 22-19."

	STEP	STANDARD	EVALUATION / COMMENT
1.	Obtain a controlled copy of OP-25, CONTROL ROD DRIVE HYDRAULIC SYSTEM	Obtains a controlled copy of procedure OP-25 EVALUATOR Hand copy of OP-25 to candidate	SAT / UNSAT
2.	Select the correct section to perform the task	Selects Section G.23 of OP-25	SAT / UNSAT
3.	Review the precautions	Reviews the precautions, making note of any that are applicable	SAT / UNSAT
4.	Notify the Control Room that CRD-(*) will be electrically disarmed	Contacts Control Room Operator and informs him that CRD(22-19) will be electrically disarmed EVALUATOR: Role play Control Room Operator and say repeat back CRD(22-19) will be electrically disarmed".	SAT / UNSAT

S/RO/NLO 20101014
 TASK TITLE: Electrically Disarm a CRD

	STEP	STANDARD	EVALUATION / COMMENT
5.	Unplug amphenol connector from each of the following solenoid operated valves at HCU-() and control per AP-12.06: <ul style="list-style-type: none"> • 03SOV-120(*) (Withdraw settle solenoid operated valve) • 03SOV-121(*) Insert exhaust water solenoid operated valve) • 03SOV-122(*) (Withdraw drive water solenoid operated valve) • 03SOV-123(*) (Insert drive water solenoid operated valve) 	Candidate proceeds to R.B. 272' elevation <ul style="list-style-type: none"> • Select the correct HCU (22-19) • Identify the 4 directional control valve amphenol plugs • Indicate how they would be pulled to electrically disarm the CRD. <p>EVALUATOR: Inform candidate "The amphenol plugs have been disconnected"</p>	SAT / UNSAT
6.	Notify Control Room that CRD-(*) has been electrically disarmed	Contact Control Room Operator and informs him the CRD(22-19) has been electrically disarmed <p>EVALUATOR: Role play Control Room Operator and say "Understand CRD(22-19) has been electrically disarmed".</p>	SAT / UNSAT
EVALUATOR: Terminate the task at this point.			



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**OPERATIONS TRAINING PROGRAMS
JOB PERFORMANCE MEASURE**

S/RO/NLO 20004234A TASK TITLE: EOP Isolation/Interlock Overrides - Main Turbine Bypass Valves
APPL. TO JPM NUMBER
REV: 8 DATE: 5/20/03 NRC K/A SYSTEM NUMBER: 295037 EK3.06.3.8/4.1
JAF TASK NUMBER: 2000402234 JAF QUAL STANDARD NUMBER: 5AOP.225
ESTIMATED COMPLETION TIME: 10 Minutes
SUBMITTED: [Signature] OPERATION REVIEW: _____
APPROVED: _____

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CANDIDATE NAME: \_\_\_\_\_ S.S. NUMBER: \_\_\_\_\_

JPM Completion: ( X ) Simulated ( ) Performed

Location: ( X ) Plant ( ) Simulator

DATE PERFORMED: \_\_\_\_\_ TIME TO COMPLETE: \_\_\_\_\_ Minutes

PERFORMANCE EVALUATION: ( ) Satisfactory ( ) Unsatisfactory

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COMMENTS: (MANDATORY FOR UNSATISFACTORY PERFORMANCE)

EVALUATOR: _____
SIGNATURE/PRINTED

CANDIDATE REVIEW: _____
SIGNATURE

REVIEWED BY: _____ DOC. COMPLETE: _____
PROGRAM ADMINISTER

JOB PERFORMANCE MEASURE

RECORD AND CHECKLIST

S/RO/NLO

20004234A

TASK TITLE: EOP Isolation/Interlock Overrides - Main Turbine
Bypass Valves

APPL. TO

JPM NUMBER

Current Update: 5/20/03
Date

By: RWD
Int.

Outstanding Items:

☐ Technical Review

☐ Additional Information

☐ Questions and Answers

☐ Validation

☐ Procedural Change Required

☐ None

Comments:

Previous Revision Dates:

02/06/89

03/03/92

04/26/93

12/02/93

09/28/94

11/14/96

06/19/98

05/17/00

**JOB PERFORMANCE MEASURE
REQUIRED TASK INFORMATION**

S/RO/NLO

20004234A

TASK TITLE: EOP Isolation/Interlock Overrides - Main Turbine
Bypass Valves

APPL. TO

JPM NUMBER

I. SAFETY CONSIDERATIONS

- A. Ensure proper safety equipment and safety procedures are observed.

II. REFERENCES

- A. EP-2, Isolation/Interlock Overrides, Rev. 3
- B. EOP-2, RPV Control.
- C. Reference Drawings FE-2T and 2Z.

III. TOOLS AND EQUIPMENT

- A. Jumpers
- B. Screwdriver/Nutdriver

IV. SET UP REQUIREMENTS

- A. Make a copy of EP-2, Isolation/Interlock Overrides, for use by candidate.
- B. Obtain Shift Manager's permission prior to performing this task

V. EVALUATOR NOTES

- A. If performing JPM in the plant, inform the candidate that the conditions of each step need only be properly identified and not actually performed.
- B. The candidate should, at a minimum, identify the change in equipment status light indication when equipment operation is simulated.

VI. TASK CONDITIONS

- A. While operating at full power, an ATWS event occurred, during which the Main Turbine bypass valves closed on low main condenser vacuum.
- B. The isolation signal to close the bypass valves must be overridden to restore the Main Condenser as a heat sink.

*** - CRITICAL STEP**

VII. INITIATING CUE

"The Main Turbine bypass valves closed on low main condenser vacuum. Per EP-2, override this isolation signal to allow the re-opening of the bypass valves."

	STEP	STANDARD	EVALUATION / COMMENT
1.	Obtain a controlled copy of procedure EP-2, Isolation/Interlock Overrides.	Obtains a controlled copy of EP-2, Isolation/Interlock Overrides. EVALUATOR Provide candidate with copy of EP-2	SAT / UNSAT
2.	Select the correct section to perform the task.	Selects section 5.4 of EP-2	SAT / UNSAT
EVALUATOR: Steps 3 and 4 may be performed in any order or concurrently.			
* 3.	Connect jumper between terminals TBB22-1 and TBB22-2 in Bay B of panel EHC.	EVALUATOR When the candidate identifies the installation site for the jumpers, state "a jumper is installed between terminals TBB22-1 and TBB22-2".	SAT / UNSAT
4.	Initials block associated with installation of the jumper.	Initials step for installation of jumper.	SAT / UNSAT
* 5.	Connect jumper between terminals TBB22-3 and TBB22-4 in Bay B of panel EHC.	EVALUATOR When the candidate identifies the installation site for the jumper, state "a jumper is installed between terminals TBB22-3 and TBB22-4".	SAT / UNSAT
6	Initial block associated with installation of the jumper.	Initials step for installation of jumper.	SAT / UNSAT
EVALUATOR: Terminate the task at this point.			



James A. FitzPatrick Nuclear Power Plant
OPERATIONS TRAINING PROGRAMS
JOB PERFORMANCE MEASURE

S/RO 21201009F TASK TITLE: (F) Reset an RPS Scram with Scram Valve Failure to Close
APPL. TO JPM NUMBER
REV: 4 DATE: 5/18/03 NRC K/A SYSTEM NUMBER: 212000 A4.14 3.8/3.8
JAF TASK NUMBER: 2120101009 JAF QUAL STANDARD NUMBER: 5005.104
ESTIMATED COMPLETION TIME: 10 Minutes
SUBMITTED: RW [Signature] OPERATION REVIEW: _____
APPROVED: _____

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CANDIDATE NAME: \_\_\_\_\_ S.S. NUMBER: \_\_\_\_\_

JPM Completion: ( ) Simulated (X) Performed

Location: ( ) Plant (X) Simulator

DATE PERFORMED: \_\_\_\_\_ TIME TO COMPLETE: \_\_\_\_\_ Minutes

PERFORMANCE EVALUATION: ( ) Satisfactory ( ) Unsatisfactory

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COMMENTS: (MANDATORY FOR UNSATISFACTORY PERFORMANCE)

EVALUATOR: _____
SIGNATURE/PRINTED

CANDIDATE REVIEW: _____
SIGNATURE

REVIEWED BY: _____ DOC. COMPLETE: _____
PROGRAM ADMINISTER

**JOB PERFORMANCE MEASURE
RECORD AND CHECKLIST**

S/RO

21201009F

TASK TITLE: (F) Reset an RPS Scram with Scram Valve Failure
to Close

APPL. TO

JPM NUMBER

Current Update: 5/18/03
Date

By: RWD
Int.

Outstanding Items:

☐ Technical Review

☐ Additional Information

☐ Questions and Answers

☐ Validation

☐ Procedural Change Required

☐ None

Comments:

Simulator validated 5/24/03. IC 134

Previous Revision Dates:

02/10/94

08/29/94

03/06/99

07/25/01

**JOB PERFORMANCE MEASURE
REQUIRED TASK INFORMATION**

S/RO

21201009F

TASK TITLE: (F) Reset an RPS Scram with Scram Valve Failure to Close

APPL. TO

JPM NUMBER

I. SAFETY CONSIDERATIONS

- A. Ensure proper safety equipment and safety procedures are observed.

II. REFERENCES

- A. AOP-1; REACTOR SCRAM, Rev. 39.

III. TOOLS AND EQUIPMENT

- A. None

IV. SET UP REQUIREMENTS

- A. Initialize the simulator to any full power IC.
- B. Insert a manual scram by placing the Mode Switch to SHUTDOWN.
- C. Reset ARI.
- D. Stabilize RPV level above 177 inches.
- E. Manually override the blue scram lights "ON" for control rods 14-43, 30-19, 06-19, and 42-07 (ZL03AZ5SC-17, 90, 96 and 132).

V. EVALUATOR NOTES

- A. If performing JPM in the plant, inform the candidate that the conditions of each step need only be properly identified and not actually performed.
- B. The candidate should, at a minimum, identify the change in equipment status light indication when equipment operation is simulated.

VI. TASK CONDITIONS

- A. The reactor scrammed while operating at 100% power. The scram condition has been identified and cleared.
- B. All reactor scram signals are now clear with the exception of the scram discharge volume high level signal.
- C. The Shift Manger has directed the reactor scram be reset.

*** - CRITICAL STEP**

S/RO 21201009F

TASK TITLE: (F) Reset an RPS Scram with Scram Valve Failure to Close

VII. INITIATING CUE

Inform the candidate, "The Reactor has scrammed from 100% power. Aop-1 Immediate Operator Actions are complete. The scram condition has been identified and cleared. The Shift Manager has directed you to reset the reactor scram."

	STEP	STANDARD	EVALUATION / COMMENT
1.	Obtain a copy of AOP-1, REACTOR SCRAM	The candidate obtains a copy of AOP-1.	SAT / UNSAT
2.	Select the correct section to perform the task.	The candidate selects Section C.2.4 of AOP-1.	SAT / UNSAT
3.	IF ARI actuated, THEN reset ARI.	The candidate observes that ARI is reset.	SAT / UNSAT
4.	Verify annunciator 09-5-1-33, MODE SW IN SHUTDOWN TRIP BYPASSED is in alarm.	The candidate observes that the annunciator window for annunciator 09-5-1-33 is in alarm.	SAT / UNSAT
*5.	Place the SDIV HI LVL TRIP keylock switch in BYPASS.	The candidate places the SDIV HI LVL TRIP keylock switch in BYPASS.	SAT / UNSAT
*6.	Place RX SCRAM RESET switch to Group 2 & 3, then to 1 & 4, spring return to NORM.	The candidate places the REACTOR SCRAM RESET selector switch, (5A-S5), momentarily to the GP2 and GP3 position, back through "NORM" to the GP1 and GP4 position then back to "NORM".	SAT / UNSAT
7.	Verify RPS A and B SCRAM GROUPS 1, 2, 3 and 4 lights are ON.	The candidate verifies the scram has been reset by ensuring that the following lights are ON: A. RPS A Scram Groups 1, 2, 3 and 4 on Panel 09-5 B. RPS B Scram Groups 1, 2, 3 and 4 on Panel 09-5	SAT / UNSAT
*8.	Verify closed all scram inlet and outlet valves using one or a combination of the following methods: <ul style="list-style-type: none">• Blue lights OFF.• Local Valve position indication.	The candidate recognizes/reports that several control rod scram inlet and outlet valves have failed to close by observing that blue scram lights are ON.	SAT / UNSAT

S/RO 21201009F

TASK TITLE: (F) Reset an RPS Scram with Scram Valve Failure to Close

	STEP	STANDARD	EVALUATION / COMMENT
*9.	IF any scram inlet or outlet valve fails to close, then perform the following: A. Depress the following pushbuttons: <ul style="list-style-type: none">MANUAL SCRAM AMANUAL SCRAM B B) Investigate the cause.	The candidate performs the following: A) Depresses the both manual scram pushbuttons B) Observes the following: <ul style="list-style-type: none">Manual scram A, B pushbuttons lights are ONAnnunciators 09-5-1-13, 14; RPS A, B MAN SCRAM, in alarm.RPS A, B Scram Groups 1,2, 3 and 4 lights are OFF. C) Reports the success of inserting a manual scram.	SAT / UNSAT
EVALUATOR: Terminate the task at this point.			



James A. FitzPatrick Nuclear Power Plant
OPERATIONS TRAINING PROGRAMS
JOB PERFORMANCE MEASURE

S/RO 20202001 TASK TITLE: Jet Pump Operability, 2 Loop, ST-23C, Alternate Path
APPL. TO JPM NUMBER
REV: 1 DATE: 5/18/03 NRC K/A SYSTEM NUMBER: 202001 K5.02 3.1/3.2
JAF TASK NUMBER: JAF QUAL STANDARD NUMBER:
ESTIMATED COMPLETION TIME: 25 Minutes
SUBMITTED: *RW Deley* OPERATION REVIEW:
APPROVED:

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CANDIDATE NAME:                      S.S. NUMBER:                     

JPM Completion: ( ) Simulated (X) Performed

Location: ( ) Plant (X) Simulator

DATE PERFORMED:                      TIME TO COMPLETE:        Minutes

PERFORMANCE EVALUATION: ( ) Satisfactory ( ) Unsatisfactory

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COMMENTS: (MANDATORY FOR UNSATISFACTORY PERFORMANCE)

EVALUATOR:
SIGNATURE/PRINTED

CANDIDATE REVIEW:
SIGNATURE

REVIEWED BY: DOC. COMPLETE:
PROGRAM ADMINISTER

JOB PERFORMANCE MEASURE

RECORD AND CHECKLIST

S/RO

20202001

TASK TITLE: Jet Pump Operability, 2 Loop, ST-23C, Alternate path

APPL. TO

JPM NUMBER

Current Update: 5/18/03
Date

By: RWD
Int.

Outstanding Items:

Technical Review

Additional Information

Questions and Answers

Validation

Procedural Change Required

None

Comments:

Simulator validated 5/24/03. IC-133

Previous Revision Dates:

11/01

**JOB PERFORMANCE MEASURE
REQUIRED TASK INFORMATION**

S/RO

20202001

TASK TITLE: Jet Pump Operability, 2 Loop, ST-23C, Alternate Path

APPL. TO

JPM NUMBER

I. SAFETY CONSIDERATIONS

- A. Ensure proper safety equipment and safety procedures are observed.

II. REFERENCES

- A. ST-23C; JET PUMP OPERABILITY TEST FOR TWO LOOP ST-23C OPERATION (EPIC AVAILABLE), Rev. 19

III. TOOLS AND EQUIPMENT

- A. None

IV. SET UP REQUIREMENTS

- A. Simulator operating at $\geq 25\%$ CTP with 2 recirculation loops in service within 5% speed of each other.
B. Insert Malfunction RR08:X for any jet pump at 100% severity.
C. A partially completed ST-23C filled in with data from Attachment 1
D. Record evaluator mismatch value for step 8.1.3 in JPM step 5

☐ **EVALUATOR NOTES**

- ☐ If performing JPM in the plant, inform the candidate that the conditions of each step need only be properly identified and not actually performed.
☐ The candidate should, at a minimum, identify the change in equipment status light indication when equipment operation is simulated.

☐ **TASK CONDITIONS**

- A. Candidate may obtain EPIC data by individual data points or the JPI screen
B. JPM values computed on Jet Pump 5 failure at 100% CTP

• **- CRITICAL STEP**

S/RO 20202001
 TASK TITLE: Jet Pump Operability, 2 Loop, ST-23C, Alternate Path

INITIATING CUE

You are the SNO. Perform ST-23C; Jet Pump Operability Test for 2 Loop Operation with EPIC Available.

	STEP	STANDARD	EVALUATION / COMMENT
1.	Obtain a controlled copy of ST-23C	EVALUATOR Hand marked up copy of ST-23C to candidate	SAT / UNSAT
2.	Review procedure	Candidate reviews entire procedure prior to commencing and completes personal data of Attachment 1	SAT / UNSAT
3.	8.1.1 Record the following: A. Total Core Flow (% rated) EPIC-A-3330 B. Loop A Jet Pump Flow Mlbm/hr 02-3FI-92A C. Loop B Jet Pump Flow Mlbm/hr 02-3FI-92B	Candidate obtains the following data from the identified location(s): <ul style="list-style-type: none">• Total core flow from EPIC (VAV or Log 1 %WT) (~97)• Loop A JP Flow from 09-4 (35)• Loop B JP Flow from 09-4 (40)	SAT / UNSAT
*4.	8.1.2 Calculate the absolute value of: $ (8.1.1.B) - (8.1.1.C) = \text{Mlbm/hr}$	Candidate computes ~5	SAT / UNSAT
*5.	8.1.3 IF the Total Core Flow (% rated) recorded in Step 8.1.1 is >70%, THEN verify the mismatch in Jet Pump Loop Flows (Step 8.1.2) is <3.85 Mlbm/hr IF the Total Core Flow (% rated) recorded in Step 8.1.1 is <70%, THEN verify the mismatch in Jet Pump Loop Flows (Step 8.1.2) is <7.7 Mlbm/hr	Candidate verifies correct mismatch value of <u> <3.85 </u> Candidate determines mismatch of 5 exceeds allowable of <3.85.	SAT / UNSAT

S/RO

20202001

TASK TITLE: Jet Pump Operability, 2 Loop, ST-23C, Alternate Path

	STEP	STANDARD	EVALUATION / COMMENT
6.	8.2.1 Record the following: A. A Pump Speed % 02-184SI-16A1 B. B Pump Speed % 02-184SI-16B1 C. A Recirc Loop Flow Mlbm/hr EPIC-A-3317 D. B Recirc Loop Flow Mlbm/hr EPIC-A-3318	Candidate obtains the following data from the identified location(s): <ul style="list-style-type: none">• A pump speed from 09-4 (89)• B pump speed from 09-4 (90)• A loop flow from EPIC (VAV) (~18.5)• B loop flow from EPIC (VAV) (~17.3)	SAT / UNSAT
*7.	8.2.2 Verify the following using Attachment 3: A Recirc Loop Flow from Step 8.2.1.C is +/-5% of A Loop Predicted Flow for Pump Speed recorded in Step 8.2.1.A. B Recirc Loop Flow from Step 8.2.1.D is +/-5% of B Loop Predicted Flow for Pump Speed recorded in Step 8.2.1.B.	Candidates determines "NO" for A and "YES" for B <ul style="list-style-type: none">• A high out of range (15.9-17.57)• B in range (16.07-17.76)	SAT / UNSAT
8.	8.3.1 Record the following: A. A Recirc Pump Speed % (Step 8.2.1.A) B. B Recirc Pump Speed % (Step 8.2.1.B) C. A Recirc Loop JP Flow Mlbm/hr (Step 8.1.1.B) D. B Recirc Loop JP Flow Mlbm/hr (Step 8.1.1.C)	Candidate obtains the following data from the identified location(s): <ul style="list-style-type: none">• A pump speed from step 8.2.1 (89)• B pump speed from step 8.2.1 (90)• A loop JP flow from step 8.1.1 (35)• B loop JP flow from step 8.1.1 (40)	SAT / UNSAT

	STEP	STANDARD	EVALUATION / COMMENT
*9.	8.3.2 Verify the following using Attachment 4: A Recirc Loop JP Flow from Step 8.3.1.C is +/-5% of A Loop JP Predicted Flow for Pump Speed recorded in Step 8.3.1.A. B Recirc Loop JP Flow from Step 8.3.1.D is +/-5% of B Loop JP Predicted Flow for Pump Speed recorded in Step 8.3.1.B.	Candidate determines "NO" for both <ul style="list-style-type: none"> • A low out at 35 • B high out at 40 	SAT / UNSAT
10.	8.4.1 Record the following: A Recirc Loop JP Flow Mlbm/hr (Step 8.3.1.C) B Recirc Loop JP Flow Mlbm/hr (Step 8.3.1.D)	Candidate obtains the following data from the identified location(s): <ul style="list-style-type: none"> • A loop JP flow from step 8.3.1 (35) • B loop JP flow from step 8.3.1 (40) 	SAT / UNSAT
11.	8.4.2 Record diffuser to lower plenum differential pressure for each jet pump using EPIC in the table below: NOTE: EPIC display JPI may be used to obtain all jet pump DPs.	Candidate obtains the following data from the identified location(s): <ul style="list-style-type: none"> • Individual jet pump D/P's from EPIC (VAV or JPI) APPROXIMATE VALUES CONTAINED ON ATTACHED	SAT / UNSAT
12.	8.4.3 Record the +/-20% values of predicted JP dP for the respective Recirc Loop Jet Pump Flow recorded in Step 8.4.1, from Attachment 5. A. A Loop JP dP (-)20% value %psid B. A Loop JP dP (+)20% value %psid C. B Loop JP dP (-)20% value %psid D. B Loop JP dP (+)20% value %psid	A 29.14 B 43.7 C 38.28 D 57.42	SAT / UNSAT

S/RO 20202001
 TASK TITLE: Jet Pump Operability, 2 Loop, ST-23C, Alternate Path

	STEP	STANDARD	EVALUATION / COMMENT
*13.	8.4.4 Verify that each JP dP recorded in Step 8.4.2 is within +/-20% of the predicted JP dP for its respective loop (A or B) as recorded in Step 8.4.3.	Candidate determines that: <ul style="list-style-type: none"> JP 5 low out of range at ~20% PSID JP 6 High out of range at ~57% PSID 	SAT / UNSAT
14.	8.5.1 Complete Attachment 2	EVALUATOR Inform candidate that this data is not required	SAT / UNSAT
15.	9.2.1 Independent Verification	EVALUATOR Complete data as if in agreement with candidate performance.	SAT / UNSAT
*16.	11.1.3 IF Level 1 Acceptance Criteria OR Level 2 LLRT valve acceptance criteria was not met, THEN perform the following: A. Sign off ST as unsatisfactory. B. Immediately notify the CRS. C. Initiate a CR. D. If necessary, initiate a PID.	Candidate report to CRS that Level 1 Acceptance criteria has not been met: <ul style="list-style-type: none"> Step 8.1.3 not met Step 8.2.2 not met for A Step 8.3.2 not met for both Step 8.4.4 not met for JP 5 and 6 	SAT / UNSAT
EVALUATOR: Terminate the task at this point.			

Complete the following ST-23C data entries:

4.0 PREREQUISITES

- 4.1 SM has granted permission to perform this test.
- 4.2 Revision Number of this Working Copy is the same as the revision number listed in the Master Copy of the Index of Operations Surveillance Test Procedures.
- 4.3 Test personnel have read this procedure and are thoroughly familiar with its contents.
- 4.4 Start of test recorded. Date/Time
- 4.5 Start of test recorded in SNO Log.
- 4.6 SM determines current status of reactor engineering data:
 - ☐ Baseline data for new established pattern.
 - ☐ Established pattern exists.
- 4.7 Recirculation pump speeds are within 5%.
- 4.8 EPIC is available.
- 4.9 Calibration for each of the following instruments is up-to-date:
 - EPIC-A-414 (I&C route IC045)
 - EPIC-A-415 (I&C ST schedule status)
 - EPIC-A-416 (I&C ST schedule status)
 - EPIC-A-420 (I&C ST schedule status)
 - EPIC-A-421 (I&C ST schedule status)
 - EPIC-A-942 (I&C route IC039)
 - EPIC-A-943 (I&C route IC039)
 - EPIC-A-944 (I&C route IC039)
 - EPIC-A-945 (I&C route IC039)
 - EPIC-A-946 (I&C route IC039)
 - EPIC-A-947 (I&C route IC039)
 - EPIC-A-948 (I&C route IC039)
 - EPIC-A-949 (I&C route IC039)
 - EPIC-A-950 (I&C route IC039)
 - EPIC-A-951 (I&C route IC039)
 - EPIC-A-952 (I&C route IC039)
 - EPIC-A-953 (I&C route IC039)
 - EPIC-A-954 (I&C route IC039)
 - EPIC-A-955 (I&C route IC039)
 - EPIC-A-956 (I&C route IC039)
 - EPIC-A-957 (I&C route IC039)
 - EPIC-A-958 (I&C route IC039)
 - EPIC-A-959 (I&C route IC039)
 - EPIC-A-960 (I&C route IC039)
 - EPIC-A-961 (I&C route IC039)
 - 02-3FI-92A (I&C route IC045)
 - 02-3FI-92B (I&C route IC045)

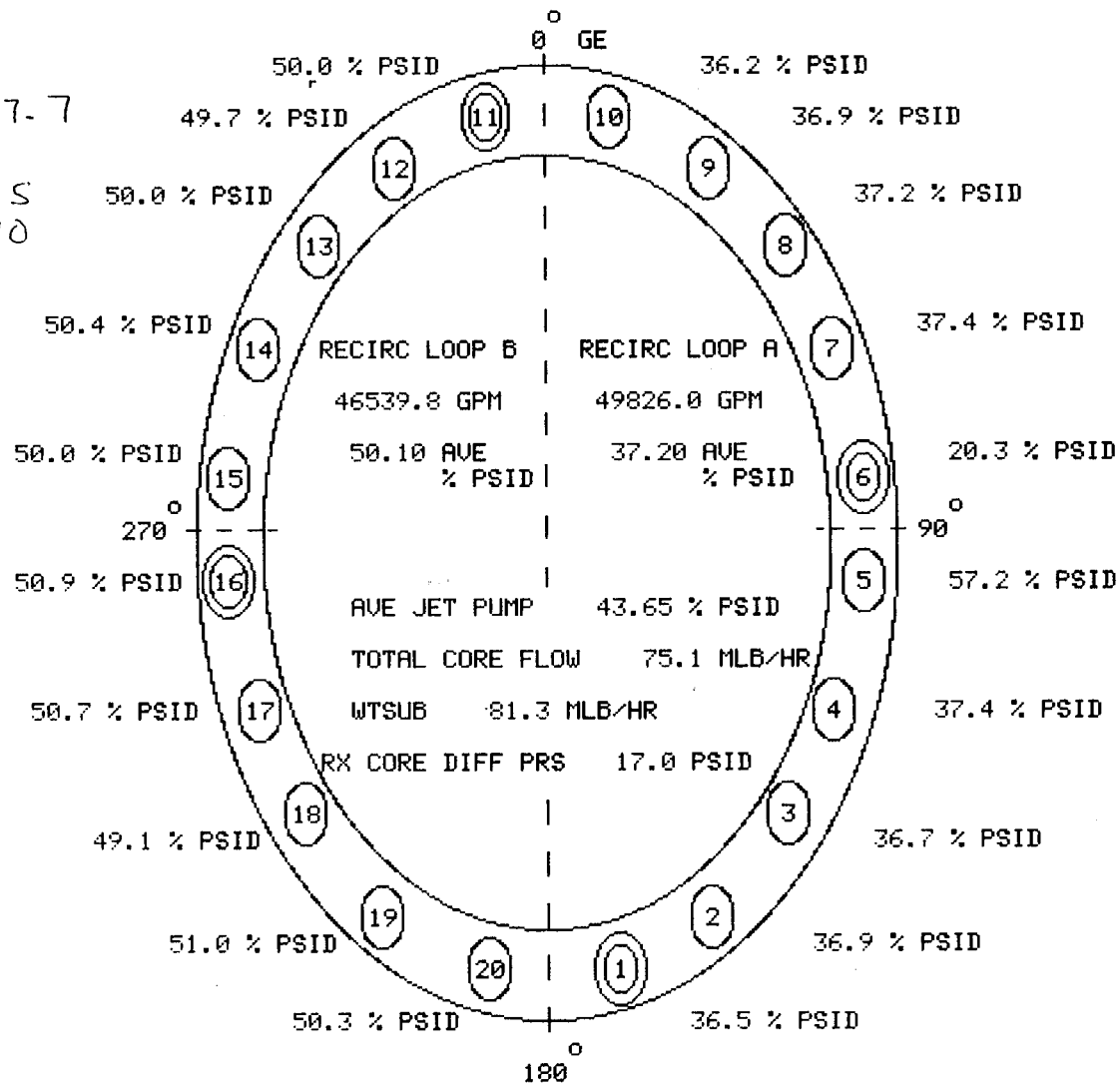
Sign off Attachment 1 to ST-23C as person completing the above data entries

11:20:56 07NM-K3/4A-B

// 11:20:56 DWSILTEMPMRG F

JPI

Total Core Flow
A-3330 - Log 1 % WT 97.7
Loop A/B Jet Pump Flow
02-3 FI-92A -09-4 35
02-3 FI-92B -09-4 40



NOTES: 100 % PSID = 34 PSID
CALIBRATED JET PUMPS: 1,6,11,16

ENTERGY NUCLEAR OPERATIONS, INC.
JAMES A. FITZPATRICK NUCLEAR POWER PLANT
OPERATIONS SURVEILLANCE TEST PROCEDURE

JET PUMP OPERABILITY TEST FOR
TWO LOOP OPERATION (EPIC AVAILABLE)
ST-23C
REVISION 19

APPROVED BY: HH
RESPONSIBLE PROCEDURE OWNER

DATE 1/29/03

EFFECTIVE DATE: 1-29-03

FIRST ISSUE ☐

FULL REVISION ☐

LIMITED REVISION ☒

***** * * CONTINUOUS USE * * *****	***** * * TSR * * *****
***** * * TECHNICAL * * *****	***** * * * *****

REVISION SUMMARY SHEET

- | REV. NO. | CHANGE AND REASON FOR CHANGE |
|----------|---|
| 19 | Revised Attachments 3, 4, and 5 to reflect post refuel outage startup baseline data used to determine established patterns. (PCR dated 1/16/03) |
| 18 | <p>Added Prerequisite 4.6, Note at 7.2 and Acceptance Criteria 10.1.2.C to include guidance from Tech Spec Basis for SR 3.4.2.1 that allows engineering judgement to be used to satisfy the surveillance in conditions where new patterns are being established due to operating at new core conditions such as: single loop, following refueling, final feedwater temperature reduction, instrument calibrations, or continuous operations at less than rated power. (CR-JAF-2002-03968)</p> <p>Revised Section 11 to conform to "Performer Review" and "Management SRO Review" format.</p> <p>Revised Steps 7.1, 8.2.2 and 8.2.2 to correct typographical errors.</p> <p>Revised Purpose 2.1 to include references to which surveillance requirements the test satisfies.</p> |
| 17 | Revised throughout to include Improved Technical Specifications. |
| 16 | <p>Added Prerequisite 4.8 to verify calibration of instruments used for acceptance criteria. This is a requirement of AP-19.01. (TC #1 dated 8/2/99)</p> <p>Revised Attachment 3 to collect additional data for Reactor Engineering review. The readings from the double tapped jet pump are independent of the common pressure tap used by the Core Plate dP and single tap jet pump instruments.</p> <p>Updated Attachment 2 based on algorithm used in revising the 3D Monicore databank.</p> |

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1.0 REQUIREMENTS

1.1 Frequency

- 1.1.1 Daily whenever there is two loop recirculation flow with the reactor in Mode 1 or Mode 2.
- 1.1.2 Any time a second recirculation pump is started.
- 1.1.3 Following an unexpected change in core flow indication.
- 1.1.4 ST-23E can be performed in lieu of this test if EPIC is unavailable.

1.2 Technical Specifications

1.2.1 Surveillance Requirements

NOTE: Not required to be performed until 24 hours after both recirc loops are in operation.

• SR 3.4.1.2

NOTE 1: Not required to be performed until 4 hours after associated recirc loop is in operation.

NOTE 2: Not required to be performed until 24 hours after >25% RTP.

• SR 3.4.2.1

1.2.2 Limiting Conditions for Operation

3.4.1 and 3.4.2

1.3 Other

None

1.4 Commitments

None

2.0 PURPOSE

To verify recirc loop jet pump flow mismatch is within allowable limits (SR 3.4.1.2) and verify operability of Jet Pump Assemblies (SR 3.4.2.1) during two loop operation when EPIC is available.

3.0 REFERENCES

3.1 Performance References

None

3.2 Developmental References

- 3.2.1 GEK Volume II Section 16631
- 3.2.2 OP-27, Recirculation System
- 3.2.3 DER 96-0095 (ACTS 19429) Added Subsection 8.5
Reactor Engineering Data Collection
- 3.2.4 Attachments 3, 4 and 5 based on jet pump performance
data collected from ST-23C during cycle 15.
- 3.2.5 Tech Spec Bases for SR 3.4.1.2 and SR 3.4.2.1

JET PUMP OPERABILITY TEST FOR TWO LOOP
OPERATION (EPIC AVAILABLE)

ST-23C

4.0 PREREQUISITES

Init

4.1 SM has granted permission to perform this test.

l

4.2 Revision Number of this Working Copy is the same as the revision number listed in the Master Copy of the Index of Operations Surveillance Test Procedures.

l

4.3 Test personnel have read this procedure and are thoroughly familiar with its contents.

l

4.4 Start of test recorded. Today / Now
Date/Time

l

4.5 Start of test recorded in SNO Log.

l

4.6 SM determines current status of reactor engineering data:

☐ Baselineing data for new established pattern.

☒ Established pattern exists.

l

4.7 Recirculation pump speeds are within 5%.

l

4.8 EPIC is available.

l

- EPIC-A-414 (I&C route IC045)
- EPIC-A-415 (I&C ST schedule status)
- EPIC-A-416 (I&C ST schedule status)
- EPIC-A-420 (I&C ST schedule status)
- EPIC-A-421 (I&C ST schedule status)
- EPIC-A-942 (I&C route IC039)
- EPIC-A-943 (I&C route IC039)
- EPIC-A-944 (I&C route IC039)
- EPIC-A-945 (I&C route IC039)
- EPIC-A-946 (I&C route IC039)
- EPIC-A-947 (I&C route IC039)
- EPIC-A-948 (I&C route IC039)
- EPIC-A-949 (I&C route IC039)
- EPIC-A-950 (I&C route IC039)
- EPIC-A-951 (I&C route IC039)
- EPIC-A-952 (I&C route IC039)
- EPIC-A-953 (I&C route IC039)
- EPIC-A-954 (I&C route IC039)
- EPIC-A-955 (I&C route IC039)
- EPIC-A-956 (I&C route IC039)
- EPIC-A-957 (I&C route IC039)
- EPIC-A-958 (I&C route IC039)
- EPIC-A-959 (I&C route IC039)
- EPIC-A-960 (I&C route IC039)
- EPIC-A-961 (I&C route IC039)
- 02-3FI-92A (I&C route IC045)
- 02-3FI-92B (I&C route IC045)

[illegible]

None

6.0 PRECAUTIONS AND LIMITATIONS

6.1 Precautions

None

6.2 Limitations

- 6.2.1 Test personnel shall immediately notify the CRS of any failure to meet acceptance criteria.
- 6.2.2 Test personnel shall print name, sign initials, and enter date on Attachment 1 before performing Section 8 of this test.
- 6.2.3 When test personnel complete their assigned portion of this test, they shall enter hours worked on Attachment 1.
- 6.2.4 Once this test has been started, any additional test personnel shall read this procedure and become thoroughly familiar with its contents before performing any portion of this test.
- 6.2.5 Multiple working copies of this test may be used provided the following requirements are satisfied:

NOTE: The work site is defined as the location where work is controlled. The location of the work site is at the discretion of the SNO.

- A. A working copy of this test shall be retained at the work site.
- B. The work site working copy shall be the legal record for documenting this test.
- C. Data from all steps performed away from the work site, including signatures, initials, and recorded values, is transcribed into the work site working copy following completion of the test.

7.0 GENERAL TEST METHODS

- 7.1 Section 8.1 verifies recirculation loop jet pump flow mismatch with both recirc loops in operation is **LESS THAN OR EQUAL TO 10%** when operating <70% core flow (< 53.9 Mlbm/hr) or **LESS THAN OR EQUAL TO 5%** when operating at >70% core flow (≥ 53.9 Mlbm/hr).

NOTE: Technical Specification Basis for SR 3.4.2.1 provides for baselining new established patterns and allows engineering judgment to be used to satisfy this surveillance while the new patterns are being developed.

- 7.2 Section 8.2 verifies recirculation loop flow to recirc speed ratio differs by <5% from established patterns.
- 7.3 Section 8.3 verifies recirculation loop jet pump flow to recirc pump speed ratio differs by <5% from established patterns.
- 7.4 Section 8.4 verifies each jet pump differential pressure differs by <20% from established patterns.
- 7.5 This procedure may be used for post-work testing and verification of operability for applicable equipment provided the following actions are performed:
- 7.5.1 The actions and requirements of Sections 1 through 6, 10, and 11 are satisfied.
 - 7.5.2 The applicable portions of Sections 8 and 9 are performed.
 - 7.5.3 Signoff for non-applicable portions of Sections 8 and 9 are marked "NA".
 - 7.5.4 The reason for partial performance of this test is documented in Section 11.4.

JET PUMP OPERABILITY TEST FOR TWO LOOP
OPERATION (EPIC AVAILABLE)

ST-23C

8.0 PROCEDURE

Init

8.1 Recirculation Loop Jet Pump Flow Mismatch

8.1.1 Record the following:

A. Total Core Flow _____ (% rated)
EPIC-A-3330

B. Loop A Jet Pump Flow _____ Mlbm/hr
02-3FI-92A

C. Loop B Jet Pump Flow _____ Mlbm/hr
02-3FI-92B

8.1.2 Calculate the absolute value of:

| (8.1.1.B) - (8.1.1.C) | = _____ Mlbm/hr

8.1.3 IF the Total Core Flow (% rated) recorded
in Step 8.1.1 is >70%,
THEN verify the mismatch in Jet Pump Loop
Flows (Step 8.1.2) is <3.85 Mlbm/hr ()

IF the Total Core Flow (% rated) recorded in
Step 8.1.1 is <70%,
THEN verify the mismatch in Jet Pump Loop
Flows (Step 8.1.2) is <7.7 Mlbm/hr ()

8.2 Recirc Pump Flow to Speed Ratio

Init

8.2.1 Record the following:

A. A Pump Speed 02-184SI-16A1 %

B. B Pump Speed 02-184SI-16B1 %

C. A Recirc Loop Flow EPIC-A-3317 Mlbm/hr

D. B Recirc Loop Flow EPIC-A-3318 Mlbm/hr

8.2.2 Verify the following using Attachment 3:

- A Recirc Loop Flow from
Step 8.2.1.C is +/-5% of A Loop
Predicted Flow for Pump Speed
recorded in Step 8.2.1.A. Yes () No ()
- B Recirc Loop Flow from
Step 8.2.1.D is +/-5% of B Loop
Predicted Flow for Pump Speed
recorded in Step 8.2.1.B. Yes () No ()

Init

8.3 Recirc Loop Jet Pump Flow to Recirc Pump Speed Ratio

8.3.1 Record the following:

A. A Recirc Pump Speed _____ %
(Step 8.2.1.A)

B. B Recirc Pump Speed _____ %
(Step 8.2.1.B)

C. A Recirc Loop JP Flow _____ Mlbm/hr
(Step 8.1.1.B)

D. B Recirc Loop JP Flow _____ Mlbm/hr
(Step 8.1.1.C)

8.3.2 Verify the following using Attachment 4:

- A Recirc Loop JP Flow from
Step 8.3.1.C is +/-5% of A Loop
JP Predicted Flow for
Pump Speed recorded in
Step 8.3.1.A. Yes () No ()
- B Recirc Loop JP Flow from
Step 8.3.1.D is +/-5% of B Loop
JP Predicted Flow for
Pump Speed recorded in
Step 8.3.1.B. Yes () No ()

JET PUMP OPERABILITY TEST FOR TWO LOOP
OPERATION (EPIC AVAILABLE)

ST-23C

8.4 Jet Pump Differential Pressure Variation

Init

8.4.1 Record the following:

- A Recirc Loop JP Flow _____ Mlbm/hr
(Step 8.3.1.C)
- B Recirc Loop JP Flow _____ Mlbm/hr
(Step 8.3.1.D)

8.4.2 Record diffuser to lower plenum
differential pressure for each jet pump
using EPIC in the table below:

NOTE: EPIC display JPI may be used to obtain all
jet pump DPs.

Jet Pump ID	EPIC-A Point	dP (%PSID)
LOOP A		
02-1JP-1	942	
02-1JP-2	944	
02-1JP-3	946	
02-1JP-4	948	
02-1JP-5	950	
02-1JP-6	952	
02-1JP-7	954	
02-1JP-8	956	
02-1JP-9	958	
02-1JP-10	960	
LOOP B		
02-1JP-11	943	
02-1JP-12	945	
02-1JP-13	947	
02-1JP-14	949	
02-1JP-15	951	
02-1JP-16	953	
02-1JP-17	955	
02-1JP-18	957	
02-1JP-19	959	
02-1JP-20	961	

Init

8.4.3 Record the +/-20% values of predicted JP dP for the
respective Recirc Loop Jet Pump Flow recorded in
Step 8.4.1, from Attachment 5.

A. A Loop JP dP (-)20% value _____%psid

B. A Loop JP dP (+)20% value _____%psid

C. B Loop JP dP (-)20% value _____%psid

D. B Loop JP dP (+)20% value _____%psid

8.4.4 Verify that each JP dP recorded in _____
Step 8.4.2 is within +/-20% of the
predicted JP dP for its respective loop (A
or B) as recorded in Step 8.4.3. _____

8.5 Reactor Engineering Data Collection

8.5.1 Complete Attachment 2 _____

JET PUMP OPERABILITY TEST FOR TWO LOOP
OPERATION (EPIC AVAILABLE)

ST-23C

9.0 RETURN TO NORMAL

Init

9.1 System Restoration

None

9.2 Review and Signoff

9.2.1 Calculation performed in Step 8.1.2 has
been independently verified.

Independent verification _____ / _____
Signature/Date

9.2.2 Test completed. _____
Date/Time

9.2.3 Test personnel have recorded hours worked
on Attachment 1. _____

9.2.4 Man-Hours totalled and recorded on
Attachment 1. _____

10.0 ACCEPTANCE CRITERIA

10.1 Level 1 Acceptance Criteria

10.1.1 Verify recirculation loop jet pump flow mismatch with both recirculation loops in operation from Step 8.1.3:

- <10% (7.7 Mlbm/hr) of rated core flow when operating at <70% of rated core flow

AND

- <5% (3.85 Mlbm/hr) of rated core flow when operating at >70% of rated core flow

10.1.2 Verify at least one of the following criteria is satisfied for each operating recirculation loop:

- A. Recirculation loop flow to speed ratio differs by <5% from established patterns and recirculation loop jet pump flow to recirculation pump speed ratio differs by <5% from established patterns in Steps 8.2.2 and 8.3.2.
- B. Each jet pump diffuser to lower plenum differential pressure in Step 8.4.2 differs by <20% from established patterns in Step 8.4.3.
- C. IF baseline data is being collected to complete new "established patterns", THEN engineering judgement of the flow data shall be used to confirm there are no significant abnormalities which could indicate a jet pump failure.

10.2 Level 2 Acceptance Criteria

None

11.0 ACCEPTANCE VERIFICATION

11.1 Performer Review

11.1.1 Verify required data has been recorded and is within required tolerances. ()

11.1.2 Verify required initials and signatures have been entered. ()

11.1.3 IF Level 1 Acceptance Criteria **OR** Level 2 LLRT valve acceptance criteria was not met, THEN perform the following:

A. Sign off ST as unsatisfactory.

B. Immediately notify the CRS.

C. Initiate a CR.

CR number

D. If necessary, initiate a PID.

PID number

NOTE: A CR is required for instruments that exceed As Found tolerances for tracking purposes.

11.1.4 IF only Level 2 Acceptance Criteria was not met, THEN perform the following:

A. Sign off ST as satisfactory with corrective actions.

B. Initiate either a CR or a PID.

PID/CR number

11.1.5 Identify test results:

- () Satisfactory
- () Satisfactory with corrective actions
- () Unsatisfactory

11.1.6 Record results in narrative log. ()

11.1.7 Sign and record date and time.

Date/Time

11.2 Management SRO Review

- 11.2.1 Verify data is within required tolerances. ()
- 11.2.2 Verify data attachments, such as recorder printouts and calibration sheets are included as required. ()
- 11.2.3 Verify required initials and signatures have been entered. ()
- 11.2.4 Review test to determine if test results satisfy acceptance criteria:
- () Satisfactory
 - () Satisfactory with corrective actions
 - () Unsatisfactory
- 11.2.5 IF Level 1 acceptance criteria is not satisfied, THEN immediately notify Operations Manager or alternate. Record name of person notified.

Person Notified

- 11.2.6 Initiate required corrective and compensatory actions.
- () Not required
 - () Required
- 11.2.7 Sign and record date and time.

Management SRO

Date/Time

This image shows a single sheet of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

12.0 ATTACHMENTS

1. TEST SIGNOFF LOG
2. ST-23C DATA FOR REACTOR ENGINEERING SUPPORT
3. PUMP SPEED vs. LOOP FLOW
4. PUMP SPEED vs. JET PUMP FLOW
5. JET PUMP LOOP FLOW vs. LOOP JET PUMP dP

ST-23C

Page 1 of 1

[illegible]

Total Man-Hours _____

ST-23C DATA FOR REACTOR ENGINEERING SUPPORT

Date/Time

TO: REACTOR ENGINEERING

FROM: OPERATIONS

A.	Recirc Loop A flow (from Step 8.2.1.C)	_____	Mlbm/hr
B.	Recirc Loop B flow (from Step 8.2.1.D)	_____	Mlbm/hr
C.	EPIC-A-0414, Rx Total Core Flow	_____	Mlbm/hr
D.	EPIC-A-6254, WTSUB	_____	Mlbm/hr
E.	Photocopy of Table (from Step 8.4.2) attached.	()	
F.	Recirc Pump A Speed (02-184SI-16A1 at panel 09-4)	_____	%
G.	Recirc Pump B Speed (02-184SI-16B1 at panel 09-4)	_____	%
H.	RWR Loop A Jet Pump Flow (02-3FI-92A at panel 09-4)	_____	lbs/hr x 10 ⁶
I.	RWR Loop B Jet Pump Flow (02-3FI-92B at panel 09-4)	_____	lbs/hr x 10 ⁶
J.	Double Tapped JP-1 Flow (02-3FI-87A at panel 09-4)	_____	lbs/hr x 10 ⁶
K.	Double Tapped JP-6 Flow (02-3FI-87C at panel 09-4)	_____	lbs/hr x 10 ⁶
L.	Double Tapped JP-11 Flow (02-3FI-87B at panel 09-4)	_____	lbs/hr x 10 ⁶
M.	Double Tapped JP-16 Flow (02-3FI-87D at panel 09-4)	_____	lbs/hr x 10 ⁶
N.	EPIC-A-3382 RECIRC LOOP A AVE JET PMP %PSID	_____	%psid
O.	EPIC-A-3381 RECIRC LOOP B AVE JET PMP %PSID	_____	%psid
P.	EPIC-A-405 RX CORE DIFF PRES	_____	psid
Q.	EPIC-A-3390 P6 10 MIN AVG CORE THERMAL POWER	_____	mwth

ATTACHMENT 3

Page 1 of 2

PUMP SPEED vs. LOOP FLOW

Pump Speed	A Loop Predicted Flow (Mlbm/hr)	-5%	+5%	B Loop Predicted Flow (Mlbm/hr)	-5%	+5%
25	5.10	4.84	5.35	4.84	4.60	5.08
26	5.28	5.02	5.55	5.01	4.76	5.27
27	5.46	5.19	5.74	5.19	4.93	5.45
28	5.64	5.36	5.93	5.37	5.10	5.64
29	5.83	5.54	6.12	5.55	5.27	5.82
30	6.01	5.71	6.31	5.72	5.44	6.01
31	6.19	5.88	6.50	5.90	5.61	6.20
32	6.37	6.05	6.69	6.08	5.77	6.38
33	6.55	6.23	6.88	6.26	5.94	6.57
34	6.74	6.40	7.07	6.43	6.11	6.75
35	6.92	6.57	7.26	6.61	6.28	6.94
36	7.10	6.74	7.45	6.79	6.45	7.13
37	7.28	6.92	7.64	6.96	6.62	7.31
38	7.46	7.09	7.84	7.14	6.78	7.50
39	7.64	7.26	8.03	7.32	6.95	7.68
40	7.83	7.43	8.22	7.50	7.12	7.87
41	8.01	7.61	8.41	7.67	7.29	8.06
42	8.19	7.78	8.60	7.85	7.46	8.24
43	8.37	7.95	8.79	8.03	7.63	8.43
44	8.55	8.13	8.98	8.20	7.79	8.61
45	8.74	8.30	9.17	8.38	7.96	8.80
46	8.92	8.47	9.36	8.56	8.13	8.99
47	9.10	8.64	9.55	8.74	8.30	9.17
48	9.28	8.82	9.74	8.91	8.47	9.36
49	9.46	8.99	9.94	9.09	8.64	9.54
50	9.64	9.16	10.13	9.27	8.80	9.73
51	9.83	9.33	10.32	9.44	8.97	9.92
52	10.01	9.51	10.51	9.62	9.14	10.10
53	10.19	9.68	10.70	9.80	9.31	10.29
54	10.37	9.85	10.89	9.98	9.48	10.48
55	10.55	10.03	11.08	10.15	9.65	10.66
56	10.74	10.20	11.27	10.33	9.81	10.85
57	10.92	10.37	11.46	10.51	9.98	11.03
58	11.10	10.54	11.65	10.69	10.15	11.22
59	11.28	10.72	11.84	10.86	10.32	11.41
60	11.46	10.89	12.04	11.04	10.49	11.59
61	11.64	11.06	12.23	11.22	10.66	11.78
62	11.83	11.23	12.42	11.39	10.82	11.96
63	12.01	11.41	12.61	11.57	10.99	12.15
64	12.19	11.58	12.80	11.75	11.16	12.34
65	12.37	11.75	12.99	11.93	11.33	12.52

JET PUMP OPERABILITY TEST FOR TWO LOOP
OPERATION (EPIC AVAILABLE)

ST-23C

ATTACHMENT 3

Page 2 of 2

PUMP SPEED vs. LOOP FLOW

Pump Speed	A Loop Predicted Flow (Mlbm/hr)	-5%	+5%	B Loop Predicted Flow (Mlbm/hr)	-5%	+5%
66	12.55	11.93	13.18	12.10	11.50	12.71
67	12.73	12.10	13.37	12.28	11.67	12.89
68	12.92	12.27	13.56	12.46	11.83	13.08
69	13.10	12.44	13.75	12.63	12.00	13.27
70	13.28	12.62	13.94	12.81	12.17	13.45
71	13.46	12.79	14.14	12.99	12.34	13.64
72	13.64	12.96	14.33	13.17	12.51	13.82
73	13.83	13.13	14.52	13.34	12.68	14.01
74	14.01	13.31	14.71	13.52	12.84	14.20
75	14.19	13.48	14.90	13.70	13.01	14.38
76	14.37	13.65	15.09	13.87	13.18	14.57
77	14.55	13.83	15.28	14.05	13.35	14.75
78	14.73	14.00	15.47	14.23	13.52	14.94
79	14.92	14.17	15.66	14.41	13.69	15.13
80	15.10	14.34	15.85	14.58	13.85	15.31
81	15.28	14.52	16.04	14.76	14.02	15.50
82	15.46	14.69	16.23	14.94	14.19	15.68
83	15.64	14.86	16.43	15.12	14.36	15.87
84	15.83	15.03	16.62	15.29	14.53	16.06
85	16.01	15.21	16.81	15.47	14.70	16.24
86	16.19	15.38	17.00	15.65	14.86	16.43
87	16.37	15.55	17.19	15.82	15.03	16.62
88	16.55	15.72	17.38	16.00	15.20	16.80
89	16.73	15.90	17.57	16.18	15.37	16.99
90	16.92	16.07	17.76	16.36	15.54	17.17
91	17.10	16.24	17.95	16.53	15.71	17.36
92	17.28	16.42	18.14	16.71	15.87	17.55
93	17.46	16.59	18.33	16.89	16.04	17.73
94	17.64	16.76	18.53	17.06	16.21	17.92
95	17.83	16.93	18.72	17.24	16.38	18.10
96	18.01	17.11	18.91	17.42	16.55	18.29
97	18.19	17.28	19.10	17.60	16.72	18.48
98	18.37	17.45	19.29	17.77	16.88	18.66
99	18.55	17.62	19.48	17.95	17.05	18.85
100	18.73	17.80	19.67	18.13	17.22	19.03
101	18.92	17.97	19.86	18.30	17.39	19.22
102	19.10	18.14	20.05	18.48	17.56	19.41
103	19.28	18.32	20.24	18.66	17.73	19.59
104	19.46	18.49	20.43	18.84	17.89	19.78
105	19.64	18.66	20.63	19.01	18.06	19.96

JET PUMP OPERABILITY TEST FOR TWO LOOP
OPERATION (EPIC AVAILABLE)

ST-23C

ATTACHMENT 4

Page 1 of 2

PUMP SPEED vs. JET PUMP FLOW

Pump Speed	A Loop JP Predicted Flow (Mlbm/hr)	-5%	+5%	B Loop JP Predicted Flow (Mlbm/hr)	-5%	+5%
25	12.57	11.95	13.20	13.99	13.29	14.69
26	12.96	12.31	13.60	14.32	13.61	15.04
27	13.34	12.67	14.00	14.65	13.92	15.39
28	13.72	13.03	14.41	14.98	14.24	15.73
29	14.10	13.40	14.81	15.32	14.55	16.08
30	14.48	13.76	15.21	15.65	14.86	16.43
31	14.86	14.12	15.61	15.98	15.18	16.78
32	15.25	14.48	16.01	16.31	15.49	17.13
33	15.63	14.85	16.41	16.64	15.81	17.47
34	16.01	15.21	16.81	16.97	16.12	17.82
35	16.39	15.57	17.21	17.30	16.44	18.17
36	16.77	15.93	17.61	17.63	16.75	18.52
37	17.15	16.30	18.01	17.97	17.07	18.86
38	17.53	16.66	18.41	18.30	17.38	19.21
39	17.92	17.02	18.81	18.63	17.70	19.56
40	18.30	17.38	19.21	18.96	18.01	19.91
41	18.68	17.74	19.61	19.29	18.33	20.26
42	19.06	18.11	20.01	19.62	18.64	20.60
43	19.44	18.47	20.41	19.95	18.96	20.95
44	19.82	18.83	20.81	20.29	19.27	21.30
45	20.20	19.19	21.22	20.62	19.59	21.65
46	20.59	19.56	21.62	20.95	19.90	22.00
47	20.97	19.92	22.02	21.28	20.22	22.34
48	21.35	20.28	22.42	21.61	20.53	22.69
49	21.73	20.64	22.82	21.94	20.84	23.04
50	22.11	21.01	23.22	22.27	21.16	23.39
51	22.49	21.37	23.62	22.60	21.47	23.73
52	22.88	21.73	24.02	22.94	21.79	24.08
53	23.26	22.09	24.42	23.27	22.10	24.43
54	23.64	22.46	24.82	23.60	22.42	24.78
55	24.02	22.82	25.22	23.93	22.73	25.13
56	24.40	23.18	25.62	24.26	23.05	25.47
57	24.78	23.54	26.02	24.59	23.36	25.82
58	25.16	23.91	26.42	24.92	23.68	26.17
59	25.55	24.27	26.82	25.25	23.99	26.52
60	25.93	24.63	27.22	25.59	24.31	26.87
61	26.31	24.99	27.62	25.92	24.62	27.21
62	26.69	25.36	28.02	26.25	24.94	27.56
63	27.07	25.72	28.43	26.58	25.25	27.91
64	27.45	26.08	28.83	26.91	25.57	28.26
65	27.83	26.44	29.23	27.24	25.88	28.60

JET PUMP OPERABILITY TEST FOR TWO LOOP
OPERATION (EPIC AVAILABLE)

ST-23C

ATTACHMENT 4

Page 2 of 2

PUMP SPEED vs. JET PUMP FLOW

Pump Speed	A Loop JP Predicted Flow (Mlbm/hr)	-5%	+5%	B Loop JP Predicted Flow (Mlbm/hr)	-5%	+5%
66	28.22	26.81	29.63	27.57	26.20	28.95
67	28.60	27.17	30.03	27.91	26.51	29.30
68	28.98	27.53	30.43	28.24	26.82	29.65
69	29.36	27.89	30.83	28.57	27.14	30.00
70	29.74	28.26	31.23	28.90	27.45	30.34
71	30.12	28.62	31.63	29.23	27.77	30.69
72	30.51	28.98	32.03	29.56	28.08	31.04
73	30.89	29.34	32.43	29.89	28.40	31.39
74	31.27	29.70	32.83	30.22	28.71	31.74
75	31.65	30.07	33.23	30.56	29.03	32.08
76	32.03	30.43	33.63	30.89	29.34	32.43
77	32.41	30.79	34.03	31.22	29.66	32.78
78	32.79	31.15	34.43	31.55	29.97	33.13
79	33.18	31.52	34.83	31.88	30.29	33.47
80	33.56	31.88	35.24	32.21	30.60	33.82
81	33.94	32.24	35.64	32.54	30.92	34.17
82	34.32	32.60	36.04	32.87	31.23	34.52
83	34.70	32.97	36.44	33.21	31.55	34.87
84	35.08	33.33	36.84	33.54	31.86	35.21
85	35.46	33.69	37.24	33.87	32.18	35.56
86	35.85	34.05	37.64	34.20	32.49	35.91
87	36.23	34.42	38.04	34.53	32.80	36.26
88	36.61	34.78	38.44	34.86	33.12	36.61
89	36.99	35.14	38.84	35.19	33.43	36.95
90	37.37	35.50	39.24	35.53	33.75	37.30
91	37.75	35.87	39.64	35.86	34.06	37.65
92	38.14	36.23	40.04	36.19	34.38	38.00
93	38.52	36.59	40.44	36.52	34.69	38.34
94	38.90	36.95	40.84	36.85	35.01	38.69
95	39.28	37.32	41.24	37.18	35.32	39.04
96	39.66	37.68	41.64	37.51	35.64	39.39
97	40.04	38.04	42.04	37.84	35.95	39.74
98	40.42	38.40	42.45	38.18	36.27	40.08
99	40.81	38.77	42.85	38.51	36.58	40.43
100	41.19	39.13	43.25	38.84	36.90	40.78
101	41.57	39.49	43.65	39.17	37.21	41.13
102	41.95	39.85	44.05	39.50	37.53	41.48
103	42.33	40.22	44.45	39.83	37.84	41.82
104	42.71	40.58	44.85	40.16	38.16	42.17
105	43.09	40.94	45.25	40.49	38.47	42.52

JET PUMP LOOP FLOW vs. LOOP JET PUMP dP

Jet Pump Loop Flow (Mlbm/hr)	Loop A Predicted Jet Pump dP (psid)	-20%	+20%	Loop B Predicted Jet Pump dP (psid)	-20%	+20%
13	5.38	4.30	6.46	4.06	3.25	4.88
14	6.11	4.89	7.33	5.04	4.03	6.04
15	6.91	5.52	8.29	6.06	4.85	7.27
16	7.77	6.21	9.32	7.14	5.71	8.57
17	8.69	6.95	10.43	8.27	6.62	9.93
18	9.68	7.74	11.62	9.46	7.57	11.35
19	10.73	8.59	12.88	10.70	8.56	12.83
20	11.85	9.48	14.23	11.99	9.59	14.38
21	13.04	10.43	15.65	13.33	10.66	16.00
22	14.29	11.43	17.14	14.73	11.78	17.67
23	15.60	12.48	18.72	16.18	12.94	19.42
24	16.98	13.58	20.38	17.68	14.15	21.22
25	18.42	14.74	22.11	19.24	15.39	23.09
26	19.93	15.94	23.92	20.85	16.68	25.02
27	21.50	17.20	25.80	22.52	18.01	27.02
28	23.14	18.51	27.77	24.23	19.39	29.08
29	24.84	19.88	29.81	26.00	20.80	31.20
30	26.61	21.29	31.93	27.83	22.26	33.39
31	28.44	22.75	34.13	29.70	23.76	35.64
32	30.34	24.27	36.41	31.63	25.31	37.96
33	32.30	25.84	38.76	33.61	26.89	40.34
34	34.33	27.46	41.19	35.65	28.52	42.78
35	36.42	29.14	43.70	37.74	30.19	45.29
36	38.58	30.86	46.29	39.88	31.91	47.86
37	40.80	32.64	48.96	42.08	33.66	50.49
38	43.08	34.47	51.70	44.33	35.46	53.19
39	45.43	36.35	54.52	46.63	37.30	55.96
40	47.85	38.28	57.42	48.98	39.19	58.78
41	50.33	40.26	60.39	51.39	41.11	61.67
42	52.87	42.30	63.45	53.85	43.08	64.63
43	55.48	44.39	66.58	56.37	45.10	67.64
44	58.16	46.53	69.79	58.94	47.15	70.73
45	60.90	48.72	73.08	61.56	49.25	73.87



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Nuclear Northeast

James A. FitzPatrick Nuclear Power Plant

**OPERATIONS TRAINING PROGRAMS
JOB PERFORMANCE MEASURE**

S/RO _____
APPL. TO

NEW _____
JPM NUMBER

TASK TITLE: SGT Initiation Verification (Alternate Path)

REV: 0

DATE: 5/13/03

NRC K/A SYSTEM NUMBER: 261000 A4.06 3.3/3.6

JAF TASK NUMBER: _____

JAF QUAL STANDARD NUMBER: _____

ESTIMATED COMPLETION TIME: 15 Minutes

SUBMITTED: [Signature]

OPERATION REVIEW: _____

APPROVED: _____

~~~~~  
CANDIDATE NAME: \_\_\_\_\_

S.S. NUMBER: \_\_\_\_\_

JPM Completion: ( ) Simulated (X) Performed

Location: ( ) Plant (X) Simulator

DATE PERFORMED: \_\_\_\_\_

TIME TO COMPLETE: \_\_\_\_\_ Minutes

PERFORMANCE EVALUATION: ( ) Satisfactory ( ) Unsatisfactory

~~~~~  
COMMENTS: (MANDATORY FOR UNSATISFACTORY PERFORMANCE)

EVALUATOR: _____

SIGNATURE/PRINTED

CANDIDATE REVIEW: _____

SIGNATURE

REVIEWED BY: _____

PROGRAM ADMINISTER

DOC. COMPLETE: _____

**JOB PERFORMANCE MEASURE
RECORD AND CHECKLIST**

S/RO

NEW

TASK TITLE: SGT Initiation Verification (Alternate Path)

APPL. TO

JPM NUMBER

Current Update: 5/13/03
Date

By: RWD
Int.

Outstanding Items:

☐ Technical Review

☐ Additional Information

☐ Questions and Answers

☐ Validation

☐ Procedural Change Required

☐ None

Comments:

Simulator validated 5/17/03. IC-131.

Previous Revision Dates:

**JOB PERFORMANCE MEASURE
REQUIRED TASK INFORMATION**

S/RO

NEW

TASK TITLE: SGT Initiation Verification (Alternate Path)

APPL. TO

JPM NUMBER

I. SAFETY CONSIDERATIONS

- A. Ensure proper safety equipment and safety procedures are observed.

II. REFERENCES

- A. OP-20; Standby Gas Treatment System

III. TOOLS AND EQUIPMENT

- A. None

IV. SET UP REQUIREMENTS

- A. RWCU Steam Leak into Rx Bldg such that RB Pressure is > -.25 inches.
- B. SGT "B" Failure to Auto Initiate or manually stopped after auto initiation.
- C. RBV Low RPV water level isolation/SGT Initiation

V. EVALUATOR NOTES

- A. If performing JPM in the plant, inform the candidate that the conditions of each step need only be properly identified and not actually performed.
- B. The candidate should, at a minimum, identify the change in equipment status light indication when equipment operation is simulated.

VI. TASK CONDITIONS

- A.
- B.

*** - CRITICAL STEP**

S/RO NEW

TASK TITLE: SGT Initiation Verification (Alternate Path)

VII. INITIATING CUE:

A Steam Leak into the Reactor Building from Reactor Water Cleanup has occurred. The plant has been manually scrammed and operation being controlled by EOP-2. Verify Standby Gas Treatment System Initiation.

	STEP	STANDARD	EVALUATION / COMMENT
1.	Obtain a controlled copy of procedure OP-20, Standby Gas Treatment System	The candidate obtains a controlled copy of OP-20.	SAT / UNSAT
2.	Review the Precautions and Special Instructions.	The candidate reviews the precautions and special instructions, making note of any that are applicable.	SAT / UNSAT
3.	Identify appropriate procedure section	Select Section G.5 or G.6 or Posted Attachment 3. EVALUATOR NOTE Actions written for Posted Attachment 3. All actions at 09-75 panel	SAT / UNSAT
4.	1. Verify the following: ✓ White light for AIR HTR 01-125E-5A(B) is on ✓ Red light for AIR HTR 01-125E-5A(B) is on ✓ ABOVE EL 369' SUCT 01-125MOV-11(12) is open ✓ TRAIN A CLG VLV 01-125MOV-100A(B) is closed ✓ TRAIN A INLET 01-125MOV-14A(B) is open ✓ FN DISCH 01-125MOV-15A(B) is open ✓ TRAIN A FN 01-125FN-1A(B) is running	Candidate confirms that all conditions are as expected for the "A" train and that none of the conditions are as expected from the "B" train.	SAT / UNSAT

S/RO NEW
 TASK TITLE: SGT Initiation Verification (Alternate Path)

	STEP	STANDARD	EVALUATION / COMMENT
5.	2. IF one SGT is in service, THEN verify flow rate on SGT FLOW 01-125FI-106A: ✓ RB un-isolated- Approximately 6000 scfm ✓ RB isolated- Approximately 5600 to 5800 scfm	Candidate confirms that the reactor Building is isolated and verifies ~5600-5800 scfm on 01-125FI-106A.	SAT / UNSAT
6.	3. IF initiation is due to Ventilation Hi Radiation, THEN keep train in service with suction aligned to affected area in next step.	Candidate determines that step is not applicable EVALUATOR If requested, confirm that initiation did NOT result from Ventilation Hi Radiation.	SAT / UNSAT
7.	NOTE: Shutdown of a SGT Train with an initiation signal present will prevent restart on a subsequent or different initiation signal. 4. IF both SGT trains auto-started, THEN shutdown one SGT train per Section F.	Candidate determines that "B" SGT train failed to start.	SAT / UNSAT
*8.	5. IF RX Bldg differential pressure is less negative than -0.25 inches water, THEN ensure both SGT Trains are in service per Subsection D.	Candidate determines that RB D/P warrants the start of "B" SGT per section D.2. EVALUATOR NOTE Candidate may report the Auto Initiation failure of "B" SGT and the need to manually start.	SAT / UNSAT
*9.	D.2.1 Ensure open BELOW EL 369' SUCT 01-125MOV-12.	Candidate opens valve and confirms red light on and green light off	SAT / UNSAT
*10.	D.2.2 Ensure open TRAIN B INLET 01-125MOV-14B.	Candidate opens valve and confirms red light on and green light off	SAT / UNSAT

S/RO NEW
 TASK TITLE: SGT Initiation Verification (Alternate Path)

	STEP	STANDARD	EVALUATION / COMMENT
11.	D.2.3 Verify the following: ✓ White light for AIR HTR 01-125E-5B is on, ✓ Red light for AIR HTR 01-125E-5B is on ✓ TRAIN B CLG VLV 01-125MOV-100B is closed ✓ FN DISCH 01-125MOV-15B is open ✓ TRAIN B FN 01-125FN-1B is Running	Candidate confirms expected indications	SAT / UNSAT
12.	D.2.4 IF standby gas treatment is being placed in service to support any of the following: ✓ Torus venting ✓ Drywell venting ✓ HPCI operation ✓ Main Steam Leakage Collection System operation ✓ Auxiliary Gas Treatment System operation THEN ensure required standby gas treatment suction valves are lined up per the applicable procedure prior to proceeding to Step D.2.5.	Candidate determines that step is not applicable.	SAT / UNSAT

S/RO NEW

TASK TITLE: SGT Initiation Verification (Alternate Path)

	STEP	STANDARD	EVALUATION / COMMENT
13.	D.2.5 IF SGT Train A is shutdown, THEN perform the following: a. Verify open TRAIN A CLG VLV 01-125MOV-100A. b. Verify flow rate on SGT FLOW 01-125FI-106A: ✓ RB un-isolated- Approximately 6000 scfm ✓ RB isolated- Approximately 5600 to 5800 scfm	Candidate determines that step is not applicable	SAT / UNSAT
14.	D.2.6 IF RB DIFF PRESS 01-125DPI- 100A or B indicates less negative than -0.25 inches water, THEN ensure SGT Train A is in service per Subsection D.1.	Candidate monitor RB Diff Pressure and report completion of SGT initiation verification.	SAT / UNSAT
EVALUATOR: Terminate the task at this point.			



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**OPERATIONS TRAINING PROGRAMS
JOB PERFORMANCE MEASURE**

S/RO _____
APPL. TO

NEW _____
JPM NUMBER

TASK TITLE: GROUP 1 ISOLATION RESET

REV: 0

DATE: 5/10/03

NRC K/A SYSTEM NUMBER: 223002 A4.03 3.6/3.5

JAF TASK NUMBER: _____

JAF QUAL STANDARD NUMBER: _____

ESTIMATED COMPLETION TIME: 10 Minutes

SUBMITTED: [Signature]

OPERATION REVIEW: _____

APPROVED: _____

~~~~~  
CANDIDATE NAME: \_\_\_\_\_

S.S. NUMBER: \_\_\_\_\_

JPM Completion:    ( ) Simulated        ( X ) Performed

Location:            ( ) Plant                ( X ) Simulator

DATE PERFORMED: \_\_\_\_\_

TIME TO COMPLETE: \_\_\_\_\_ Minutes

PERFORMANCE EVALUATION:    ( ) Satisfactory        ( ) Unsatisfactory

~~~~~  
COMMENTS: (MANDATORY FOR UNSATISFACTORY PERFORMANCE)

EVALUATOR: _____
SIGNATURE/PRINTED

CANDIDATE REVIEW: _____
SIGNATURE

REVIEWED BY: _____
PROGRAM ADMINISTER

DOC. COMPLETE: _____

**JOB PERFORMANCE MEASURE
RECORD AND CHECKLIST**

S/RO NEW
APPL. TO JPM NUMBER

TASK TITLE: GROUP 1 ISOLATION RESET

Current Update: 5/10/03
Date

By: RWD
Int.

Outstanding Items:

☐ Technical Review

☐ Additional Information

☐ Questions and Answers

☐ Validation

☐ Procedural Change Required

☐ None

Comments:

Simulator validated 5/17/03. IC-131

Previous Revision Dates:

**JOB PERFORMANCE MEASURE
REQUIRED TASK INFORMATION**

S/RO
APPL. TO

NEW
JPM NUMBER

TASK TITLE: GROUP 1 ISOLATION RESET

I. SAFETY CONSIDERATIONS

- A. Ensure proper safety equipment and safety procedures are observed.

II. REFERENCES

- A. AOP-15, ISOLATION VERIFICATION AND RECOVERY Rev 21

III. TOOLS AND EQUIPMENT

- A. None

IV. SET UP REQUIREMENTS

- A. Current copy of AOP-15.
B. Setup simulator with post trip conditions following MSIV closure on low steam pressure and ready for re-opening.

V. EVALUATOR NOTES

- A. If performing JPM in the plant, inform the candidate that the conditions of each step need only be properly identified and not actually performed.
B. The candidate should, at a minimum, identify the change in equipment status light indication when equipment operation is simulated.

VI. TASK CONDITIONS

- A. Conditions have occurred which caused the MSIVs to isolate on low steam pressure.
B. Action to restore the main condenser as a heat sink must be completed

*** - CRITICAL STEP**

S/RO/NLO NEW

TASK TITLE: GROUP 1 ISOLATION RESET

VII. INITIATING CUE

Conditions have occurred which caused the MSIVs to isolate on low steam pressure. The cause of the isolation has been corrected. All radiological conditions and Reactor Chemistry samples are within normal bands. Reset the MSIV isolation using AOP-15."

	STEP	STANDARD	EVALUATION / COMMENT
1.	Obtain a controlled copy of AOP-15.	Obtains a controlled copy of AOP-15 and selects section C.2.	SAT / UNSAT
2.	CAUTION: The circumstances leading to an isolation could have caused high radioactivity levels in the drywell or in reactor coolant.	Informs SM/CRS of CAUTION. EVALUATOR: Acknowledge candidate and respond that there is no concern for high radioactivity levels in drywell or reactor coolant.	SAT / UNSAT
3.	Verify Group 1 Isolation per posted Attachment 5.	Selects the posted attachment 5 and at panel 09-3 and/or 09-4 confirms green closed light on and red open light off for: ✓ 29 AOV-80 A-D ✓ 29 AOV-86 A-D ✓ 29 MOV-74 and 77	SAT / UNSAT
4.	Determine and correct cause of the isolation.	Candidate may confirm initiating cue information that cause has been determined and corrected. EVALUATOR: If asked, confirm that cause is known and corrected and candidate may proceed as directed.	SAT / UNSAT
5.	IF cause of isolation was high main steam line radiation, THEN	Reviews step and determines that cause was NOT a result of high main steam line radiation and a release will not occur as a result of isolation reset. EVALUATOR: If candidate requests, respond that an undesirable release will not occur.	SAT / UNSAT

S/RO/NLO NEW

TASK TITLE: GROUP 1 ISOLATION RESET

	STEP	STANDARD	EVALUATION / COMMENT
6.	Determine whether an undesired release will occur when isolation is reset. Request RES assistance if in doubt.	Reviews step and determines that release will not occur as a result of isolation reset. <u>EVALUATOR</u> : If candidate requests, respond that an undesirable release will not occur.	SAT / UNSAT
7.	WHEN it has been determined that an undesired release <u>will not</u> occur when isolation is reset, continue with procedure.	Reviews step and determines that release will not occur as a result of isolation reset. <u>EVALUATOR</u> : If candidate requests, respond that an undesirable release will not occur.	SAT / UNSAT
* 8.	Ensure control switches for the following valves are in CLOSE: <ul style="list-style-type: none"> • RWR LOOP B SMPL ISOL VLV 02-2AOV-39 • RWR LOOP B SMPL ISOL VLV 02-2AOV-40 	At 09-3 and 09-4 panels, place the valve switches are in close and confirm green closed light on and red open light off.	SAT / UNSAT
* 9.	IF MSIVs are closed, THEN place control switch for each of the following valves in CLOSE: <ul style="list-style-type: none"> • MSIV 29AOV-80A • MSIV 29AOV-80B • MSIV 29AOV-80C • MSIV 29AOV-80D • MSIV 29AOV-86A • MSIV 29AOV-86B • MSIV 29AOV-86C • MSIV 29AOV-86D 	At 09-3 and 09-4 panels, place the valve switches in close and confirm green closed light on and red open light off.	SAT / UNSAT
10.	NOTE : Step C.2.8 is not required to open MSIVs if Group 1 isolation was due to high main steam line radiation (3X normal full power background).	Reviews NOTE and determines that step C.2.8 IS REQUIRED . <u>EVALUATOR</u> : If candidate requests feedback regarding Note, acknowledge the isolation was not due to high radiation.	SAT / UNSAT

S/RO/NLO NEW

TASK TITLE: GROUP 1 ISOLATION RESET

	STEP	STANDARD	EVALUATION / COMMENT
* 11.	Simultaneously rotate the following PCIS VLV RESET switches to both RESET positions, spring return to NORM: <ul style="list-style-type: none">• 16A-S32• 16A-S33	At panel 09-5, operates the switches and confirm annunciators 09-5-1-55 and 56 clear.	SAT / UNSAT
12.	NOTE: Steps C.2.9 and C.2.10 may be performed in any order at the Shift Manager's discretion.	Reviews Note and requests feedback from SM regarding priority for action. <u>EVALUATOR:</u> When candidate requests feedback regarding step priority, acknowledge the MSIVs have priority.	SAT / UNSAT
EVALUATOR: Terminate the task at this point.			



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James A. FitzPatrick Nuclear Power Plant

**OPERATIONS TRAINING PROGRAMS
JOB PERFORMANCE MEASURE**

S/RO 20101007E TASK TITLE: Conduct Emergency Rod In Functional Test,
Alternate Path
APPL. TO JPM NUMBER
REV: 7 DATE: 5/10/03 NRC K/A SYSTEM NUMBER: 201002 A4.02 3.5/3.5
JAF TASK NUMBER: 2010101007 JAF QUAL STANDARD NUMBER: 503E.103
ESTIMATED COMPLETION TIME: 7 Minutes
SUBMITTED: *R. S. [Signature]* OPERATION REVIEW: _____
APPROVED: _____

~~~~~  
CANDIDATE NAME: \_\_\_\_\_ S.S. NUMBER: \_\_\_\_\_

JPM Completion: ( ) Simulated (X) Performed

Location: ( ) Plant (X) Simulator

DATE PERFORMED: \_\_\_\_\_ TIME TO COMPLETE: \_\_\_\_\_ Minutes

PERFORMANCE EVALUATION: ( ) Satisfactory ( ) Unsatisfactory

~~~~~  
COMMENTS: (MANDATORY FOR UNSATISFACTORY PERFORMANCE)

EVALUATOR: _____
SIGNATURE/PRINTED

CANDIDATE REVIEW: _____
SIGNATURE

REVIEWED BY: _____ DOC. COMPLETE: _____
PROGRAM ADMINISTER

**JOB PERFORMANCE MEASURE
RECORD AND CHECKLIST**

S/RO

20101007E

TASK TITLE: Conduct Emergency Rod In Functional Test,
Alternate Path

APPL. TO

JPM NUMBER

Current Update: 5/10/03
Date

By: RWD
Int.

Outstanding Items:

☐ Technical Review

☐ Additional Information

☐ Questions and Answers

☐ Validation

☐ Procedural Change Required

☐ None

Comments:

Simulator Validated 5/17/03. IC-132

Previous Revision Dates:

11/08/88

3/02/92

04/26/93

12/02/93

08/29/94

03/05/99

**JOB PERFORMANCE MEASURE
REQUIRED TASK INFORMATION**

S/RO

20101007F

TASK TITLE: Conduct Emergency Rod In Functional Test,
Alternate Path

APPL. TO

JPM NUMBER

I. SAFETY CONSIDERATIONS

- A. Ensure proper safety equipment and safety procedures are observed.

II. REFERENCES

- A. OP-65 START-UP AND SHUTDOWN PROCEDURE, Rev. 97.

III. TOOLS AND EQUIPMENT

- A. None

IV. SET UP REQUIREMENTS

- A. Initialize the simulator to an IC with the Reactor shutdown, all control rods at 00, ready to pull rods.
- B. Make a copy of the necessary rod withdrawal sheets for use by the candidate.
- C. Replace the indicating light bulb for the ROD OUT PERM with a "burned out" bulb OR override the light OFF until the candidate removes the old bulb to replace it, THEN remove the override.
- D. Ensure reactor analyst instructions pull sheet sequence agrees with simulator load.

V. EVALUATOR NOTES

- A. If performing JPM in the plant, inform the candidate that the conditions of each step need only be properly identified and not actually performed.
- B. The candidate should, at a minimum, identify the change in equipment status light indication when equipment operation is simulated.

VI. TASK CONDITIONS

- A. Plant is conducting a reactor startup.
- B. The mode switch has just been placed in the START/HOT STBY Position.
- C. The "Emergency Rod In" function must be demonstrated prior to withdrawing control rods.
- D. All prerequisite conditions for performing this function have been met.

* - CRITICAL STEP

S/RO 20101007F
 TASK TITLE: Conduct Emergency Rod In Functional Test, Alternate Path
 VII. INITIATING CUE

Inform the candidate, "A reactor startup is about to be commenced. All pre-startup forms have been filled out and all prerequisites have been met. The mode switch has just been placed in the START/HOT STBY Position. Verify that the Emergency Rod In capability is functioning properly per OP-65."

	STEP	STANDARD	EVALUATION / COMMENT
1.	Obtain a copy of OP-65, START-UP AND SHUTDOWN PROCEDURE.	The candidate obtains a copy of OP-65.	SAT / UNSAT
2.	Select the correct section to perform the task.	The candidate selects Section D.14, Transition to Mode 2, step D.14.8	SAT / UNSAT
*3.	Depress select pushbutton for any control rod in RWM Group 1 on ROD SEL matrix.	The candidate depresses select pushbutton for any control rod in RWM Group 1 on ROD SEL matrix. EVALUATOR: Provide candidate with rod withdrawal sheets.	SAT / UNSAT
4.	Verify Annunciator 09-5-2-2, ROD WITHDRAWAL BLOCK is clear.	The candidate verifies Annunciator 09-5-2-2, ROD WITHDRAWAL BLOCK is clear.	SAT / UNSAT
*5.	Verify white ROD OUT PERM light is on.	The candidate recognizes the white ROD OUT PERM light is <u>not</u> on.	SAT / UNSAT
*6.	Checks ROD OUT PERM light bulb.	The candidate replaces the burned out light bulb for the white ROD OUT PERM light.	SAT / UNSAT
*7.	Verify white ROD OUT PERM light is on.	The candidate verifies the white ROD OUT PERM light is on.	SAT / UNSAT
*8.	Withdraw selected rod from position 00 to position 06 per OP-26.	The candidate withdraws the selected Control Rod from position 00 to position 06 per OP-26. EVALUATOR: Candidate may <u>not</u> choose to use Notch Override mode of rod withdrawal. Final position of rod should not exceed 06.	SAT / UNSAT
*9.	Insert selected control rod from position 06 to position 00 using ROD EMERG IN NOTCH OVERRIDE switch.	The candidate inserts selected control rod from position 06 to 00 using ROD EMERG IN NOTCH OVERRIDE switch.	SAT / UNSAT
EVALUATOR: Terminate the task at this point.			



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James A. FitzPatrick Nuclear Power Plant
OPERATIONS TRAINING PROGRAMS
JOB PERFORMANCE MEASURE

S/RO
APPL. TO

NEW
JPM NUMBER

TASK TITLE: Reopen MSIV's with RPV Pressurized

REV: 0

DATE: 5/10/03

NRC K/A SYSTEM NUMBER: 239001 A4.04 3.8/3.7

JAF TASK NUMBER: _____

JAF QUAL STANDARD NUMBER: _____

ESTIMATED COMPLETION TIME: 15 Minutes

SUBMITTED: [Signature]

OPERATION REVIEW: _____

APPROVED: _____

~~~~~  
CANDIDATE NAME: \_\_\_\_\_

S.S. NUMBER: \_\_\_\_\_

JPM Completion: ( ) Simulated (X) Performed

Location: ( ) Plant (X) Simulator

DATE PERFORMED: \_\_\_\_\_

TIME TO COMPLETE: \_\_\_\_\_ Minutes

PERFORMANCE EVALUATION: ( ) Satisfactory ( ) Unsatisfactory

~~~~~  
COMMENTS: (MANDATORY FOR UNSATISFACTORY PERFORMANCE)

EVALUATOR: _____

SIGNATURE/PRINTED

CANDIDATE REVIEW: _____

SIGNATURE

REVIEWED BY: _____

PROGRAM ADMINISTER

DOC. COMPLETE: _____

**JOB PERFORMANCE MEASURE
RECORD AND CHECKLIST**

S/RO
APPL. TO

NEW
JPM NUMBER

TASK TITLE: Reopen MSIV's with RPV Pressurized

Current Update: 5/10/03
Date

By: RWD
Int.

Outstanding Items:

☐ Technical Review

☐ Additional Information

☐ Questions and Answers

☐ Validation

☐ Procedural Change Required

☐ None

Comments:

Simulator Validated 5/17/03. IC-131.

Previous Revision Dates:

**JOB PERFORMANCE MEASURE
REQUIRED TASK INFORMATION**

S/RO
APPL. TO

NEW
JPM NUMBER

TASK TITLE: Reopen MSIV's with RPV Pressurized

I. SAFETY CONSIDERATIONS

- A. Ensure proper safety equipment and safety procedures are observed.

II. REFERENCES

- A. EP-9; OPENING MSIV's

III. TOOLS AND EQUIPMENT

- A. None

IV. SET UP REQUIREMENTS

- A. Rx Scrammed with MSIV's closed.
- B. RPV Level > 126.5 and < 222.5.
- C. RPV Pressure Control on SRV's/HPCI/RCIC at 800-1000 psig.
- D. PCIS Group I isolation signals reset

V. EVALUATOR NOTES

- A. If performing JPM in the plant, inform the candidate that the conditions of each step need only be properly identified and not actually performed.
- B. The candidate should, at a minimum, identify the change in equipment status light indication when equipment operation is simulated.

VI. TASK CONDITIONS

- A. Plant is post scram with MSIV's closed

*** - CRITICAL STEP**

S/RO NEW

TASK TITLE: Reopen MSIV's with RPV Pressurized

VII. INITIATING CUE:

The reactor has scrammed and the MSIV's are closed. MSIV isolation signals have been reset. Another operator has RPV pressure control on the SRV's at 800-1000 psig. The plant is being controlled as directed by the EOP's. To reestablish the main condenser as the heat sink, equalize and reopen the MSIV's per EP-9.

	STEP	STANDARD	EVALUATION / COMMENT
1.	Obtain a controlled copy of procedure EP-9, OPENING MSIV's	The candidate obtains a controlled copy of EP-9.	SAT / UNSAT
2.	Review the Precautions and Special Instructions.	The candidate reviews the precautions and special instructions, making note of any that are applicable.	SAT / UNSAT
3.	IF differential pressure across the MSIVs is LESS THAN OR EQUAL TO 200 psid, THEN perform the following:	Candidate uses 06PI-90A, B, and or C at panel 09-5 and MAIN STEAM PRESS A and or B at EHC section of panel 09-5 to determine that differential pressure exceeds 200 psid.	SAT / UNSAT
4.	Ensure closed the following valves: ✓ MSIV 29AOV-80A-D ✓ MSIV 29AOV-86A-D ✓ MAIN STM DRN 29MOV-74, 77, 78 and 79 ✓ MAIN STM DRN VLV 29MOV-101A-D ✓ RFPT A and B HP STOP VLV HP SVA-1 ✓ TSV-1-4 ✓ TO PCV 96MOV-S1 ✓ PCV BYP 96MOV-S2 ✓ 29MST-105 (SJAE MST supply 29PCV-107 outlet isol valve) (remote operated from East Electric Bay) ✓ 29MST-107 (SJAE MST supply 29PCV-107 bypass strainer outlet isol valve) (remote operated from East Electric Bay)	Candidate closes and/or observes green closed light on and red open light off at the following locations: ✓ MSIV 29AOV-80A-D at 09-3 and 09-4 ✓ MSIV 29AOV-86A-D at 09-3 and 09-4 ✓ MAIN STM DRN 29MOV-74, 77, 78 and 79 at 09-3 and 09-4 ✓ MAIN STM DRN VLV 29MOV-101A-D at 09-7 ✓ RFPT A and B HP STOP VLV HP SVA-1 at 09-6 ✓ TSV-1-4 at 09-5 ✓ TO PCV 96MOV-S1 at 09-7 ✓ PCV BYP 96MOV-S2 at 09-7 ✓ 29MST-105 (SJAE MST supply 29PCV-107 outlet isol valve) (remote operated from East Electric Bay) by telcon to NPO ✓ 29MST-107 (SJAE MST supply 29PCV-107 bypass strainer outlet isol valve) (remote operated from East Electric Bay) by telcon to NPO.	SAT / UNSAT

S/RO NEW

TASK TITLE: Reopen MSIV's with RPV Pressurized

	STEP	STANDARD	EVALUATION / COMMENT
*5.	Open the following valves: MAIN STM DRN 29MOV-74 MAIN STM DRN 29MOV-77	At panel 09-3 and 4 candidate opens 29 MOV-74 and 77 and observes green closed light off and red open light on.	SAT / UNSAT
6.	Jog open MAIN STM DRN 29MOV-79 until full open.	At panel 09-4 candidate jogs opens 29 MOV-79 until full open and observes green closed light off and red open light on.	SAT / UNSAT
*7.	Open the following valves: MSIV 29AOV-86A MSIV 29AOV-86B MSIV 29AOV-86C MSIV 29AOV-86D	At panel 09-3 candidate opens 29AOV-86 A-D and observes green closed light off and red open light on.	SAT / UNSAT
*8.	Open MAIN STM DRN 29MOV-78.	At panel 09-4 candidate opens 29 MOV-78 and observes green closed light off and red open light on.	SAT / UNSAT
9.	Close MAIN STM DRN 29MOV-79.	EVALUATOR Act as SM and waive step 5.9 At panel 09-4 candidate closes 29 MOV-79 and observes green closed light on and red open light off.	SAT / UNSAT
*10.	WHEN differential pressure across the MSIVs is LESS THAN OR EQUAL TO 200 psid, open the following valves: MSIV 29AOV-80A MSIV 29AOV-80B MSIV 29AOV-80C MSIV 29AOV-80D	Candidate uses 06PI-90A, B, and or C at panel 09-5 and MAIN STEAM PRESS A and or B at EHC section of panel 09-5 to determine differential pressure. When differential pressure is < 200 psid, candidate opens 29AOV-80 A-D at panel 09-4 and observes green closed light off and red open light on.	SAT / UNSAT
EVALUATOR: Terminate the task at this point.			



OPERATIONS TRAINING PROGRAMS

JOB PERFORMANCE MEASURE

S/O NEW TASK TITLE: HPCI Manual Startup for Pressure Control.
Alternate Path to Level Control

APPL. TO JPM NUMBER

REV: 0 DATE: 5/10/03 NRC K/A SYSTEM NUMBER: 206000 A4.05 4.4/4.4

JAF TASK NUMBER: _____ JAF QUAL STANDARD NUMBER: _____

ESTIMATED COMPLETION TIME: 20 Minutes

SUBMITTED: [Signature] OPERATION REVIEW: _____

APPROVED: _____

CANDIDATE NAME: _____ S.S. NUMBER: _____

JPM Completion: () Simulated (X) Performed

Location: () Plant (X) Simulator

DATE PERFORMED: _____ TIME TO COMPLETE: _____ Minutes

PERFORMANCE EVALUATION: ☐ Satisfactory ☐ Unsatisfactory

COMMENTS: (MANDATORY FOR UNSATISFACTORY PERFORMANCE)

EVALUATOR: _____
SIGNATURE/PRINTED

CANDIDATE REVIEW: _____
SIGNATURE

REVIEWED BY: _____ DOC. COMPLETE: _____
PROGRAM ADMINISTER

**JOB PERFORMANCE MEASURE
RECORD AND CHECKLIST**

S/RO

NEW

TASK TITLE: :HPCI Manual Startup for Pressure Control.
Alternate Path to Level Control

APPL. TO

JPM NUMBER

Current Update: 5/10/03
Date

By: RWD
Int.

Outstanding Items:

☐ Technical Review

☐ Additional Information

☐ Questions and Answers

☐ Validation

☐ Procedural Change Required

☐ None

Comments:

JPM modified from bank JPM 20601005

Candidate may choose to startup in Pressure Control then transition to level control (Option 1) or vice versa (Option 2)

Simulator Validated 5/17/03. IC-131

Previous Revision Dates:

None

**JOB PERFORMANCE MEASURE
REQUIRED TASK INFORMATION**

S/RO/NLO

NEW

TASK TITLE: HPCI Manual Startup for Pressure Control.
Alternate Path to Level Control

APPL. TO

JPM NUMBER

I. SAFETY CONSIDERATIONS

- A. Ensure proper safety equipment and safety procedures are observed.

II. REFERENCES

- A. OP-15 Section D or Posted Attachment 6/7

III. TOOLS AND EQUIPMENT

- A. None

IV. SET UP REQUIREMENTS

- A. Rx Scrammed with MSIV's closed.
- B. RPV Level > 126.5 and < greenband
- C. RPV Pressure Control on SRV's at 800-1000 psig
- D. HPCI Auto Initiation Failure, MFI-HP01
- E. HPCI Manually Tripped
- F. SGT in service on Rx Bldg Vent.

V. EVALUATOR NOTES

- A. If performing JPM in the plant, inform the candidate that the conditions of each step need only be properly identified and not actually performed.
- B. The candidate should, at a minimum, identify the change in equipment status light indication when equipment operation is simulated.
- C. Instructor will need to manually control RCIC Injection to maintain level low in the band.

VI. TASK CONDITIONS

- A. Plant is post scram with MSIV's closed
- B. RPV level is low and pressure control on SRV's at 800-1000 psig

* - CRITICAL STEP

S/RO NEW

TASK TITLE: HPCI Manual Startup for Pressure Control. Alternate Path to Level Control

- VII. **INITIATING CUE:** The reactor has scrammed and the MSIV's are closed. RPV level is low and slowly trending down. Another operator has RPV pressure control on the SRV's at 800-1000 psig. Startup the HPCI system for pressure and level control. Your pressure band is 800-1000 psig. Your level band is 177-222.5 inches.

OPTION 1

	STEP	STANDARD	EVALUATION / COMMENT
1.	Obtain a controlled copy of procedure OP-15, HIGH PRESSURE COOLANT INJECTION or HPCI STARTUP FOR RPV PRESSURE CONTROL Posted Attachment (OP-15, Att. 7).	The candidate obtains a controlled copy of OP-15 or Posted Attachment located in the procedure holder on Panel 09-3).	SAT / UNSAT
2.	Review the precautions.	The candidate reviews the precautions, making note of any that are applicable.	SAT / UNSAT
3.	Select the correct section to perform the task.	The candidate selects OP-15 Section D.2, or Posted Attachment 7.	SAT / UNSAT
4.	Ensure the SGT is running per OP-20.	The candidate proceeds to panel 09-75 and notes that SGBT System 'A' is in operation, by observing the TRAIN A FN 01-125FN-1A running, TRAIN A INLET 01-125MOV-14A open, ABOVE EL 369' SUCT 01-125MOV-11 open and BELOW EL 369' SUCT 01-125MOV-12 open. SGBT train "B" may or may not be in service.	SAT / UNSAT
5.	Ensure open one of the following: <ul style="list-style-type: none">• HPCI GLAND SEAL SUCT 01-125MOV-13A• HPCI GLAND SEAL SUCT 01-125MOV-13B	At panel 09-75, the candidate places the control switch for 01-125MOV-13A or 01-125MOV-13B to OPEN and observes that the control switch red flag is showing. Observe that red-open indicting light is on and green light is off.	SAT / UNSAT
6.	IF amber RX HI LVL 23A-DS65 light is on at panel 09-3	At panel 09-3, candidate observes that light is not on and omits step.	SAT / UNSAT

S/RO NEW

TASK TITLE: HPCI Manual Startup for Pressure Control. Alternate Path to Level Control

	STEP	STANDARD	EVALUATION / COMMENT
7.	Verify open CST SUCT VLV 23MOV-17.	The candidate verifies the red-open indicating lights for 23MOV-17 is on.	SAT / UNSAT
8.	Verify closed the following valves: <ul style="list-style-type: none"> OUTBD TORUS SUCT VLV 23MOV-57 INBD TORUS SUCT VLV 23MOV-58 	The candidate verifies the Torus Suction Valves closed by observing both green-closed indicating lights on and both red-open indicating lights off.	SAT / UNSAT
*9.	Ensure open OUTBD STM SUPP VLV 23MOV-16.	At Panel 09-3, the candidate places the THTL VLV control switch for 23MOV-16 to OPEN, and observes red-open indicating light on and green-closed indicating light off.	SAT / UNSAT
*10.	Open TEST VLV TO CST 23MOV-21.	At Panel 09-3, the candidate places the control switch for 23MOV-21 to OPEN and observes red-open indicating light on and green-closed indicating light off.	SAT / UNSAT
*11.	Open HPCI AND RCIC TEST VLV TO CST 23MOV-24.	At Panel 09-3, the candidate places the control switch for 23MOV-24 to OPEN and observes red-open indicating light on and green-closed indicating light off.	SAT / UNSAT
12.	Ensure GLAND SEAL CNDSR BLOWER 23P-140 is running.	At Panel 09-3, the candidate places the control switch for 23P-140 to START and observes red running indicating light on and green stopped indicating light off.	SAT / UNSAT
*13.	Ensure open TURB STM SUPP VLV 23MOV-14.	At Panel 09-3, the candidate places the control switch for 23MOV-14 to OPEN and observes red-open indicating light on and green-closed indicating light off.	SAT / UNSAT

S/RO NEW

TASK TITLE: HPCI Manual Startup for Pressure Control. Alternate Path to Level Control

	STEP	STANDARD	EVALUATION / COMMENT
*14.	If annunciator 09-3-3-28 HPCI TURB TRIP SOLENOID ENERGIZED is in alarm, THEN depress INITIATION SIG/MAN TURB TRIP RESET 23A-S17 pushbutton.	At panel 09-3, the candidate depresses pushbutton 23A-S17 to reset and observes annunciator 09-3-3-28 clears.	SAT / UNSAT
*15.	Ensure AUX OIL PMP 23P-150 is running.	At Panel 09-3, the candidate places the control switch for 23P-150 in START.	SAT / UNSAT
16.	Verify HPCI flow is approximately 4250 gpm	The candidate verifies approximately 4250 gpm on 23FI-108-1 at Panel 09-3	SAT / UNSAT
17.	Ensure closed MIN FLOW VLV, 23MOV-25.	The candidate observes that the green-closed indicating light for 23MOV-25 is on and red-open indicating light is off.	SAT / UNSAT
18.	Ensure closed the following valves: <ul style="list-style-type: none"> • STM LINE DRAIN TO RADW 23AOV-42 • STM LINE DRAIN TO RADW 23AOV-43 	On the 09-3 and 09-4 panels, the candidate observes that the green-closed indicating light for 23AOV-42 and 23AOV-43 are on and the red-open indicating lights are off.	SAT / UNSAT
19.	Maintain HPCI speed GREATER THAN 2100 rpm by throttling closed TEST VLV TO CST 23MOV-21.	At Panel 09-3, the candidate monitors HPCI turbine speed and throttles closed 23MOV-21 to ensure HPCI only runs below 2100 rpm on 23SPI-161 during transient operation. Candidate observes caution to ensure HPCI discharge pressure does not exceed 1400 psig except during transient operation.	SAT / UNSAT
*20.	Throttle TEST VLV TO CST 23MOV-21 to obtain the desired RPV pressure control.	At Panel 09-3, the candidate throttles 23MOV-21 to begin the RPV depressurization.	SAT / UNSAT
21.	IF HPCI injection into RPV is required THEN perform the following:	Candidate observes that HPCI injection is required to restore RPV level to ordered band of 177-222.5 inches.	SAT / UNSAT

S/RO NEW

TASK TITLE: HPCI Manual Startup for Pressure Control. Alternate Path to Level Control

	STEP	STANDARD	EVALUATION / COMMENT
22.	Throttle TEST VLV TO CST 23MOV-21 to establish HPCI discharge pressure LESS THAN RPV pressure	At panel 09-3, candidate throttles 23 MOV-21 open until HPCI Pump discharge pressure is < RPV pressure	SAT / UNSAT
*23.	Open INJ VLV 23 MOV-19	At panel 09-3, candidate opens 23MOV-19. The candidate observes that the green-closed indicating light for 23MOV-19 is off and red-open indicating light is on.	SAT / UNSAT
*24.	Throttle closed on 23 MOV-21 to establish RPV injection. Throttle open/closed to establish desired injection rate.	At 09-3, candidate throttles 23MOV-21 and observe RPV level trend.	SAT / UNSAT
25.	Start up RHR torus cooling per Section D of OP-13B, as soon as practicable.	EVALUATOR: Inform the candidate that another operator has been tasked with initiating torus cooling.	SAT / UNSAT
EVALUATOR: Terminate the task at this point.			

S/RO NEW

TASK TITLE: HPCI Manual Startup for Pressure Control. Alternate Path to Level Control

OPTION 2

	STEP	STANDARD	EVALUATION / COMMENT
1.	Obtain a controlled copy of procedure OP-15, HIGH PRESSURE COOLANT INJECTION or HPCI MANUAL STARTUP FOR RPV INJECTION Posted Attachment (OP-15, Att. 6).	The candidate obtains a controlled copy of OP-15 or Posted Attachment located in the procedure holder on Panel 09-3).	SAT / UNSAT
2.	Review the precautions.	The candidate reviews the precautions, making note of any that are applicable.	SAT / UNSAT
3.	Select the correct section to perform the task.	The candidate selects Section D.1, OP-15 or OP-15 Posted Attachment 6.	SAT / UNSAT
4.	Ensure the SGT is running per OP-20.	The candidate proceeds to panel 09-75 and notes that SBT System 'A' is in operation, by observing the TRAIN A FN 01-125FN-1A running, TRAIN A INLET 01-125MOV-14A open, ABOVE EL 369' SUCT 01-125MOV-11 open and BELOW EL 369' SUCT 01-125MOV-12 open. SBT train "B" may or may not be in service.	SAT / UNSAT
5.	Ensure open one of the following: <ul style="list-style-type: none"> HPCI GLAND SEAL SUCT 01-125MOV-13A HPCI GLAND SEAL SUCT 01-125MOV-13B 	At panel 09-75, the candidate places the control switch for 01-125MOV-13A or 01-125MOV-13B to OPEN and observes that the control switch red flag is showing. Observe that red-open indicating light is on and green light is off.	SAT / UNSAT
6.	IF amber RX HI LVL 23A-DS65 light is on at panel 09-3	At panel 09-3, candidate observes that light is not on and omits step.	SAT / UNSAT
7.	Verify open CST SUCT VLV 23MOV-17.	The candidate verifies the red-open indicating lights for 23MOV-17 is on.	SAT / UNSAT

S/RO NEW

TASK TITLE: HPCI Manual Startup for Pressure Control. Alternate Path to Level Control

	STEP	STANDARD	EVALUATION / COMMENT
*8.	Ensure open OUTBD STM SUPP VLV 23MOV-16.	At Panel 09-3, the candidate places the THTL VLV control switch for 23MOV-16 to OPEN, and observes red-open indicating light on and green-closed indicating light off.	SAT / UNSAT
9.	Ensure GLAND SEAL CNDSR BLOWER 23P-140 is running.	At Panel 09-3, the candidate places the control switch for 23P-140 to START red running indicating light on and green stopped indicating light off.	SAT / UNSAT
*10.	Ensure open TURB STM SUPP VLV 23MOV-14.	At Panel 09-3, the candidate places the control switch for 23MOV-14 to OPEN and observes red-open indicating light on and green-closed indicating light off.	SAT / UNSAT
*11.	If annunciator 09-3-3-28 HPCI TURB TRIP SOLENOID ENERGIZED is in alarm, THEN depress INITIATION SIG/MAN TURB TRIP RESET 23A-S17 pushbutton.	At panel 09-3, the candidate depresses pushbutton 23A-S17 to reset and observes annunciator 09-3-3-28 clears. Candidate observes "without delay" caution	SAT / UNSAT
*12.	IF HPCI turbine is not running, THEN start AUX OIL PMP 23P-150.	At Panel 09-3, the candidate places the control switch for 23P-150 in START.	SAT / UNSAT
*13	Open INJ VLV 23 MOV-19	At Panel 09-3, the candidate places the control switch for 23MOV-19 to OPEN and observes red-open indicating light on and green-closed indicating light off.	SAT / UNSAT
14.	Verify HPCI flow is approximately 4250 gpm and discharge pressure is GREATER THAN RPV pressure.	The candidate verifies flow on 23FI-108-1 and pressure on 23PI-109 at Panel 09-3	SAT / UNSAT
15.	Ensure closed MIN FLOW VLV, 23MOV-25.	The candidate observes that the green-closed indicating light for 23MOV-25 is on and red-open indicating light is off.	SAT / UNSAT

S/RO NEW

TASK TITLE: HPCI Manual Startup for Pressure Control. Alternate Path to Level Control

	STEP	STANDARD	EVALUATION / COMMENT
16.	Ensure closed the following valves: <ul style="list-style-type: none"> STM LINE DRAIN TO RADW 23AOV-42 STM LINE DRAIN TO RADW 23AOV-43 	On the 09-3 and 09-4 panels, the candidate observes that the green-closed indicating light for 23AOV-42 and 23AOV-43 are on and the red-open indicating lights are off.	SAT / UNSAT
17.	Verify open CST SUCT VLV 23MOV-17.	The candidate verifies the red-open indicating lights for 23MOV-17 is on.	SAT / UNSAT
18.	Verify closed the following valves: <ul style="list-style-type: none"> OUTBD TORUS SUCT VLV 23MOV-57 INBD TORUS SUCT VLV 23MOV-58 	The candidate verifies the Torus Suction Valves closed by observing both green-closed indicating lights on and both red-open indicating lights off.	SAT / UNSAT
19.	Open HPCI & RCIC TEST VLV TO CST 23 MOV-24	At Panel 09-3, the candidate places the control switch for 23MOV-24 to OPEN and observes red-open indicating light on and green-closed indicating light off.	SAT / UNSAT
20.	Maintain HPCI speed GREATER THAN 2100 rpm by throttling closed TEST VLV TO CST 23MOV-21.	At Panel 09-3, the candidate monitors HPCI turbine speed and throttles closed 23MOV-21 to ensure HPCI only runs below 2100 rpm on 23SPI-161 during transient operation. Candidate observes caution to ensure HPCI discharge pressure does not exceed 1400 psig except during transient operation.	SAT / UNSAT
*21.	Throttle TEST VLV TO CST 23MOV-21 to obtain the desired RPV injection rate.	At Panel 09-3, the candidate throttles 23MOV-21 to maintain RPV level 177-222.5 inches.	SAT / UNSAT

S/RO NEW

TASK TITLE: HPCI Manual Startup for Pressure Control. Alternate Path to Level Control

	STEP	STANDARD	EVALUATION / COMMENT
22.	IF HPCI injection into RPV is no longer required THEN perform the following:	Candidate observes that RPV level is in band and may balance HPCI operation between pressure and level control via positioning of 23 MOV-19 and 23 MOV-21. EVALUATOR May need to prompt transition to pressure control via command "Commence a cooldown using HPCI. Do not exceed 100 degrees per hour.	SAT / UNSAT
23.	Close INJ VLV 23 MOV-19	At panel 09-3, candidate closes 23MOV-19. The candidate observes that the green-closed indicating light for 23MOV-19 is on and red-open indicating light is off.	SAT / UNSAT
*24.	Throttle TEST VLV TO CST 23MOV-21 to obtain the desired RPV pressure control.	At Panel 09-3, the candidate throttles 23MOV-21 to begin the RPV depressurization.	SAT / UNSAT
25.	Start up RHR torus cooling per Section D of OP-13B, as soon as practicable.	EVALUATOR: Inform the candidate that another operator has been tasked with initiating torus cooling.	SAT / UNSAT
EVALUATOR: Terminate the task at this point.			



Entergy
Nuclear Northeast

James A. FitzPatrick Nuclear Power Plant

**OPERATIONS TRAINING PROGRAMS
JOB PERFORMANCE MEASURE**

RO ONLY

S/RO 26402003B TASK TITLE: EDG Shutdown From Load Test Surveillance (ST-9BA)
APPL. TO JPM NUMBER
REV: 0 DATE: 5/18/03 NRC K/A SYSTEM NUMBER: 264000 A4.04 3.7/3.7
JAF TASK NUMBER: JAF QUAL STANDARD NUMBER:
ESTIMATED COMPLETION TIME: 20 Minutes
SUBMITTED: [Signature] OPERATION REVIEW:
APPROVED: _____

~~~~~  
CANDIDATE NAME: S.S. NUMBER:

JPM Completion: ( ) Simulated (X) Performed

Location: ( ) Plant (X) Simulator

DATE PERFORMED: TIME TO COMPLETE: \_\_\_\_\_ Minutes

PERFORMANCE EVALUATION: ( ) Satisfactory ( ) Unsatisfactory

~~~~~  
COMMENTS: (MANDATORY FOR UNSATISFACTORY PERFORMANCE)

EVALUATOR: _____
SIGNATURE/PRINTED

CANDIDATE REVIEW: _____
SIGNATURE

REVIEWED BY: _____ DOC. COMPLETE: _____
PROGRAM ADMINISTER

JOB PERFORMANCE MEASURE

RECORD AND CHECKLIST

S/RO 26402003B TASK TITLE: EDG Shutdown From Load Test Surveillance (ST-9BA)

APPL. TO JPM NUMBER

Current Update: 5/18/03
Date

By: RWD
Int.

Outstanding Items:

☐ Technical Review

☐ Additional Information

☐ Questions and Answers

☐ Validation

☐ Procedural Change Required

☐ None

Comments:

Simulator validated 5/24/03. IC-132

Previous Revision Dates:

**JOB PERFORMANCE MEASURE
REQUIRED TASK INFORMATION**

S/RO

26402003B

TASK TITLE: EDG Shutdown From Load Test Surveillance (ST-9BA)

APPL. TO

JPM NUMBER

I. SAFETY CONSIDERATIONS

- A. Ensure proper safety equipment and safety procedures are observed.

II. REFERENCES

- A. ST-9BA, EDG A AND C FULL LOAD TEST AND ESW PUMP OPERABILITY TEST, Rev 5

III. TOOLS AND EQUIPMENT

- A. None

IV. SET UP REQUIREMENTS

- A. Simulator in any operating condition.
B. Perform and markup ST-9BA through completion of step 8.35
a. Time recorded in 8.17 approx 80 min earlier than expected time for 8.37
b. Time recorded in 8.24 approx 65 min earlier than expected time for 8.37
C. A partially completed ST-9BA filled in with data from Attachment 1

V. EVALUATOR NOTES

- A. If performing JPM in the plant, inform the candidate that the conditions of each step need only be properly identified and not actually performed.
B. The candidate should, at a minimum, identify the change in equipment status light indication when equipment operation is simulated.

VI. TASK CONDITIONS

- A.
B.

* - CRITICAL STEP

S/RO 26402003B

TASK TITLE: EDG Shutdown From Load Test Surveillance (ST-9BA)

VII. INITIATING CUE

Continue ST-9BA at step 8.36. A and C EDG's have been running at this KW loading for > 1 hour.

	STEP	STANDARD	EVALUATION / COMMENT
1.	Obtain a controlled copy of ST-9BA	<u>EVALUATOR</u> Hand marked up copy of ST-9BA to candidate	SAT / UNSAT
2.	Review procedure	Candidate reviews entire procedure prior to commencing and completes personal data of Attachment 1	SAT / UNSAT

TASK TITLE: EDG Shutdown From Load Test Surveillance (ST-3DA)																					
	STEP	STANDARD	EVALUATION / COMMENT																		
3.	<p>8.36 WHEN EDG A and C have been running fully loaded for at least 40 minutes, perform the following:</p> <p>8.36.1 Not Required</p> <p>8.36.2 Record readings from the following instruments at panel 09-8 and perform Steps 8.36.2.A through 8.36.2.C below:</p> <p>EDG A FREQ EDG A KW EDG A KVAR EDG A KV EDG A PH A EDG A PH B EDG A PH C EDG C FREQ EDG C KW EDG C KVAR EDG C KV EDG C PH A EDG C PH B EDG C PH C</p> <p>A. Verify that each instrument reflects the expected operating value of the measured parameter. B. Verify EDG A and C voltage and frequency indications are consistent with each other. C. Record discrepancies in Subsection 11.4</p>	<p>Candidate obtains the following data from the identified location(s):</p> <p>09-8 PANEL</p> <table><tr><th>PARAMETER</th><th>A</th><th>C</th></tr><tr><td>Frequency</td><td>60</td><td>60</td></tr><tr><td>Kilowatts</td><td>~2500</td><td>~2500</td></tr><tr><td>Kilovars</td><td>~-180</td><td>~-180</td></tr><tr><td>Kilovolts</td><td>~4100</td><td>~4100</td></tr><tr><td>Phase A/B/C Amperage</td><td>~350/350/350</td><td>~350/350/350</td></tr></table> <p>All are expected and consistent values.</p>	PARAMETER	A	C	Frequency	60	60	Kilowatts	~2500	~2500	Kilovars	~-180	~-180	Kilovolts	~4100	~4100	Phase A/B/C Amperage	~350/350/350	~350/350/350	SAT / UNSAT
PARAMETER	A	C																			
Frequency	60	60																			
Kilowatts	~2500	~2500																			
Kilovars	~-180	~-180																			
Kilovolts	~4100	~4100																			
Phase A/B/C Amperage	~350/350/350	~350/350/350																			

S/RO 26402003B

TASK TITLE: EDG Shutdown From Load Test Surveillance (ST-9BA)

	STEP	STANDARD	EVALUATION / COMMENT
4.	<p>8.37 [ITS] WHEN EDG A and C have been running loaded at > 2340 kW and < 2600 kW each for > 60 minutes, perform the following:</p> <p>8.37.1 Record current time in hours and minutes.</p> <p>8.37.2 Verify full load run time is GREATER THAN OR EQUAL TO 60 minutes and record.</p> <p>8.37.3 WHILE performing Steps 8.37.4 through 8.37.7, do not operate the T-4 load tap changer. NR</p>	<p>Candidate determines one-hour time requirement has been satisfied and records data.</p> <p>Candidate observes T-4 tap changer caution.</p>	SAT / UNSAT
*5.	8.37.4 Adjust EDG A GOV to lower EDG A load to approximately 50 kW over 3 to 5 minutes in approximately 800 kW increments.	<p>At 09-8 panel, candidate selects lower on EDG"A" Governor Control Switch</p> <p>EVALUATOR</p> <p>Time compression may be exercised at the completion of each adjustment.</p>	SAT / UNSAT
*6.	8.37.5 Trip EDG A LOAD BKR 10502.	At 09-8 panel, candidate selects 10502 control switch to Trip	SAT / UNSAT
*7.	8.37.6 Adjust EDG C GOV to lower EDG C load to approximately 50 kW over 3 to 5 minutes in approximately 800 kW increments.	<p>At 09-8 panel, candidate selects lower on EDG"C" Governor Control Switch</p> <p>EVALUATOR</p> <p>Time compression may be exercised at the completion of each adjustment.</p>	SAT / UNSAT
*8.	8.37.7 Trip EDG C LOAD BKR 10512.	At 09-8 panel, candidate selects 10512 control switch to Trip	SAT / UNSAT

	STEP	STANDARD	EVALUATION / COMMENT
*9.	8.37.8 Place the following switches in NORMAL: EDG A GOV MODE EDG C GOV MODE	At 09-8 panel, candidate selects A and C EDG GOV MODE switches to NORMAL	SAT / UNSAT
10.	8.38 Prepare EDG A for shutdown as follows:	N/A	SAT / UNSAT
11.	8.38.1 Place EDG A LOAD BKR SYNCH SW in ON.	Candidate selects EDG A LOAD BKR SYNCH SW to ON.	SAT / UNSAT
*12.	8.38.2 Adjust EDG A parameters for shutdown as follows: Adjust EDG A GOV until SYNCHROSCOPE is as close to being stopped as practicable. Adjust EDG A VOLT REG to establish 4.3 kV on EDG A KV meter.	Candidate adjusts EDG A GOV and EDG A VOLT REG to establish desired values	SAT / UNSAT
13.	8.38.3 Verify SYNCHROSCOPE is as close to being stopped as practicable.	Candidate observes synchroscope movement and adjusts EDG A GOV as necessary	SAT / UNSAT
14.	8.38.4 Record voltage from INCOMING volt meter	Candidate records voltage (~124)	SAT / UNSAT
15.	8.38.5 Place EDG A LOAD BKR SYNCH SW in OFF and remove synch switch handle.	Candidate selects EDG A LOAD BKR SYNCH SW to OFF and remove synch switch handle.	SAT / UNSAT
16.	8.39 Prepare EDG C for shutdown as follows:	N/A	SAT / UNSAT
17.	8.39.1 Place EDG C LOAD BKR SYNCH SW in ON.	Candidate selects EDG C LOAD BKR SYNCH SW to ON.	SAT / UNSAT

S/RO 26402003B

TASK TITLE: EDG Shutdown From Load Test Surveillance (ST-9BA)

	STEP	STANDARD	EVALUATION / COMMENT
*18.	8.39.2 Adjust EDG C parameters for shutdown as follows: Adjust EDG C GOV until SYNCHROSCOPE is as close to being stopped as practicable. Adjust EDG C VOLT REG until voltage on INCOMING volt meter is the same as the voltage recorded in Step 8.38.4. (~124)	Candidate adjusts EDG C GOV and EDG C VOLT REG to establish desired values	SAT / UNSAT
19.	8.39.3 Verify SYNCHROSCOPE is as close to being stopped as practicable.	Candidate observes synchroscope movement and adjusts EDG C GOV as necessary	SAT / UNSAT
20.	8.39.4 Record voltage from INCOMING volt meter.	Candidate records voltage (~124)	SAT / UNSAT
21.	8.39.5 Place EDG C LOAD BKR SYNCH SW in OFF and remove synch switch handle.	Candidate selects EDG C LOAD BKR SYNCH SW to OFF and remove synch switch handle.	SAT / UNSAT
22.	COM1.5.2 8.40 Allow EDG A and C to run unloaded for at least 10 minutes to cool down cylinders before proceeding to the next step.	EVALUATOR Time compression may be exercised.	SAT / UNSAT
*23.	8.41 Shut down EDG A and C by placing the following control switches to STOP and record time: EDG A CNTRL EDG C CNTRL	Candidate selects STOP on both EDG CNTRL switches and records time.	SAT / UNSAT
24.	8.42 WHEN EDG A and C are stopped (at standstill), stop ESW PMP A 46P-2A at panel 09-6.	EVALUATOR Time compression may be exercised by stating that both EDG's have come to a complete stop.	SAT / UNSAT
EVALUATOR: Terminate the task at this point.			

- 4.1 SM has granted permission to perform this test.
- 4.2 Revision Number of this Working Copy is the same as the revision number listed in the Master Copy of the Index of Operations Surveillance Test Procedures.
- 4.3 Test personnel have read this procedure and are thoroughly familiar with its contents.
- 4.4 Start of test recorded. Date/Time
- 4.5 Start of test recorded in SNO Log.
- NOTE:** Remaining prerequisites may be performed in any order or concurrently.
- 4.6 Emergency Service Water System is lined up per OP-21, with ESW Pump 46P-2A shutdown.
- 4.7 Circulating Water System, including traveling water screens and trash rakes, is supplying water to the suction of Emergency Service Water Pumps 46P-2A and 46P-2B per OP-4.
- NOTE:** The next step may be marked "NA" if Chemistry reports that chlorinating is not required.
- 4.8 ESW pump forebay chlorinated per OP-7A.
- 4.9 120V AC Power System is lined up per OP-46B.
- 4.10 125V DC Power System is lined up per OP-43A.
- 4.11 Diesel Generator Room Ventilation is lined up per OP-60.
- 4.12 Pipe and Cable Tunnels Ventilation System is lined up per OP-62.
- 4.13 EDG A and C are in the standby line up per OP-22.
- COM1.5.1
- 4.14 Pre-startup checks have been completed for EDG A and C per Sect G of OP-22.
- 4.15 Calibration is up-to-date for each of the following instruments:
 - Instrument
 - 93AM-21A
 - 93AM-21C
 - 93AM-22A
 - 93AM-22C
 - 93AM-23A
 - 93AM-23C
 - 93FM-2A
 - 93FM-2C
 - 93LI-102A
 - 93LI-102C
 - 93LS-7A
 - 93LS-7C
 - 93LT-102A
 - 93LT-102C
 - 93TI-5A
 - 93TI-5C
 - 93VM-2A
 - 93VM-2C
 - 93VRM-2A
 - 93VRM-2C
 - 93WM-2A
 - 93WM-2C
 - EPIC-A-710
- 4.16 Calibration for each instrument listed in Subsection 5.1 is up-to-date.

S/RO

26402003B

TASK TITLE: EDG Shutdown From Load Test Surveillance (ST-9BA)

ATTACHMENT 1 Continued

EXP1.6.3

4.17 **IF** EDG System A is required to be operable, **THEN** EDG System A is declared inoperable per AP-12.08.

4.18 Section 8.4 of ST-9R has been performed within one hour after declaring EDG System A inoperable.

5.0 TEST EQUIPMENT, SPECIAL TOOLS, AND MATERIALS

5.1 Test Equipment

Stopwatch Serial Number

Stopwatch Serial Number

Stopwatch Serial Number

Portable digital thermometer, required accuracy $\pm 1^{\circ}\text{F}$ (required only when outside ambient temperature is $> 88^{\circ}\text{F}$ and screenwell intake temperature is $> 78^{\circ}\text{F}$) Serial Number

ENTERGY NUCLEAR OPERATIONS, INC.
JAMES A. FITZPATRICK NUCLEAR POWER PLANT
OPERATIONS SURVEILLANCE TEST PROCEDURE

EDG A AND C FULL LOAD TEST AND ESW PUMP OPERABILITY TEST
ST-9BA
REVISION 5

APPROVED BY:


RESPONSIBLE PROCEDURE OWNER

DATE

8/14/02

EFFECTIVE DATE:

8-23-2

FIRST ISSUE ☐

FULL REVISION ☐

LIMITED REVISION ☒

*
* CONTINUOUS USE *
*

*
* TSR *
*

*
* TECHNICAL *
*

REVISION SUMMARY SHEET

REV. NO.

CHANGE AND REASON FOR CHANGE

- 5 Removed bullet from Steps 9.1.1 and 9.1.2 which required engine crankcase lube oil level to be greater than or equal to the "Full" mark on the dipstick. This is not a requirement and was inadvertently added during the ITS revision. (Not marked with Rev bars).

Added Prerequisite 4.18 to ensure Section 8.4 of ST-9R is completed within one hour of EDG system being declared inoperable.

Made the following changes to supplement obtaining accurate times for reaching rated and steady state voltage and speed (frequency):

- Added 2 additional stopwatches to Step 5.1
- Added Steps 8.9, 8.10, 8.11 and divided timing and recording of voltage and speed (frequency) into two steps (8.13 and 8.14) for accurate timing of diesel parameters
- Revised Step 8.15 to meet ITS basis requirement
- Revised Step 10.1 and added Step 10.2
- Revised Subsection 11.2

- 4 Revised Steps/Subsections 1.2, 1.3, 7.2, 8.10, 8.11, 8.18.8, 8.19.8, 8.20, 8.33, 8.47, 9.1.1, 9.1.2, 10.1, 10.2 and 10.4 to include Improved Technical Specification references and values. ITS surveillance requirements incorporated a start time for the EDG of ≤ 10 second start time at a rated voltage of $\geq 3900V$ and frequency of ≥ 58.5 HZ. ITS also requires a steady state voltage range of ≥ 3900 V and ≤ 4400 V, frequency range of ≥ 58.8 Hz and ≤ 61.2 Hz during the run of ≥ 60 minutes.

Added Step 8.6 and 10.10 to verify EDG air start press ≥ 150 psig.

Added Subsection 11.2 to fulfill requirement to periodically monitor and trend time required for EDGs to reach steady state voltage and frequency, stated in SR 3.8.1.2 Bases.

Added line for recording time to Steps 8.13 and 8.37. (EC dated 6/15/1)

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1.0 REQUIREMENTS

1.1 Frequency

Monthly (At least once per 31 days)

1.2 Technical Specifications

1.2.1 Surveillance Requirements

[CTS] 4.9.B.1 and B.3

[ITS] • Satisfies SR 3.8.1.2, SR 3.8.1.3 and
SR 3.8.3.4 for EDG A and EDG C

• Partially satisfies SR 3.7.2.7 for EDG A
and EDG C

1.2.2 Limiting Conditions for Operation

[CTS] 3.9.A, 3.9.B, 3.9.C, and 3.9.D

[ITS] LCOs 3.7.2, 3.8.1, 3.8.2, 3.8.3

[ITS]

1.3 Technical Requirements Manual

1.3.1 Surveillance Requirements

TRS 3.3.L.1

1.3.2 Limiting Conditions for Operation

Section 3.3.L

1.4 Other

None

1.5 Commitments

1.5.1 Commitment Number 010395 - JPN-90-060, JPN-92-022, UFSAR Section 8.6.8.1, Special Restrictions on Emergency Diesel Generator Switchgear. JPN-90-060 includes additional requirements for 1) No remote or local 4.16 kV breaker operations should be performed except those specified in this procedure. 2) Racking in or out 4.16 kV breakers shall not be performed during EDG full load test.

- 1.5.2 Commitment Number 000500, (JAF-84-157) NRC Inspection 50-333/84-05 - April 1-30, 1984. The Authority would revise the emergency diesel generator (EDG) full load surveillance test procedure to: 1) Specify that only one pair of EDGs be tested at a time and 2) If testing was concurrent, the first pair of EDGs be allowed to cool down before the second pair is tested.
- 1.5.3 Commitment Number 003544, (JAF-88-322) NRC Inspection 50-333/88-15 - August 8-19, 1988, Procedure ST-9B, Rev 24 addressed inspector concerns for returning emergency diesel generators (EDG) to standby operations following EDG full load test and ESW pump operability test.
- 1.5.4 Commitment Number 012120, (JAF-93-022) NRC Inspection 50-333/92-23 Nov 15 through Dec 19, 1992, Each EDG air bank will be tested every other month to ensure the operability of each air bank. Due to lack of isolation valves for the pairs of individual air start motors, testing simultaneously might mask a failure.
- 1.5.5 Commitment Number 003545, (JAF-88-322) NRC Inspection 50-333/88-15 Aug 8-19, 1988, The Authority will incorporate verification of the EDG room ventilation system into surveillance test procedure ST-9B.

1.6 Expectations

- 1.6.1 ACTS Item 2487, Reduced the length of ST-9B, EDG Full Load Test and ESW Operability Test
- 1.6.2 DER-95-0844, Revised procedure to include actions if an EDG functions improperly and added cautions to alert the operator of the effects of T-4 load tap changer adjustment during EDG operation.
- 1.6.3 LER-99-001, Revised procedure to alert operator that EDGs are considered inoperable when operating in single diesel mode or when operating both EDGs with tie breaker open. Also added steps to declare EDGs inoperable during test.
- 1.6.4 ACT-98-36328, Revised procedure to monitor Emergency Switchgear Room temperatures and require EDGs be secured if ambient temperature approaches 104°F, based on instrument accuracy.
- 1.6.5 ACT-98-38117, Added step to verify EPIC-D-730 alarmed and cleared after 10504 breaker is tripped. This verifies proper operation of breaker auxiliary contacts.

↓EXP1.6.1

2.0 PURPOSE

To demonstrate the ability of:

- EDG A and C to start, accelerate, force parallel, share loads, and carry full rated load.
- ESW Pump A to automatically start and provide greater than or equal to 1060 gpm to EDG A and C.
- EDG A and C diesel fuel oil subsystems to provide sufficient fuel oil to the associated EDG while operating at full load.

3.0 REFERENCES**3.1 Performance References**

- 3.1.1 ODSO-17, Auxiliary Operator Plant Tour and Operating Logs
- 3.1.2 AP-12.08, LCO Tracking and Safety Function Determination Program
- 3.1.3 OP-4, Circulating Water System
- 3.1.4 OP-7A, Chlorine Injection System
- 3.1.5 OP-13, Residual Heat Removal System
- 3.1.6 OP-21, Emergency Service Water
- 3.1.7 OP-22, Diesel Generator Emergency Power
- 3.1.8 OP-43A, 125V DC Power System
- 3.1.9 OP-46B, 120V AC Power System
- 3.1.10 OP-60, Diesel Generator Room Ventilation
- 3.1.11 OP-62, Pipe and Cable Tunnels Ventilation System

3.2 Developmental References

- 3.2.1 FSAR Section 8.6.4
- 3.2.2 Model #645-S20E4GW Emergency Diesel Generator, Manual Number M494-0208
- 3.2.3 FM-46B, FM-93A, FM-93C, and FM-94A

- 3.2.4 JSEM-91-0051, Recommendation To Manually Bar Over Emergency Diesel Generator (93EDG-A, B, C & D) Prior To Scheduled Start
- 3.2.5 JOPS-91-150, B Emergency Diesel Fuel Oil Day Tank Drain Valves Out Of Position Incident
- 3.2.6 JAG-92-042; DEO No. IENG-62, Revise ST-9B to assure that the EDG are tested with alternate air receiver banks each month.
- 3.2.7 JOPS-92-087, Technical Specification 4.9.C.2
- 3.2.8 JPN-92-022, James A. Fitzpatrick Nuclear Power Plant Docket No. 50-333, Reliability of Manual Bus Transfers Between Onsite and Offsite Power Supplies and Resolution of 4.16 kV Switchgear Deficiency
- 3.2.9 JTS-92-1060, EDG Vent Operability
- 3.2.10 WRS 095482 and 110304, EDG Room Ventilation Flow Measurements
- 3.2.11 JAF-SE-90-067, Revision 4, Clarification of Design Basis Requirements for the JAFNPP Emergency Service Water System (46)
- 3.2.12 DER-95-0844, EDG Failed to Pick Up Load During Performance of ST-9B
- 3.2.13 JTS-95-0289, Critique on Failure of 93EDG-A to Load During Performance of ST-9B on 5/9/95
- 3.2.14 DER-98-0156, 10CFR Part 21 Notification on EDG Air Start Solenoid Valves
- 3.2.15 JTS-98-0021, Operability Determination for DER-98-0156
- 3.2.16 D1-98-0020, Replace EDG Air Start SOVs (Part 21 Notification)
- 3.2.17 JAF-CALC-DBV-03021, Emergency Switchgear Room Temperature
- 3.2.18 JAF-SE-96-048, Revision to FSAR to Raise Maximum Allowable Lake Temperature From 82°F to 85°F
- 3.2.19 Tech Spec. Amendment 253, EDG System AOT Extension

Init

NOTE: Sections 4 and 5 may be performed in any order or concurrently.

4.0 PREREQUISITES

4.1 SM has granted permission to perform this test.

4.2 Revision Number of this Working Copy is the same as the revision number listed in the Master Copy of the Index of Operations Surveillance Test Procedures.

4.3 Test personnel have read this procedure and are thoroughly familiar with its contents.

4.4 Start of test recorded. Today 12 hrs ago
Date/Time

4.5 Start of test recorded in SNO Log.

NOTE: Remaining prerequisites may be performed in any order or concurrently.

4.6 Emergency Service Water System is lined up per OP-21, with ESW Pump 46P-2A shutdown.

4.7 Circulating Water System, including traveling water screens and trash rakes, is supplying water to the suction of Emergency Service Water Pumps 46P-2A and 46P-2B per OP-4.

NOTE: The next step may be marked "NA" if Chemistry reports that chlorinating is not required.

4.8 ESW pump forebay chlorinated per OP-7A.

4.9 120V AC Power System is lined up per OP-46B.

4.10 125V DC Power System is lined up per OP-43A.

4.11 Diesel Generator Room Ventilation is lined up per OP-60.

4.12 Pipe and Cable Tunnels Ventilation System is lined up per OP-62.

4.13 EDG A and C are in the standby line up per OP-22.

↓COM1.5.1

4.14 Pre-startup checks have been completed for EDG A and C per Section G of OP-22.

Init

4.15 Calibration is up-to-date for each of the following instruments:

Instrument

93AM-21A	(✓)
93AM-21C	(✓)
93AM-22A	(✓)
93AM-22C	(✓)
93AM-23A	(✓)
93AM-23C	(✓)
93FM-2A	(✓)
93FM-2C	(✓)
93LI-102A	(✓)
93LI-102C	(✓)
93LS-7A	(✓)
93LS-7C	(✓)
93LT-102A	(✓)
93LT-102C	(✓)
93TI-5A	(✓)
93TI-5C	(✓)
93VM-2A	(✓)
93VM-2C	(✓)
93VRM-2A	(✓)
93VRM-2C	(✓)
93WM-2A	(✓)
93WM-2C	(✓)
EPIC-A-710	(✓)

4.16 Calibration for each instrument listed in Subsection 5.1 is up-to-date.

Init

↓EXP1.6.3

4.17 **IF** EDG System A is required to be operable,
THEN EDG System A is declared inoperable per AP-12.08.

4.18 Section 8.4 of ST-9R has been performed within one hour
after declaring EDG System A inoperable.

5.0 TEST EQUIPMENT, SPECIAL TOOLS, AND MATERIALS

5.1 Test Equipment

- Stopwatch

001
Serial Number

- Stopwatch

002
Serial Number

- Stopwatch

003
Serial Number

- Portable digital thermometer, required accuracy $\pm 1^{\circ}\text{F}$
(required only when outside ambient temperature is $> 88^{\circ}\text{F}$
and screenwell intake temperature is $> 78^{\circ}\text{F}$)

12345
Serial Number

5.2 Special Tools

None

5.3 Materials

None

6.0 PRECAUTIONS AND LIMITATIONS

6.1 Precautions

6.1.1 Fire doors between EDG rooms shall be closed when EDGs are required to be operable.

6.1.2 EDG operation at 2000 kW shall be avoided to prevent turbo charger override clutch shock loading problems.

↓COM1.5.1

6.1.3 During monthly Emergency Diesel Generator (EDG) testing when the diesels are operated in parallel with the Normal Station Service Transformer 71T-4, the fault currents associated with a three-phase bolted electrical fault could exceed the short circuit rating of certain 4160 volt switchgear.

For the above reason, the special measures listed below shall be taken when the EDGs are operated in parallel with 71T-4:

- No remote or local 4.16 kV breaker operations should be performed except those specified in this procedure.
- Racking in or out 4.16 kV breakers shall not be performed.
- No maintenance is permitted on the 4160 volt switchgear.
- Except for personnel associated with EDG operation, personnel are not permitted to work in the switchgear areas. Switchgear areas will be inspected prior to EDG operation to ensure personnel are not working in these areas.

↓COM1.5.2

6.1.4 Only one pair of EDGs shall be tested at a time.

6.2 Limitations

- 6.2.1 Test personnel shall immediately notify the CRS of any failure to meet acceptance criteria.
- 6.2.2 Test personnel shall print name, sign initials, and enter date on Attachment 1 before performing Section 8 of this test.
- 6.2.3 When test personnel complete their assigned portion of this test, they shall enter hours worked on Attachment 1.
- 6.2.4 Once this test has been started, any additional test personnel shall read this procedure and become thoroughly familiar with its contents before performing any portion of this test.
- 6.2.5 Multiple working copies of this test may be used provided the following requirements are satisfied:

NOTE: The work site is defined as the location where work is controlled. The location of the work site is at the discretion of the SNO.

- A. A working copy of this test shall be retained at the work site.
 - B. The work site working copy shall be the legal record for documenting this test.
 - C. Data from all steps performed away from the work site, including signatures, initials, and recorded values, is transcribed into the work site working copy following completion of the test.
- 6.2.6 Conditional (**IF, THEN**) steps in this test may be marked "NA" if not applicable.
 - 6.2.7 Steps in this test marked "NR" are not required to be initialed.

7.0 GENERAL TEST METHODS

7.1 This test demonstrates the ability of:

- EDG A and C to start, accelerate, force parallel, share loads, and carry full rated load.
- ESW Pump A to automatically start and provide greater than or equal to 1060 gpm to EDG A and C.
- EDG A and C diesel fuel oil subsystems to provide sufficient fuel oil to the associated EDG while operating at full load.

7.2 This test consists of the following major steps:

- Inspection of air start motors and air receiver lineup
- Demonstration of EDG startup and force parallel
- Demonstration of proper operation of EDG Room supply fans, associated ESW pump, and EDG air start motors

[CTS]

- Paralleling and loading each EDG to 2600 kW

[ITS]

- Paralleling and loading each EDG to ≥ 2340 kW and ≤ 2600 kW for ≥ 60 minutes.

8.0 PROCEDURE

Init**CAUTION**

↓EXP1.6.3

An EDG system is considered inoperable when operating in the single diesel mode **OR** when operating both EDGs with their tie breaker open and the EDGs are either unloaded or in parallel with the grid.

8.1 Perform the following for each air start motor at EDG A:

8.1.1 Visually inspect exposed air start motor gear teeth for damage and obstruction. Q

8.1.2 **IF** damage or obstruction is observed, **THEN** perform the following:

A. Immediately notify SM. N/A

B. Record problem in Subsection 11.4. N/A

C. Initiate a PID for corrective action. N/A

8.1.3 Wipe down area underneath air start motor exhaust to remove oil film. Q

↓COM1.5.4

8.2 Line up EDG A air start receiver outlet isolation valves as follows:

8.2.1 **IF** the current month is an even numbered month, **THEN** perform the following:

A. Ensure open 93EDG-50A (EDG A air start receiver A6 through A10 outlet isol valve). N/A

B. Ensure closed 93EDG-47A (EDG A air start receiver A1 through A5 outlet isol valve). N/A

8.2.2 **IF** the current month is an odd numbered month, **THEN** perform the following:

A. Ensure open 93EDG-47A (EDG A air start receiver A1 through A5 outlet isol valve). Q

B. Ensure closed 93EDG-50A (EDG A air start receiver A6 through A10 outlet isol valve). Q

Init

8.3 Perform the following for each air start motor at EDG C:

8.3.1 Visually inspect exposed air start motor gear teeth for damage and obstruction. Q8.3.2 **IF** damage or obstruction is observed, **THEN** perform the following:A. Immediately notify SM. N/AB. Record problem in Subsection 11.4. N/AC. Initiate a PID for corrective action. N/A8.3.3 Wipe down area underneath air start motor exhaust to remove oil film. Q

↓COM1.5.4

8.4 Line up EDG C air start receiver outlet isolation valves as follows:

8.4.1 **IF** the current month is an even numbered month, **THEN** perform the following:A. Ensure open 93EDG-50C (EDG C air start receiver C6 through C10 outlet isol valve). N/AB. Ensure closed 93EDG-47C (EDG C air start receiver C1 through C5 outlet isol valve). N/A8.4.2 **IF** the current month is an odd numbered month, **THEN** perform the following:A. Ensure open 93EDG-47C (EDG C air start receiver C1 through C5 outlet isol valve). QB. Ensure closed 93EDG-50C (EDG C air start receiver C6 through C10 outlet isol valve). Q8.5 Ensure pre-run turbo oil pressures from 93PI-1A and 93PI-1C are recorded on ODSO-17, Diesel Operating Log Sheet. Q

Init**[ITS]**

8.6 Record EDG air start pressure for EDG A and EDG C.

93PI-3A 174
(TS ≥ 150 psig)93PI-3C 166
(TS ≥ 150 psig)

8.7 Verify the following annunciators are clear:

- 09-8-2-9 EDG A ENG TROUBLE OR SHUTDOWN
- 09-8-2-12 EDG C ENG TROUBLE OR SHUTDOWN

↓EXP1.6.4

8.8 **IF** both of the following conditions exist:

- Outside ambient temperature is **GREATER THAN** 88°F on 17WR-101K, CHAN A, digital indication at panel 17EMRP.

AND

- Screenwell intake temperature is **GREATER THAN** 78°F on EPIC-A-1503 or EPIC-A-1504.

THEN perform the following while EDGs are running:

8.8.1 Periodically monitor ambient temperature in North and South Emergency Switchgear Rooms using portable digital thermometer.

NR8.8.2 **IF** ambient temperature in either switchgear room approaches 103°F,
THEN shut down EDG A and C per the applicable steps of this procedure.NR

Init

8.9 Station operator 1 with a stopwatch to monitor EDG A and C [CTS]speed [ITS]frequency. NR

8.10 Station operator 2 with a stopwatch to monitor EDG A and C voltage. NR

[ITS]

8.11 Station operator 3 with a stopwatch to monitor EDG A and C for steady state voltage and frequency. NR

8.12 Simultaneously place the following control switches to START and start all three stopwatches:

- EDG A CNTRL
- EDG C CNTRL

NR

8.13 [CTS]

WHEN EDG A and C reach rated speed (≥ 900 rpm), operator 1 stop stopwatch and record time.

N/A seconds
(≤ 10)

[ITS]

WHEN EDG A and C reach rated frequency (≥ 58.8 Hz), operator 1 stop stopwatch and record time.

8.9 seconds
(≤ 10)

8.14 [CTS]

WHEN EDG A and C reach rated voltage (≥ 4.16 kV), operator 2 stop stopwatch and record time.

N/A seconds
(≤ 10)

[ITS]

WHEN EDG A and C reach rated voltage (≥ 3900 V), operator 2 stop stopwatch and record time.

9.2 seconds
(≤ 10)

Init**[ITS]**

8.15 **WHEN** EDG A and C reach steady state voltage (≥ 3900 V and ≤ 4400 V) and steady state frequency (≥ 58.8 Hz and ≤ 61.2 Hz), operator 3 stop stopwatch and record time.

9.5 seconds

8.16 Verify the following:

- EDG A & C TIE BKR 10504 is closed
- ESW Pump 46P-2A is running

(✓)

(✓)

8.17 Trip EDG A & C TIE BKR 10504, allow switch to spring return to AUTO and record time.

80 min ago
Time

↓EXP1.6.5

8.18 Verify EPIC-D-730 closed and open on alarm typer.

8.19 Place the following switches in DROOP:

- EDG A GOV MODE
- EDG C GOV MODE

(✓)

(✓)

· Init

↓EXP1.6.2

8.20 **IF** an EDG functions improperly while paralleled with 10500 bus,
THEN perform the following:

8.20.1 Trip associated EDG load breaker.

NR

8.20.2 Shut down malfunctioning EDG per Section G of OP-22 (Single EDG Shutdown from Control Room).

NR

8.20.3 Shut down other EDG per Section G of OP-22 (Single EDG Shutdown from Control Room).

NR

8.20.4 Initiate a PID to troubleshoot EDG.

PID Number _____

NR**CAUTION**

↓EXP1.6.2

Operation of the T-4 load tap changer during paralleling and loading of the EDG could cause the EDG to trip.

↓EXP1.6.2

8.21 **WHILE** performing Steps 8.22 and 8.23, do not operate the T-4 load tap changer.

NR

Init

NOTE: Steps 8.22 and 8.23 may be performed in any order per SM direction.

8.22 Parallel EDG A with the 10500 Bus as follows:

8.22.1 Place EDG A LOAD BKR SYNCH SW in ON. (✓)

8.22.2 Adjust EDG A VOLT REG to match INCOMING and RUNNING voltage. (✓)

8.22.3 Adjust EDG A GOV to rotate SYNCHROSCOPE slowly in the FAST direction (clockwise). (✓)

NOTE: Steps 8.22.4 and 8.22.5 may be checked after Step 8.22.5 is complete.

8.22.4 **WHEN** EDG A and the 10500 Bus are in phase (SYNCHROSCOPE at 12 o'clock), close EDG A LOAD BKR 10502. (✓)

8.22.5 Adjust EDG A GOV to raise EDG A load 100 to 300 kW. (✓)

8.22.6 Place EDG A LOAD BKR SYNCH SW in OFF and remove synch switch handle. (✓)

8.22.7 **IF** EDG A is the second diesel paralleled, **THEN** balance EDG A and C using voltage regulator(s) to establish **LESS THAN** 100 KVAR difference between EDG A and EDG C. N/A

8.22.8 **[CTS]**
Adjust EDG A GOV to raise EDG A load to 2600 kW over 3 to 5 minutes in approximately 800 kW increments.

[ITS]
Adjust EDG A GOV to raise EDG A load to \geq 2340 kW and \leq 2600 kW over 3 to 5 minutes in approximately 800 kW increments. Q

Init

NOTE: Steps 8.22 and 8.23 may be performed in any order per SM direction.

8.23 Parallel EDG C with the 10500 Bus as follows:

8.23.1 Place EDG C LOAD BKR SYNCH SW in ON. (✓)

8.23.2 Adjust EDG C VOLT REG to match INCOMING and RUNNING voltage. (✓)

8.23.3 Adjust EDG C GOV to rotate SYNCHROSCOPE slowly in the FAST direction (clockwise). (✓)

NOTE: Steps 8.23.4 and 8.23.5 may be checked after Step 8.23.5 is complete.

8.23.4 **WHEN** EDG C and the 10500 Bus are in phase (SYNCHROSCOPE at 12 o'clock), close EDG C LOAD BKR 10512. (✓)

8.23.5 Adjust EDG C GOV to raise EDG C load 100 to 300 kW. (✓)

8.23.6 Place EDG C LOAD BKR SYNCH SW in OFF and remove synch switch handle. (✓)

8.23.7 **IF** EDG C is the second diesel paralleled, **THEN** balance EDG A and C using voltage regulator(s) to establish **LESS THAN** 100 KVAR difference between EDG A and EDG C. (✓)

8.23.8 **[CTS]**
Adjust EDG C GOV to raise EDG C load to 2600 kW over 3 to 5 minutes in approximately 800 kW increments.

[ITS]
Adjust EDG C GOV to raise EDG C load to \geq 2340 kW and \leq 2600 kW over 3 to 5 minutes in approximately 800 kW increments. Q

Init**[CTS]**

NOTE: To satisfy the 1 hour full load requirement in Tech Specs, EDG A and C must carry a total load of 5200 kW in parallel for at least 1 hour.

[ITS]

NOTE: To satisfy the ≥ 60 minute full load requirement in Tech Specs. EDG A and EDG C must each carry a load of ≥ 2340 kW and ≤ 2600 kW for greater than or equal to 60 minutes. Momentary transients outside the load range do not invalidate this test.

8.24

[CTS]

WHEN EDG A and EDG C are running at 2600 kW each, record current time in hours and minutes.

[ITS]

WHEN EDG A and EDG C are running at ≥ 2340 kW and ≤ 2600 kW each, record current time in hours and minutes.

Current time 65 min ago

2

NOTE: Steps 8.25 through 8.35 may be performed in any order or concurrently.

8.25 Complete startup section of OP-22, EDG Demand Log, for EDG A and C.

8.26 Perform Steps 8.27 through 8.35 early in the 1 hour full load period.

↓COM1.5.5

8.27 Verify the following fans indicate running at panel 92HV-9A:

- 92FN-1A EDG A ROOM VENT SUPPLY FAN
- 92FN-1C EDG C ROOM VENT SUPPLY FAN

↓COM1.5.5

8.28 Verify the following fans indicate stopped at panel 92HV-9A:

- 92FN-2A EDG A ROOM VENT EXHAUST FAN
- 92FN-2C EDG C ROOM VENT EXHAUST FAN

↓COM1.5.5

8.29 **IF** annunciator HV-9A-7 SUPPLY FAN FN-1A TROUBLE is in alarm,
THEN verify adequate ventilation flow as follows:

8.29.1 Verify white high vibration light is off for supply fan 92FN-1A.

8.29.2 Record EDG A Room temperature from 92TIC-101A EDG A ROOM VENT TEMP INDIC CNTRLR.

N/A °F
(<120)

8.29.3 Note setpoint for 92TIC-101A.

8.29.4 Place 92TIC-101A in manual.

8.29.5 Adjust setpoint on 92TIC-101A until annunciator HV-9A-7 clears.

8.29.6 Adjust setpoint on 92TIC-101A to value noted in Step 8.29.3.

8.29.7 Place 92TIC-101A in auto.

Init

↓COM1.5.5

8.30 **IF** annunciator HV-9A-9 SUPPLY FAN FN-1C TROUBLE
is in alarm,

THEN verify adequate ventilation flow as follows:

8.30.1 Verify white high vibration light is off for
supply fan 92FN-1C. N/A

8.30.2 Record EDG C Room temperature from 92TIC-101C
EDG C ROOM VENT TEMP INDIC CNTRLR.

N/A °F
(<120) N/A

8.30.3 Note setpoint for 92TIC-101C. NR

8.30.4 Place 92TIC-101C in manual. N/A

8.30.5 Adjust setpoint on 92TIC-101C until
annunciator HV-9A-9 clears. N/A

8.30.6 Adjust setpoint on 92TIC-101C to value
noted in Step 8.30.3. N/A

8.30.7 Place 92TIC-101C in auto. N/A

↓COM1.5.5

8.31 Verify the following fans are discharging
air flow into their respective EDG room:

- 92FN-1A is discharging into EDG Room A. (✓)
- 92FN-1C is discharging into EDG Room C. (✓) 2

NOTE: Lack of oil residue will not make an EDG inoperable.

8.32 Verify EDG A and C air start motors functioned
properly using one of the following methods:

NOTE: Observing oil residue is the preferred
method of verifying air start motors
functioned properly.

- Oil residue observed underneath air start motor
exhaust.

OR

- Air flow observed coming from air start motor
exhaust. 2

8.33 **IF** oil residue is not observed underneath an
air start motor exhaust,
THEN perform the following:

8.33.1 Initiate a PID for maintenance to correct
deficiency. N/A

8.33.2 Record PID number in Subsection 11.4. N/A

8.34 Verify the following fuel oil pumps are running:

- 93P-4A (emergency diesel generator A
fuel oil pump) (✓)
- 93P-4C (emergency diesel generator C
fuel oil pump) (✓) 2

8.35 Record ESW Pump 46P-2A flow rate from EPIC-A-710.

EPIC-A-710 1419 gpm
(≥1060) 2

Init

8.36 **WHEN** EDG A and C have been running fully loaded for at least 40 minutes, perform the following:

8.36.1 Complete Diesel Operating Log per ODSO-17.

NR

8.36.2 Record readings from the following instruments at panel 09-8 and perform Steps 8.36.2.A through 8.36.2.C below:

EDG A FREQ _____

EDG A KW _____

EDG A KVAR _____

EDG A KV _____

EDG A PH A _____

EDG A PH B _____

EDG A PH C _____

EDG C FREQ _____

EDG C KW _____

EDG C KVAR _____

EDG C KV _____

EDG C PH A _____

EDG C PH B _____

EDG C PH C _____

A. Verify that each instrument reflects the expected operating value of the measured parameter.

B. Verify EDG A and C voltage and frequency indications are consistent with each other.

C. Record discrepancies in Subsection 11.4.

Init

8.37 [CTS]

WHEN EDG A and C have been running loaded at 2600 kW each for at least 1 hour, perform the following:

[ITS]

WHEN EDG A and C have been running loaded at ≥ 2340 kW and ≤ 2600 kW each for ≥ 60 minutes, perform the following:

8.37.1 Record current time in hours and minutes.

Current time _____

8.37.2 Verify full load run time is **GREATER THAN OR EQUAL TO** 60 minutes and record.

Time (Step 8.37.1) _____

Time (Step 8.24) - _____

Full load run time = _____ minutes

CAUTION

↓EXP1.6.2

Operation of the T-4 load tap changer during unloading of the EDG could cause the EDG to trip.

8.37.3 **WHILE** performing Steps 8.37.4 through 8.37.7, do not operate the T-4 load tap changer. NR

NOTE: Steps 8.37.4 through 8.37.7 may be initialed after Step 8.37.7 is complete.

8.37.4 Adjust EDG A GOV to lower EDG A load to approximately 50 kW over 3 to 5 minutes in approximately 800 kW increments. _____

8.37.5 Trip EDG A LOAD BKR 10502. _____

8.37.6 Adjust EDG C GOV to lower EDG C load to approximately 50 kW over 3 to 5 minutes in approximately 800 kW increments. _____

8.37.7 Trip EDG C LOAD BKR 10512. _____

Init

8.37.8 Place the following switches in NORMAL:

- EDG A GOV MODE ()
- EDG C GOV MODE ()

8.38 Prepare EDG A for shutdown as follows:

8.38.1 Place EDG A LOAD BKR SYNCH SW in ON.

8.38.2 Adjust EDG A parameters for shutdown as follows:

- Adjust EDG A GOV until SYNCHROSCOPE is as close to being stopped as practicable.
- Adjust EDG A VOLT REG to establish 4.3 kV on EDG A KV meter.

8.38.3 Verify SYNCHROSCOPE is as close to being stopped as practicable.

8.38.4 Record voltage from INCOMING volt meter.

INCOMING _____ volts

8.38.5 Place EDG A LOAD BKR SYNCH SW in OFF and remove synch switch handle.

Init

8.39 Prepare EDG C for shutdown as follows:

8.39.1 Place EDG C LOAD BKR SYNCH SW in ON. _____

8.39.2 Adjust EDG C parameters for shutdown as follows:

- Adjust EDG C GOV until SYNCHROSCOPE is as close to being stopped as practicable. _____
- Adjust EDG C VOLT REG until voltage on INCOMING volt meter is the same as the voltage recorded in Step 8.38.4. _____

8.39.3 Verify SYNCHROSCOPE is as close to being stopped as practicable. _____

8.39.4 Record voltage from INCOMING volt meter.

INCOMING _____ volts _____

8.39.5 Place EDG C LOAD BKR SYNCH SW in OFF and remove synch switch handle. _____

↓COM1.5.2

8.40 Allow EDG A and C to run unloaded for at least 10 minutes to cool down cylinders before proceeding to the next step. _____

8.41 Shut down EDG A and C by placing the following control switches to STOP and record time:

- EDG A CNTRL
- EDG C CNTRL

Time

8.42 **WHEN** EDG A and C are stopped (at standstill), stop ESW PMP A 46P-2A at panel 09-6. _____

Init

NOTE: Steps 8.43 through 8.50 may be performed in any order or concurrently.

8.43 Verify the following fans indicate stopped at panel 92HV-9A:

- 92FN-1A EDG A ROOM VENT SUPPLY FAN ()
- 92FN-1C EDG C ROOM VENT SUPPLY FAN ()

8.44 Verify the following fans indicate running at panel 92HV-9A:

- 92FN-2A EDG A ROOM VENT EXHAUST FAN ()
- 92FN-2C EDG C ROOM VENT EXHAUST FAN ()

8.45 Review EPIC alarm typer printout and verify the following EPIC alarms remained clear (NORMAL) for the duration of EDG A and C full load testing:

- EPIC-D-1109 (93LS-7A) ()
- EPIC-D-1111 (93LS-7C) ()

↓COM1.5.3

8.46 Complete shutdown section of OP-22, EDG Demand Log, for EDG A and C.

8.47 Verify 93P-4A (emergency diesel generator A fuel oil pump) is shutdown.

Init

8.48 Check EDG A fuel oil levels as follows:

8.48.1 IF level is **LESS THAN** 80% on
93LI-102A EDG A FUEL OIL DAY TANK A
LEVEL INDIC at panel 93ECP-A,
THEN add fuel oil to day tank as follows:

A. Place one of the following
control switches in MAN:

(_) 93P1-A1 EDG A FUEL OIL
TRANSFER PUMP A1

(_) 93P1-A2 EDG A FUEL OIL
TRANSFER PUMP A2

B. **WHEN** level is 80 to 95% on 93LI-102A
EDG A FUEL OIL DAY TANK A LEVEL INDIC,
ensure both of the following control
switches are in AUTO:

• 93P1-A1 EDG A FUEL OIL
TRANSFER PUMP A1 ()

• 93P1-A2 EDG A FUEL OIL
TRANSFER PUMP A2 ()

8.48.2 Record fuel oil level from 93LI-101AL (EDG
A fuel oil storage tank 6A local level
indic), located in EDG Room A.

93LI-101AL _____ feet, inches

8.49 Verify 93P-4C (emergency diesel generator C
fuel oil pump) is shutdown.

Init

8.50 Check EDG C fuel oil levels as follows:

8.50.1 **IF** level is **LESS THAN** 80% on
93LI-102C EDG C FUEL OIL DAY TANK C
LEVEL INDIC at panel 93ECP-C,
THEN add fuel oil to day tank as follows:

A. Place one of the following
control switches in MAN:

(_) 93P1-C1 EDG C FUEL OIL
TRANSFER PUMP C1

(_) 93P1-C2 EDG C FUEL OIL
TRANSFER PUMP C2

B. **WHEN** level is 80 to 95% on 93LI-102C
EDG C FUEL OIL DAY TANK C LEVEL INDIC,
ensure both of the following control
switches are in AUTO:

• 93P1-C1 EDG C FUEL OIL
TRANSFER PUMP C1 ()

• 93P1-C2 EDG C FUEL OIL
TRANSFER PUMP C2 ()

8.50.2 Record fuel oil level from 93LI-101CL (EDG
C fuel oil storage tank 6C local level
indic), located in EDG Room C.

93LI-101CL _____ feet, inches _____

Init

8.51 [CTS]

Verify fuel oil storage tanks 93TK-6A and 93TK-6C contain at least 64,000 gallons of fuel oil as follows:

[CTS]

8.51.1 Convert level readings from Steps 8.48.2 and 8.50.2 to gallons per Attachment 2 and record.

93LI-101AL _____ gallons _____

93LI-101CL _____ gallons _____

[CTS]

8.51.2 Verify total gallons in 93TK-6A and 93TK-6C is **GREATER THAN OR EQUAL TO** 64,000 gallons and record.

_____ total gallons _____

[ITS]

Verify fuel oil storage tanks 93TK-6A and 93TK-6C contain at least 32,000 gallons of fuel oil per tank as follows:

[ITS]

8.51.3 Convert level readings from Steps 8.48.2 and 8.50.2 to gallons per Attachment 2 and record.

93LI-101AL _____ gallons _____

93LI-101CL _____ gallons _____

8.52 Review Diesel Operating Logs and record any abnormalities in Subsection 11.4. _____

9.0 RETURN TO NORMAL

Init

9.1 System Restoration

NOTE: It could take up to 15 minutes after EDG shutdown for lube oil levels to return to normal.

9.1.1 The following verified in EDG Room A:

- 93FG-1A (EDG A lube oil cooler outlet flow gauge) is full of oil. ()
- 93FG-2A (EDG A lube oil camshaft & valve guide sight glass) is empty. ()
- 93FG-3A (EDG A lube oil gallery sight glass) is full of oil. ()
- **[CTS]**
Pressure is **GREATER THAN** 180 psig on 93PI-3A. ()
- **[ITS]**
Pressure is **GREATER THAN OR EQUAL TO** 150 psig on 93PI-3A. ()
- The following control switches are in AUTO at 93ECP-A:
 - 93P1-A1 EDG A FUEL OIL TRANSFER PUMP A1 ()
 - 93P1-A2 EDG A FUEL OIL TRANSFER PUMP A2 ()
- Fuel oil day tank level is **GREATER THAN** 80% on 93LI-102A. ()

(Continued on next page)

Init

(9.1.1 cont)

- The following lube oil pumps are running:
 - 93P-2A (emergency diesel generator A circulating lube oil pump) ()
 - 93P-3A (emergency diesel generator A turbocharger lube oil pump) ()
- Air receiver outlet isolation valve positions are opposite and recorded.

<u>VALVE ID</u>	<u>POSITION</u>
93EDG-47A	_____
93EDG-50A	_____

Init

NOTE: It could take up to 15 minutes after EDG shutdown for lube oil levels to return to normal.

9.1.2 The following verified in EDG Room C:

- 93FG-1C (EDG C lube oil cooler outlet flow gauge) is full of oil. ()
- 93FG-2C (EDG C lube oil camshaft & valve guide sight glass) is empty. ()
- 93FG-3C (EDG C lube oil gallery sight glass) is full of oil. ()

[CTS]

- Pressure is **GREATER THAN** 180 psig on 93PI-3C. ()

[ITS]

- Pressure is **GREATER THAN OR EQUAL TO** 150 psig on 93PI-3C. ()
- The following control switches are in AUTO at 93ECP-C:
 - 93P1-C1 EDG C FUEL OIL TRANSFER PUMP C1 ()
 - 93P1-C2 EDG C FUEL OIL TRANSFER PUMP C2 ()
- Fuel oil day tank level is **GREATER THAN** 80% on 93LI-102C. ()
- The following lube oil pumps are running:
 - 93P-2C (emergency diesel generator C circulating lube oil pump) ()
 - 93P-3C (emergency diesel generator C turbocharger lube oil pump) ()

(Continued on next page)

Init

(9.1.2 cont)

- Air receiver outlet isolation valve positions are opposite and recorded.

<u>VALVE ID</u>	<u>POSITION</u>
93EDG-47C	_____
93EDG-50C	_____

9.1.3 The following verified at panel 09-8:

- The following switches are in NORMAL:
 - EDG A GOV MODE ()
 - EDG C GOV MODE ()
- The following switches are in NORM:
 - EDG A CNTRL ()
 - EDG C CNTRL ()
- Synch switch handle is removed from the following switches:
 - EDG A LOAD BKR SYNCH SW ()
 - EDG C LOAD BKR SYNCH SW ()
- The following annunciators are clear:
 - 09-8-2-3 EDG A FUEL CUTOFF OR CNTRLS OFF NORM ()
 - 09-8-2-9 EDG A ENG TROUBLE OR SHUTDOWN ()
 - 09-8-2-6 EDG C FUEL CUTOFF OR CNTRLS OFF NORM ()
 - 09-8-2-12 EDG C ENG TROUBLE OR SHUTDOWN ()

9.1.4 ESW PMP 46P-2A is stopped at panel 09-6.

9.1.5 Steps 9.1.1 through 9.1.4
verified by Licensed Operator._____
Signature/Date

9.2 Review and SignoffInit

9.2.1 Calculations performed in the following steps have been independently verified:

- 8.37.2 ()
- 8.51.2 ()

Independent verification _____

Signature/Date

9.2.2 Test completed. _____
Date/Time

9.2.3 Test personnel have recorded hours worked on Attachment 1. _____

9.2.4 Man-Hours totalled and recorded on Attachment 1. _____

9.2.5 SM consider declaring EDG System A operable per AP-12.08. _____

10.0 ACCEPTANCE CRITERIA**10.1 [CTS]**

EDG A and C reached rated speed within 10 seconds per Step 8.13.

[ITS]

EDG A and C reached frequency in ≤ 10 seconds per Step 8.13.

[ITS]

10.2 EDG A and C reached rated voltage ≤ 10 seconds per Step 8.14.

[ITS]

10.3 EDG A and C achieved a steady state voltage of $\geq 3900V$ and ≤ 4400 and a steady state frequency of ≥ 58.8 HZ and ≤ 61.2 HZ per Step 8.15.

10.4 EDG A and C forced paralleled per Step 8.16.

10.5 [CTS]

EDG A and C operated satisfactorily while carrying a full load of 2600 kW each for greater than or equal to 60 minutes per Step 8.37.2.

[ITS]

NOTE: Momentary transients outside the load range do not invalidate this test.

[ITS]

EDG A and C operated satisfactorily while carrying a full load of ≥ 2340 kW and ≤ 2600 kW each for greater than or equal to 60 minutes per Step 8.37.2.

↓COM1.5.5

10.6 During EDG operation; EDG support systems, subsystems, and instrumentation operated satisfactorily.

10.7 ESW Pump 46P-2A auto-started and provided greater than or equal to 1060 gpm flow per Steps 8.16 and 8.35.

↓COM1.5.5

10.8 Operability of each EDG room supply fan was demonstrated as follows:

- 10.8.1 Starting and stopping automatically per Steps 8.27 and 8.43.
- 10.8.2 Driving flow in correct direction per Step 8.31.
- 10.8.3 Running with associated trouble annunciator clear.

If a trouble annunciator alarmed and was cleared by varying damper positions while its associated supply fan was running, and all of the following were verified:

- White high vibration light for supply fan was off per Step 8.29.1 or 8.30.1.
- Associated EDG room temperature was less than 120°F per Step 8.29.2 or 8.30.2.
- Air was flowing into the EDG room from the associated supply fan per Step 8.31.

Then the EDG room supply fan shall be considered operable and Acceptance Criterion 10.7.3 shall be considered satisfied. A PID shall be initiated describing alarming annunciator.

10.9 Each air start motor functioned properly per Step 8.32.

10.10 EDG A and C fuel oil transfer systems functioned properly as demonstrated by the EDG day tank low level EPIC alarms remained clear per Step 8.45.

10.11 EDG air start press **GREATER THAN OR EQUAL TO** 150 psig per the following steps:

- 8.6
- 9.1.1
- 9.1.2

11.0 ACCEPTANCE VERIFICATION

Init

11.1 SNO Review

11.1.1 Verify required data has been recorded and is within required tolerances. ()

11.1.2 Verify required initials and signatures have been entered. ()

11.1.3 **IF** Level 1 Acceptance Criteria was not met,
THEN perform the following:

A. Sign off ST as unsatisfactory.

B. Immediately notify the SM.

C. Initiate a CR.

CR number

D. If necessary, initiate a PID.

PID number

NOTE: A CR is required for instruments that exceed As Found tolerances for tracking purposes.

11.1.4 **IF** only Level 2 Acceptance Criteria was not met,
THEN perform the following:

A. Sign off ST as satisfactory with corrective actions.

B. Initiate either a CR or a PID.

PID/CR number

11.1.5 Identify test results:

() Satisfactory

() Satisfactory with corrective actions

() Unsatisfactory

11.1.6 Sign and record date and time.

SNO

Date/Time

11.1.7 Record results in SNO log.

()

[ITS]Init**11.2 System Engineer Review**

NOTE: Monitoring and trending of time to reach steady state voltage and frequency is required by Tech Spec Bases for SR 3.8.1.2.

11.2.1 Document time from Step 8.15 for EDG A and C to reach steady state frequency and voltage in System Engineer trending record.

System Engineer

Date/Time

11.3 Management SRO ReviewInit

- 11.3.1 Verify data is within required tolerances. ()
- 11.3.2 Verify data attachments, such as recorder printouts and calibrations sheets are included as required. ()
- 11.3.3 Verify required initials and signatures have been entered. ()
- 11.3.4 Review test to determine if test results satisfy acceptance criteria:
- () Satisfactory
- () Satisfactory with corrective actions
- () Unsatisfactory
- 11.3.5 **IF** Level 1 acceptance criteria is not satisfied, **THEN** immediately notify Operations Manager or alternate. Record name of person notified.

Person Notified

- 11.3.6 Initiate required corrective and compensatory actions.
- () Not required
- () Required
- 11.3.7 Sign and record date and time.

Management SRO

Date/Time

11.4 Remarks

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12.0 **ATTACHMENTS**

1. TEST SIGNOFF LOG
2. FUEL OIL STORAGE TANK LEVEL CONVERSION

ATTACHMENT 2

Page 1 of 1

FUEL OIL STORAGE TANK LEVEL CONVERSION

<u>LEVEL</u> <u>(ft-in)</u>	<u>VOLUME</u> <u>(gallons)</u>	<u>LEVEL</u> <u>(ft-in)</u>	<u>VOLUME</u> <u>(gallons)</u>
8-0	25696	10-0	32253
8-1	25996	10-1	32487
8-2	26295	10-2	32716
8-3	26592	10-3	32941
8-4	26887	10-4	33161
8-5	27180	10-5	33376
8-6	27471	10-6	33586
8-7	27760	10-7	33791
8-8	28046	10-8	33990
8-9	28331	10-9	34183
8-10	28613	10-10	34371
8-11	28892	10-11	34552
9-0	29169	11-0	34726
9-1	29443	11-1	34893
9-2	29715	11-2	35053
9-3	29983	11-3	35205
9-4	30249	11-4	35347
9-5	30512	11-5	35481
9-6	30771	11-6	35604
9-7	31027	11-7	35716
9-8	31280	11-8	35815
9-9	31529	11-9	35899
9-10	31774	11-10	35964
9-11	32016	11-11	36000