Facility: **FitzPatrick**
Examination Level (circle one): **RO**

Date of Examination: **November, 2001**
Operating Test Number: _____

Administrative Topic/Subject Description		Describe method of evaluation: 1. ONE Administrative JPM, OR 2. TWO Administrative Questions
A.1	2.1.7 Ability to Evaluate Plant Performance and Make Operational Judgement Based on Instrument Interpretations. 3.8	**JPM** - Verification of Core Thermal Power
		N/A
	2.1.1 Knowledge of Conduct of Operations Requirements 3.7	**Question 1** Knowledge of Overtime Restrictions
		Question 2 Maintenance of License
A.2	2.2.12 Knowledge of Surveillance Procedures 3.4	**JPM** Complete surveillance ST-23C, "Jet Pump Operability Test for Two Loop Operation."
		N/A
A.3	2.3.10 Ability to Perform Procedures to Reduce Excessive Levels of Radiation and Guard Against Personnel Exposure. 2.9	**Question 1** Under what conditions are RWPs not required
		Question 2 Entry into Very High Radiation Areas
A.4	2.4.39 Knowledge of RO Responsibilities in Emergency Plan Implementation 3.3	**JPM** Notification of Local Area Governments by the Control Room Communication Aid.
		N/A

NEW YORK POWER AUTHORITY
JOB PERFORMANCE MEASURE

S/RO/NLO **RO** Name: **Verification of Core Thermal Power**

REV: 0 DATE: November 2001 NRC K/A 2.1.7
Ability to Evaluate Plant Performance and Make Operational Judgement Based on Instrument Interpretations.

JAF TASK NUMBER: JAF QUAL STANDARD NUMBER:

ESTIMATED COMPLETION TIME: 15 Minutes

SUBMITTED: _____ OPERATION REVIEW: ____

APPROVED: _____

CANDIDATE NAME: _____ S.S. NUMBER: ____

JPM Completion: ( ) Simulated ( ) Performed

Location: ( ) Plant ( ) Simulator

DATE PERFORMED: _____ TIME TO COMPLETE: ____ Minutes

PERFORMANCE EVALUATION: ( ) Satisfactory ( ) Unsatisfactory

COMMENTS: (MANDATORY FOR UNSATISFACTORY PERFORMANCE)

EVALUATOR: _____
SIGNATURE/PRINTED

CANDIDATE REVIEW: _____
SIGNATURE

JOB PERFORMANCE MEASURE
RECORD AND CHECKLIST

Comments:

Current Update: _____ By: _____
Date Int.

Previous Revision Dates:

JOB PERFORMANCE MEASURE
REQUIRED TASK INFORMATION

I. SAFETY CONSIDERATIONS

A. None

II. REFERENCES

A. RAP-7.3.3, "Core Thermal Power Evaluation"' Rev. 10

III. TOOLS AND EQUIPMENT

A. None

IV. SET UP REQUIREMENTS

A. A power and flow log at 78% power is available for the candidate.

V. EVALUATOR NOTES

A. None

VI. TASK CONDITIONS

A. The plant is stable at 78% power during startup. The operation manager has just informed the operating shift that "Verification of Core Thermal Power Heat Balance," was not completed at 75% power. Your task is to perform this verification in accordance with RAP-7.3.3, "Core Thermal Power Evaluation," starting at step 9.3.

*** - CRITICAL STEP**

VII. INITIATING CUE

Inform the candidate:

The plant is stable at 78% power during startup. The operation manager has just informed the operating shift that "Verification of Core Thermal Power Heat Balance," was not completed at 75% power. Your task is to perform this verification in accordance with RAP-7.3.3, "Core Thermal Power Evaluation," starting at step 9.3.

	STEP	STANDARD	EVALUATION / COMMENT
1.		**EVALUATOR:** Provide the candidate with a copy of RAP-7.3.3, "Core Thermal Power Evaluation."	SAT / UNSAT
2.	The candidate uses Attachment 2 to calculate / verify core thermal power.		SAT / UNSAT
3.	The candidate obtains the first stage turbine pressure.	This will be obtained from the EPIC Computer, Point 1299. **EVALUATOR:** Provide the candidate with 557 psig.	SAT / UNSAT
4.	The candidate calculates a value of 88% power.		SAT / UNSAT
5.	The candidate obtains a copy the plant heat balance using section 9.1.1 of this procedure.	1. Go to Main Menu on the 3-D monicore program. 2. Input function number for reports current 3. Place "2" in execute box 4. Place "2" in Core Power & Flow Box 5. Type output device in "(E)" field 6. Press Enter 7. Position curser in Power & Flow report and depress "2" **EVALUATOR:** Provide candidate with copy of printed log. This should show at 80% power.	SAT / UNSAT
*6.	The candidates compares the two values for per cent core thermal power and determines that the difference is greater than 5%.	The candidate identifies that the values are greater than 5% off (10%).	SAT / UNSAT
7.	The candidate notifies the control room supervisor that a discrepancy exists.	**EVALUATOR:** The CRS has been notified. The candidate may also notify the site EO. **This JPM is Complete.**	SAT / UNSAT

FITZPATRICK CY13S

CORE POWER AND FLOW LOG

ENERGY BALANCE POWER (MW)

ELECTRICAL	657.8	77.4%
CORE	1973.8	77.8%
FEED WATER	1960.0	
CR DRIVES	11.4	
CLEAN-UP	3.7	
RADIATIVE LOSS	1.1	
PUMPS	2.4	

FLOW (MLB/HR)

TOTAL CORE	51.18	66.5%
MEASURED	51.18	
SUBSTITUTE	54.26	
FEEDWATER	8.19	
CLEAN-UP	0.12	
RECIRC	23.01	
CR DRIVES	0.03	

PRESSURE (PSIa)

DOME	1027.40
DROP (MEAS)	10.11

ENTHALPY/SUBCOOLING (BTU/LB)

SUBC	26.90
FEEDWATER	373.25
RECIRC INLET	519.06
CLEAN UP IN	508.13
CLEAN UP OUT	402.73

LOAD LINE SUMMARY

CORE POWER	77.8%
CORE FLOW	66.5%
LOAD LINE	99.6%
FLOW BASIS	MEAS.

TEMPERATURE (Deg F)

FEEDWATER	398.3
RECIRC IN	525.9
CLEAN UP IN	516.9
CLEAN UP OUT	425.4
CR DRIVES	95.0

APRM CALIBRATION

	A	B	C	D	E	F
READING	82.2	81.5	81.9	81.9	82.3	82.2
AGAF	0.946	0.954	0.951	0.950	0.946	0.947

FAILED SENSORS: NONE

NEW YORK POWER AUTHORITY
JAMES A. FITZPATRICK NUCLEAR POWER PLANT
REACTOR ANALYST PROCEDURE

CORE THERMAL POWER EVALUATION*
RAP-7.3.3
REVISION 10

APPROVED BY: Francisco Rodríguez by direction DATE 12-10-98
RESPONSIBLE PROCEDURE OWNER

APPROVED BY: DATE 12/10/98
GENERAL MANAGER

EFFECTIVE DATE: 12-11-98

FIRST ISSUE ☐ FULL REVISION ☐ LIMITED REVISION ☒

REFERENCE USE	TSR
TECHNICAL	CONTROLLED COPY 3

PERIODIC REVIEW DUE DATE APRIL 2003

REVISION SUMMARY SHEET

REV. NO.	CHANGE AND REASON FOR CHANGE
10	1. Per PCR 980027 and PCR 98-0031, revise Attachment 1 to use pump flow as indicated on 12FI-126A/B instead of 12-4FI-141A/B. This change has already been made on the computer calculation of the heat balance. 2. Per PCR 970063, change value for mini-purge on Attachment 1 line 35 from 4.98E-3 to 4.97E-3.
9	1. Per Temp Change dated 2/14/98, change reference temperature used in the feedwater correction factor on Attachment 1 from 424 °F to 420 °F. 2. Add the following to Note 1 at Step 9.3.1: The pressure coefficient has been revised for power uprate. 3. Per PCR 970027, add Step 7.4 to define records retention requirements for Quality Records. 4. Add the following to Note 1 at Step 9.2.1: EPIC points for the corresponding input parameters may also be used. RAP-7.3.17, Attachment 1, provides a listing of these points.

TABLE OF CONTENTS

SECTION PAGE

1.0 PURPOSE 4

2.0 APPLICABILITY 4

3.0 REFERENCES 4

4.0 REQUIREMENTS 4

5.0 DEFINITIONS 5

6.0 RESPONSIBILITIES 6

7.0 SPECIAL INSTRUCTIONS 6

8.0 PREREQUISITES 6

9.0 PROCEDURE 7

10.0 ATTACHMENTS 9

1. HEAT BALANCE CALCULATION SHEET 10

2. SHORT FORM HEAT BALANCE 11

3. VERIFICATION OF CORE THERMAL HEAT BALANCE 12

4. INSTRUCTIONS FOR OBTAINING FEEDWATER TEMPERATURE FROM CONTROL ROOM PANEL 09-21 13

5. DIAGRAM OF TERMINATION BOARD 14

6. FEEDWATER FLOW RATE DURING PLANT STARTUP 15

1.0 PURPOSE

Describe the methods for calculating the core thermal power.

2.0 APPLICABILITY

This procedure shall be used to calculate core thermal power for the purpose of satisfying Technical Specification requirements.

3.0 REFERENCES

3.1 Performance References

3.1.1 ASME Steam Tables

3.1.2 RAP-7.3.17, Computer Monitoring Software and Database Changes*

3.2 Developmental References

3.2.1 Station Nuclear Engineering Manual, NEDO-24810C, September 1986

3.2.2 LER-95-015 (JAF-CALC-CRD-02243, CSCR No. 96-0308, JTS-APL-95-034, ACTS 18786)

4.0 REQUIREMENTS

4.1 Technical Specifications

- Section 3.1
- Section 4.1

4.2 Expectations

4.2.1 Site Executive Officer shall be notified in case there is an unexpected difference between core power indications. Differences larger than 5% of rated power are unacceptable, and shall require management notification. (ACTS 19076, 19648)

5.0 DEFINITIONS

5.1 3D Monicore:

The core monitoring software programs provided by General Electric.

5.2 Heat Balance Parameters

- CTP - Core thermal power
- TFW - Feedwater temperature
- TREF - Reference temperature = 420 degrees
- DT - TFW - TREF
- WFW - Feedwater flow
- WCU - Cleanup flow
- WCR - Control rod drive flow
- HFW - Feedwater enthalpy
- HCR - Control rod drive enthalpy
- HCUI - Cleanup inlet enthalpy
- HCUO - Cleanup outlet enthalpy
- HFG - Vaporization enthalpy
- QFW - Power added to the feedwater
- QCR - Power added to control rod drive flow
- QCU - Power lost to the cleanup system
- QRAD - Reactor vessel ambient heat loss
- QPUMP - Power added by the recirc pumps

6.0 RESPONSIBILITIES

Licensed Operators or Reactor Engineers shall perform and verify (when required) the calculations in this procedure.

7.0 SPECIAL INSTRUCTIONS

7.1 **IF** manual methods are being used to satisfy Technical Specifications,
THEN Section 9.2 shall be used to calculate core power.

7.2 **IF** manual calculations described in this procedure are performed to satisfy Technical Specifications,
THEN a second person shall review the calculations.

!EXP4.2.1
7.3 Site Executive Officer shall be notified in case there is an unexpected difference between core power indications. Differences larger than 5% of rated power are unacceptable, and shall require management notification.

7.4 Attachments 1, 2, 3, and 5 are Quality Records retained in accordance with the JAF Records Retention and Turnover Schedule.

8.0 PREREQUISITES

None

9.0 PROCEDURE

9.1 Core Thermal Power Using 3D-Monicore

NOTE: The numerical keys used in Step 9.1.1 are those located together in a block on the right hand side of the keyboard.

9.1.1 Obtain a core power calculation from the plant computer by demanding the Core Power and Flow Log as follows:

A. From the Main Menu, input function number corresponding to REPORTS CURRENT on the top line of the main menu display.

B. Use TAB key to position cursor in the Execute box.

C. Depress number 2 key.

D. Use the TAB key to position cursor in Core Power and Flow Log box and depress number 2 key.

E. Use TAB key to position cursor at Output Device (E): field.

F. Type in the desired output device using the code shown above on the VALID DEVICES line.

G. Depress ENTER key.

H. Use TAB key to position cursor in Core Power and Flow Report box and depress the number 2 key.

9.2 **Core Thermal Power Calculated Manually Per Attachment 1**

NOTE 1: The manual method calculates reactor power in the same manner as the 3D-Monicore heat balance. EPIC points for the corresponding input parameters may also be used. RAP-7.3.17, Attachment 1, provides a listing of these points.

NOTE 2: Calculations described in Attachments 1 and 5 may be performed using the HEATBAL computer program.

9.2.1 Record the data listed in Steps 1 through 13 on Attachment 1. If this calculation is being performed at low power during plant statup, total feedwater flow, the sum of items 12 and 13, may be determined using flow element 34FE-100 per instructions on Attachment 5.

9.2.2 Use EPIC feedwater temperature points 407, 408, 410, 411, if available, to record items 14 and 15 on Attachment 1. Otherwise, obtain feedwater temperature per the instructions on Attachment 3.

9.2.3 Complete Items 16 through 23 on Attachment 1.

9.2.4 Use the ASME steam tables to calculate Items 24 through 30 on Attachment 1.

9.2.5 Complete Items 31 through 43 on Attachment 1.

9.2.6 Forward completed Attachments to Reactor Analyst Group for retention.

9.3 Core Thermal Heat Balance Verification

9.3.1 During reactor startups at 25%, 50%, 75%, and 100% power verify the accuracy of the heat balance by performing the following steps.

NOTE 1: Data obtained during Cycle 10 operations show that there is a linear relationship between turbine first stage pressure and reactor power governed by the equation. The pressure coefficient has been revised for power uprate:

%CTP = (0.1427*FIRST STG PRESS) + 8.4

WHERE: EPIC 1299 = FIRST STG PRESS, PSIG

NOTE 2: Following cycles should verify this relationship by recording first stage pressure at various power levels at BOC and anytime an accurate heat balance is obtained.

A. Calculate reactor power from main turbine first stage pressure as shown on Attachment 2.

B. Obtain a heat balance per Section 9.1 if plant computer is available and record result on Attachment 2.

IF plant computer is not available,
THEN perform heat balance per Section 9.2 and record result on Attachment 2.

C. **IF** the results of the two methods are within five percent of rated power of each other,
THEN the heat balance is providing reasonably accurate information.

D. **IF** this criteria is <u>not</u> met,
THEN an investigation into the cause of the discrepancy will be performed before raising reactor power.

9.3.2 Forward completed Attachment to Reactor Analyst Group for retention.

10.0 ATTACHMENTS

1. HEAT BALANCE CALCULATION SHEET
2. VERIFICATION OF CORE THERMAL HEAT BALANCE
3. INSTRUCTIONS FOR OBTAINING FEEDWATER TEMPERATURE FROM CONTROL ROOM PANEL 02-21
4. DIAGRAM OF TERMINATION BOARD
5. FEEDWATER FLOW RATE DURING PLANT STARTUP

HEAT BALANCE CALCULATION SHEET

PERFORMED BY: _____ DATE/TIME _____/_____

PURPOSE: _____

ITEM #	PARAMETER	PANEL	INSTRUMENT ID	VALUE	UNITS
1	Cleanup Inlet Temp.	9-4	12TSS-142 POS 1		°F
2	Cleanup Outlet Temp.	9-4	12TSS-142 POS 4		°F
3	Cleanup Flow A	9-4	12FI-126A		GPM
4	Cleanup Flow B	9-4	12FI-126B		GPM
5	Power to Recirc. Pump A	9-4	RWR MG A GEN PWR		MW
6	Power to Recirc. Pump B	9-4	RWR MG B GEN PWR		MW
7	Total Core Flow	9-5	02-3DPR/FR-95		Mlb/hr
8	Reactor Pressure (psig+14.7)	9-5	06PR/FR-98		PSIA
9	CRD Flow to Reactor	9-5	03FI-310		GPM
10	CRD System Temp		Constant	95	°F
11	Gross MW Electric	9-7	MAIN GEN MW		GMWE
*12	Feedwater Flow Loop A	9-5	06FI-89A		MLB/HR
*13	Feedwater Flow Loop B	9-5	06FI-89B		MLB/HR
14	TFWA, use PTID 407/410 or	9-21	02TT-168A/C	/	°F
15	TFWB, use PTID 408/411 or	9-21	02TT-168B/D	/	°F

FEEDWATER FLOW CALCULATIONS

*16	Average TFWA (407+410)/2 or (168A+168C)/2		°F
*17	Average TFWB (408+411)/2 or (168B+168D)/2		°F
*18	Delta T Loop A (DTA) = TFWA - 420		°F
*19	Delta T Loop B (DTB) = TFWB - 420		°F
*20	C.F. = 1.0 + {DTA*[-3.8064E-4 + (DTA*-4.4310E-7)]}		
*21	C.F. = 1.0 + {DTB*[-3.8064E-4 + (DTB*-4.4310E-7)]}		
*22	Compensated Flow A (#12 * #20)		MLB/HR
*23	Compensated Flow B (#13 * #21)		MLB/HR

	PARAMETER	ITEM#/DATA USED	VALUE	UNITS
24	HS	#8, ASME Table		BTU/LB
25	HFG	#8, ASME Table		BTU/LB
*26	HFWA	#8, #16, ASME Table		BTU/LB
*27	HFWB	#8, #17, ASME Table		BTU/LB
28	HCUI	#8, #1, ASME Table		BTU/LB
29	HCUO	#8, #2, ASME Table		BTU/LB
30	HCR	#8, #10, ASME Table		BTU/LB

	PARAMETER	EQUATION (ITEM #'S)	VALUE	UNITS
31	Total Feedflow	(#22 + #23)		MLB/HR
32	Feedwater Enthalpy	[(#26*#22) + (#27*#23)]/#31		BTU/LB
33	Steam Enthalpy	[#24 - (.001*#25)]		BTU/LB
34	Q to feedwater (QFW)	[#31*(#33 - #32)]/3.413		MWt
35	CRD flow (WCR)	[(#9 * 0.497E-3) + 4.97E-3]		MLB/HR
36	Q to CRD flow (QCR)	[#35 * (#33 - #30)]/3.413		MWt
37	Total CU flow (WCU)	(#3 + #4) *(0.497E-3)		MLB/HR
38	HCUI - HCUO	(#28 - #29)		BTU/LB
39	Q to Cleanup Sys	(#38 * #37)/3.413		MWt
40	Vessel ambient loss		1.1	MWt
41	QPUMP	(#5 + #6) * 0.93		MWt
42	Core Thermal Power	(#34 + #36 + #39 + #40 - #41)		MWt
43	CTP/2536	(#42/2536) * 100		%

* Not Applicable when Attachment 5 is used

Contact Operations to determine if this is performed to satisfy Tech. Specs: (_) YES* (_) NO *If YES, Second Verifier: _____

Reviewed by_____
Reactor Analyst Supervisor

- This IS a Quality Record -

VERIFICATION OF CORE THERMAL HEAT BALANCE

DATE/TIME _____/_____

A. First stage pressure from EPIC 1299 _____psig

[(0.1427 * 1st stg pr) + 8.4] = _____% power

B. Reactor power calculated from heat balance = _____% power

C. The two methods are within 5 percent of rated power of each other _____Yes ____No

D. If not within 5 percent, investigation initiated _____Yes ____No

E. If GREATER THAN 5 percent, and unexplained, Site Executive Officer notified _____Yes ____No

Performed By: _____

Reviewed By: _____
Reactor Analyst Supervisor

- This IS a Quality Record -

INSTRUCTIONS FOR OBTAINING FEEDWATER TEMPERATURE FROM CONTROL ROOM PANEL 09-21

NOTE 1: Request assistance from the I&C Department in obtaining voltage measurements if desired.

I&C Data Taken By: _____

1. Obtain a digital voltmeter and verify that its calibration due date has not expired. Complete the Usage Log Card attached to it.

DVM Instrument No. _____ Cal Due Date _____

NOTE 2: Feedwater temperature can be obtained by measuring the voltage across the terminations for temperature transmitters 02TT-168A, C, B, D located in the back of Control Room Panel 09-21, third bay from the right hand side of the row of cabinets. The termination board marked "BDQ" contains the termination blocks for the feedwater temperature transmitters which are arranged vertically in the following order: 02TT-168A is at the top, 02TT-168C is second from the top, 02TT-168B is third from the top, 02TT-168D is fourth from the top, and the bottom two termination blocks are spares. These terminations are adjacent to those marked 02TT-157A, C, B, D on termination board "BDP". See Attachment 4 for diagram of termination board BDP.

NOTE 3: The transmitters are calibrated such that 0 mv equals 280°F, and 150 mv equals 430°F. One mv corresponds to one degree fahrenheit. A negative voltage will be observed when feedwater temperature is less than 280°.

2. Select the appropriate DC scale in millivolts (i.e. 300 mv scale on the Fluke 77 Multimeter).

3. For each of the temperature transmitters, measure the voltage across the termination points marked OUTPUT by applying the red (+) probe to point 3 (+), and the black (-) probe to point 4(-). When applying the pin probes to the terminals, make sure that good contact is achieved such that the voltmeter provides a steady reading.

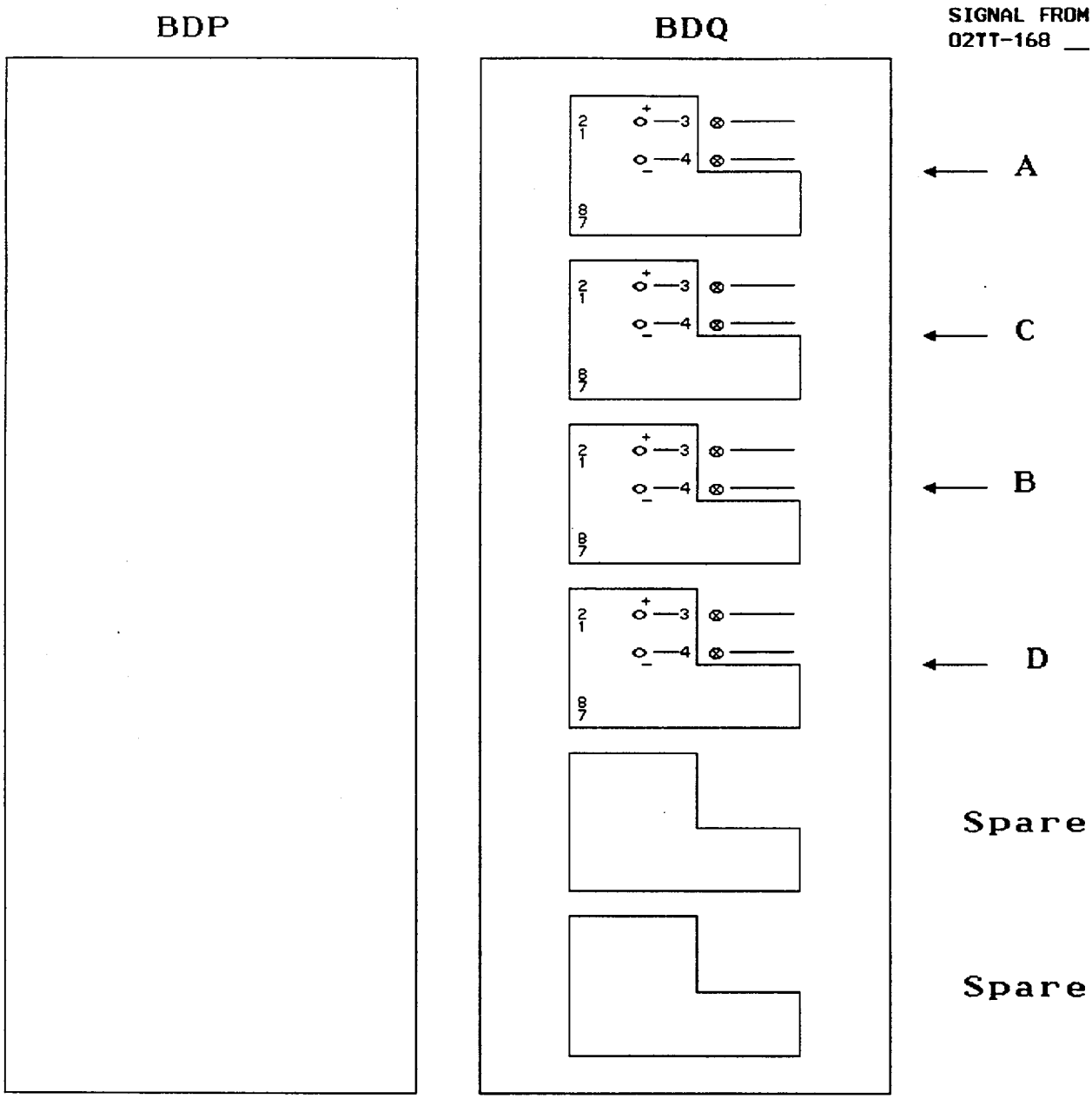
4. Add the voltage observed (whether positive or negative) to 280 to obtain the feedwater temperature.

TEMP XMTR	VOLTAGE READING			DEGREES FAHRENHEIT
02TT-168A	_____	+	280 =	_____
02TT-168C	_____	+	280 =	_____
02TT-168B	_____	+	280 =	_____
02TT-168D	_____	+	280 =	_____

5. Record values calculated in Step 4 on lines 14 and 15 of Attachment 1.

- This IS a Quality Record -

ATTACHMENT 4
DIAGRAM OF TERMINATION BOARD



FEEDWATER FLOW RATE DURING PLANT STARTUP

At low feedwater flow rates during plant startup, feedwater flow may be determined as follows, using data from a differential pressure transmitter connected to Low Flow Control Flow Element 34FE-100 per Section G.28 of OP-2A.

A. Record Differential Pressure _____PSI

B. Determine 34FE-100 flow rate from Attachment 2, OP-2A _____GPM

C. Calculate average feedwater temperature _____°F

From Attachment 1: (#14 + #15)/2

(TFWA + TFWB)/2 =(_____°F + _____°F) /2 = _____

D. Look up Specific Volume of feedwater from ASME Table. _____ft^3/lb

From Attachment 1: #8 (Rx Press) _____PSIA

From above: C (Aver. FDWTR Temp) _____°F

E. Look up feedwater enthalpy from ASME Table. _____BTU/LB

From Attachment 1 #8 (Rx Press) _____PSIA

From above: C (Aver. FDWTR Temp) _____°F

F. Calculate feedwater flow rate. _____MLB/HR

8.021E-06 * B/D

8.021E-06 * Flow rate(GPM)/Specific FW Vol(ft^3/lb)

8.021E-06 * _____GPM / _____ft^3/lb = _____

G. Record total feedwater flow rate from F above on Attachment 1 #31. _____MLB/HR

H. Record average feedwater enthalpy from E above on Attachment 1 #32. _____BTU/LB

Performed By: _____

Independent Verification of Calculations:

_____

- This IS a Quality Record -

Operating Test Section A1, Conduct of Operations

Question 1

The plant is operating at 100% power with normal maintenance activities in progress. Following 4 days off, you stood watch on dayshift (12-hour shifts) for 5 consecutive days, Thursday through Monday. You are called Monday night and asked to stand watch 12 hours on Tuesday dayshift. You stand watch on Tuesday. You have no approval to exceed overtime guidelines. Can you work your normal scheduled shift on Wednesday dayshift, why or why not?

Answer:

No the individual has worked 72 hours in the last 6 days. If the individual works Wednesday he will exceed 72 hours in 7 days. This can be done if the individual has approval. In this case he dose not have approval.

Reference: AP-11.03 CONTROL OF OVERTIME*

Operating Test Section A1, Conduct of Operations

Question 2

During the last quarter you were on medical leave for 6 weeks, then returned to work as an operations procedure writer for the remainder of the quarter. Your requalification and respirator training is current. You have returned to the control room 2 days ago and have performed a plant tour and shift turnover. You have completed two 12 hour shifts, under instruction, in the NCO position. Can you stand watch as the NCO1 without instruction today, why or why not?

Answer:

(1) No, the individual can not stand watch alone because the individual has an inactive license and must complete 40 hours on shift as an NCO under instruction before the license can be reactivated.

Reference: ODSO-30 MAINTENANCE OF NRC LICENSES AND STA QUALIFICATIONS

NEW YORK POWER AUTHORITY
JOB PERFORMANCE MEASURE

S/RO/NLO **RO** Name: **Complete surveillance ST-23C, "Jet Pump Operability Test for Two Loop Operation."**

REV: 0 DATE: November 2001 NRC K/A **2.2.12 Knowledge of Surveillance Procedures**

JAF TASK NUMBER: JAF QUAL STANDARD NUMBER:

ESTIMATED COMPLETION TIME: 20 Minutes

SUBMITTED: _____ OPERATION REVIEW: ____

APPROVED: _____

CANDIDATE NAME: _____ S.S. NUMBER: ____

JPM Completion: ( ) Simulated ( ) Performed

Location: ( ) Plant ( ) Simulator

DATE PERFORMED: _____ TIME TO COMPLETE: ____ Minutes

PERFORMANCE EVALUATION: ( ) Satisfactory ( ) Unsatisfactory

COMMENTS: (MANDATORY FOR UNSATISFACTORY PERFORMANCE)

EVALUATOR: _____
SIGNATURE/PRINTED

CANDIDATE REVIEW: _____
SIGNATURE

JOB PERFORMANCE MEASURE
RECORD AND CHECKLIST

Changes

Comments:

Current Update: _____ By: _____
Date Int.

Previous Revision Dates:

JOB PERFORMANCE MEASURE
REQUIRED TASK INFORMATION

I. SAFETY CONSIDERATIONS

A. None

II. REFERENCES

A. A partially completed Surveillance ST-23C, "Jet Pump Operability Test for Two Loop Operation."

III. TOOLS AND EQUIPMENT

A. None

IV. SET UP REQUIREMENTS

A. None

V. EVALUATOR NOTES

A. None

VI. TASK CONDITIONS

A.

*** - CRITICAL STEP**

VII. INITIATING CUE

Surveillance procedure ST-23C, "Jet Pump Operability Test for Two Loop Operation," has just been completed, excluding step 8.4, "Reactor Engineering Data Collection," which is not required at this time. The surveillance was last completed 12 hours ago with acceptable results. Your task as the NCO is to (1) complete the NCO review and (2) determine what component(s) if any, has failed. There are no math errors in the procedure.

	STEP	STANDARD	EVALUATION / COMMENT
1.		**EVALUATOR:** Provide the candidate with a partially completed copy of ST-23C, "Jet Pump Operability Test for Two Loop Operation.	SAT / UNSAT
2.	Verify that the required data has been recorded and is within required tolerances.	The following is identified: The calculated loop flow imbalance is 11.5%, which does not meet the acceptance criteria of less than 10%. The calculated total core flow deviation is 11.9% which does not meet the acceptance criteria of less than 10%. Jet Pump 02-1JP9 & 10 have 73.4% PSID & 16.1% PSID respectively, which is not in the required band of 35.9% PSID to 43.9% PSID.	SAT / UNSAT
3.	Verify that the required initials and signatures have been entered.	Reviews the procedure and determines that signatures and initials have been completed as required.	SAT / UNSAT
4.*	Verifies that the test acceptance criteria is NOT satisfied.	The candidate determines that ALL acceptance criteria is NOT satisfied and checks the "Acceptance criteria not satisfied" on the surveillance.	SAT / UNSAT
5.*	Determine what component has failed.	Determines that Jet Pump 9 has failed based on the %PSID being outside the calculated range of 35.9% PSID to 43.9% PSID AND JP 9 has increased (AOP-29). Jet pump 10 may have also failed.	SAT / UNSAT
6.	Notifies the control room supervisor of the failed surveillance.		SAT / UNSAT

NEW YORK POWER AUTHORITY
JAMES A. FITZPATRICK NUCLEAR POWER PLANT
OPERATIONS SURVEILLANCE TEST PROCEDURE

JET PUMP OPERABILITY TEST FOR
TWO LOOP OPERATION (EPIC AVAILABLE)*
ST-23C
REVISION 16

APPROVED BY: _____ DATE 12/29/99
RESPONSIBLE PROCEDURE OWNER

EFFECTIVE DATE: 12/29/99

FIRST ISSUE ☐ FULL REVISION ☐ LIMITED REVISION ☒

CONTINUOUS USE	TSR
TECHNICAL	CONTROLLED #3

PERIODIC REVIEW DUE DATE 5/2003

REVISION SUMMARY SHEET

REV. NO.	CHANGE AND REASON FOR CHANGE
16	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) 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. Updated Attachment 2 based on algorithm used in revising the 3D Monicore databank.
15	1. Revised Step 8.3.1 to enter data on one table on one page, instead of having twenty separate steps over five pages. This saves time and minimizes storage volume. This change incorporates PCR #7 dated 1/27/96. 2. Revised Step 8.2.2.A to obtain WTSUB from EPIC-A-6254, instead of from Core Power and Flow Log - SUBSTITUTE FLOW. Points are equivalent. This point is returned from 3D heat balance every 15 seconds, and is calculated by 3D Monicore. This change incorporates PCR dated 3/26/96. 3. Added Attachment 3, Subsection 8.4, and Step 11.3.7 to collect data for Reactor Engineering. Reduces frequency and duplication of data taken per RAP-7.3.7, 7.3.33, and ST-23C. DER 96-0095 (ACTS 19429). This change incorporates PCR dated 3/26/96.

TABLE OF CONTENTS

SECTION		PAGE
1.0	**REQUIREMENTS**	4
2.0	**PURPOSE**	4
3.0	**REFERENCES**	5
4.0	**PREREQUISITES**	6
5.0	**TEST EQUIPMENT, SPECIAL TOOLS AND MATERIALS**	6
6.0	**PRECAUTIONS AND LIMITATIONS**	7
7.0	**GENERAL TEST METHODS**	8
8.0	**PROCEDURE**	9
8.1	**Loop Flow Imbalance**	9
8.2	**Total Core Flow Deviation**	11
8.3	**Jet Pump Differential Pressure Variation**	13
8.4	**Reactor Engineering Data Collection**	15
9.0	**RETURN TO NORMAL**	16
10.0	**ACCEPTANCE CRITERIA**	17
11.0	**ACCEPTANCE VERIFICATION**	18
12.0	**ATTACHMENTS**	22
	1. TEST SIGNOFF LOG	23
	2. CALCULATED CORE FLOW (WTSUB) vs. TOTAL DRIVE FLOW (WD)	24
	3. ST-23C DATA FOR REACTOR ENGINEERING SUPPORT	25

1.0 REQUIREMENTS

1.1 Frequency

1.1.1 Daily whenever there is two loop recirculation flow with the reactor in the startup/hot standby or run modes.

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 if EPIC is not available in lieu of this test.

1.2 Technical Specifications

1.2.1 **Surveillance Requirements**

Section 4.6.G

1.2.2 **Limiting Conditions for Operation**

Section 3.6.G

1.3 Other

None

1.4 Commitments

None

1.5 Validation

Revision 12 validated

2.0 PURPOSE

To verify operability of Jet Pump Assemblies 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 8.4 Reactor Engineering Data Collection

4.0 **PREREQUISITES** Init

4.1 SM has granted permission to perform this test. SM

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. SM

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

4.4 Start of test recorded. 11/01/01 0000 (Date/Time) SM

4.5 Start of test recorded in NCO Log Book. NCO

4.6 Recirculation pump speeds are within 5%. NCO

4.7 EPIC is available. SM

4.8 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 through 961 (I&C route IC039) (✓)

SM

5.0 **TEST EQUIPMENT, SPECIAL TOOLS AND MATERIALS**

None

6.0 PRECAUTIONS AND LIMITATIONS

6.1 Precautions

None

6.2 Limitations

6.2.1 Test personnel shall print name, sign initials, and enter date on Attachment 1 before performing Section 8 of this test.

6.2.2 When test personnel complete their assigned portion of this test, they shall enter hours worked on Attachment 1.

6.2.3 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.

6.2.4 Multiple working copies of this test may be used provided the following requirements are satisfied:

A. A working copy of this test is retained in the Control Room at all times.

B. The Control Room working copy shall be the legal record for documenting this test.

C. Data from all steps performed outside the Control Room, including signatures, initials, and recorded values, is transcribed into the Control Room working copy following completion of the applicable subsection.

7.0 GENERAL TEST METHODS

7.1 Recirculation Loop Flow Imbalance, Total Core Flow Deviation, and Jet Pump Differential Pressure Variation are calculated using EPIC to verify Tech Spec criteria is satisfied.

7.2 This procedure may be used for post-work testing and verification of operability for applicable equipment provided the following actions are performed:

7.2.1 The actions and requirements of Sections 1 through 6, 10, and 11 are satisfied.

7.2.2 The applicable portions of Sections 8 and 9 are performed.

7.2.3 Signoff for non-applicable portions of Sections 8 and 9 are marked "NA".

7.2.4 The reason for partial performance of this test is documented in Section 11.4.

8.0 **PROCEDURE** Init

NOTE 1: Options for obtaining readings are listed in the preferred order of use.

NOTE 2: The most reliable calculations are obtained if the same instrument type is used to obtain Loop A and Loop B readings.

8.1 **Loop Flow Imbalance**

8.1.1 Record recirculation Loop A flow using one of the following:

NOTE: EPIC-A-3317 is the average of EPIC-A-0415 and 0416.

(✓) EPIC-A-3317, RECIRC A FLOW

(_) EPIC-A-0415, RX LOOP A DRIVE FLOW

(_) EPIC-A-0416, RX LOOP A DRIVE FLOW

Loop A Flow: 19.3 NCO

8.1.2 Record recirculation Loop B flow using one of the following:

NOTE: EPIC-A-3318 is the average of EPIC-A-0420 and 0421.

(✓) EPIC-A-3318, RECIRC B FLOW

(_) EPIC-A-0420, RX LOOP B DRIVE FLOW

(_) EPIC-A-0421, RX LOOP B DRIVE FLOW

Loop B Flow: 17.3 NCO

Init

8.1.3 Determine Loop Flow Imbalance per the following:

NOTE: Units must be the same to perform calculation.

A. Record the higher reading of Loop A or Loop B flow from Step 8.1.1 or 8.1.2:

Higher Flow: 19.3 NCO

B. Record the lower reading of Loop A or Loop B flow from Step 8.1.1 or 8.1.2:

Lower Flow: 17.3 NCO

C. Calculate Loop Flow Imbalance using the values obtained in Steps A and B in the following formula:

$$\frac{(\text{Higher Flow}) - (\text{Lower Flow})}{(\text{Lower Flow})} \times 100$$

$$\frac{(\ 19.3\ ) - (\ 17.3\ )}{(\ 17.3\ )} \times 100 = 11.5\ \%$$

NCO

8.2 **Total Core Flow Deviation** Init

8.2.1 Record indicated core flow using one of the following:

(✓) EPIC-A-0414, RX TOTAL CORE FLOW

(_) Core Power and Flow Log - MEASURED FLOW (MLB/HR)

Indicated Core Flow: 73.5 NCO

8.2.2 Determine WTSUB core flow as follows:

A. Record WTSUB core flow from EPIC-A-6254 (MLB/HR)

WTSUB Core Flow: 82.3 NCO

B. **IF** WTSUB recorded in Step 8.2.2.A is -1, **THEN** determine WTSUB core flow as follows:

1. Sum Loop A and Loop B flows obtained in Steps 8.1.1 and 8.1.2.

Total Loop Flow: NA mlb/hr NA

2. Determine WTSUB core flow, using the Step 8.2.2.B.1 value for WD, from Attachment 2.

WTSUB Core Flow NA mlb/hr NA

Init

8.2.3 Determine Core Flow Deviation between indicated and WTSUB core flows as follows:

A. Record the higher core flow reading from Step 8.2.1 or 8.2.2:

Higher Flow: 82.3 NCO

B. Record the lower core flow reading from Step 8.2.1 or 8.2.2:

Lower Flow: 73.5 NCO

C. Calculate Total Core Flow Deviation using the values obtained in Steps A and B in the following formula:

$$\frac{(\text{Higher Flow}) - (\text{Lower Flow})}{(\text{Lower Flow})} \times 100$$

$$\frac{(82.3) - (73.5)}{(73.5)} \times 100 = 11.9\ \%$$

NCO

8.3 **Jet Pump Differential Pressure Variation** Init

8.3.1 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)
02-1JP-1	942	37.8
02-1JP-2	944	36.1
02-1JP-3	946	36.4
02-1JP-4	948	39.2
02-1JP-5	950	36.0
02-1JP-6	952	39.8
02-1JP-7	954	36.2
02-1JP-8	956	36.0
02-1JP-9	958	73.4
02-1JP-10	960	16.1
02-1JP-11	943	40.9
02-1JP-12	945	41.1
02-1JP-13	947	42.8
02-1JP-14	949	40.4
02-1JP-15	951	42.5
02-1JP-16	953	40.0
02-1JP-17	955	43.3
02-1JP-18	957	42.2
02-1JP-19	959	40.4
02-1JP-20	961	38.4

Init

8.3.2 Record Jet Pump Average DP using one of the following:

(✓) EPIC computed point 3383, AVG RECIRC LOOP A/B JET PMP % PSID

39.95 %PSID

(_) Calculate Jet Pump Average DP as follows:

A. Determine Total Jet Pump DP by adding all jet pump differential pressures from Step 8.3.1:

Total DP: NA %PSID

B. Calculate Jet Pump Average DP using the Total Jet Pump DP in Step A in the following formula:

$$\text{Average DP} = \frac{\text{Total Jet Pump DP}}{\text{Number of Jet Pumps}}$$

$$= \frac{NA}{20}$$

$$= NA \text{ \%PSID}$$

NA

Init

8.3.3 Calculate Upper Limit and Lower Limit using Average Jet Pump DP from Step 8.3.2 in the following formula:

- Lower Limit = 0.9 x Average DP

  = 0.9 x 39.95

  = 35.9 %PSID

- Upper Limit = 1.1 x Average DP

  = 1.1 x 39.95

  = 43.9 %PSID

NCO

8.4 **Reactor Engineering Data Collection**

Complete Attachment 3. NA

9.0 **RETURN TO NORMAL** Init

9.1 **System Restoration**

None

9.2 **Review and Signoff**

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

- 8.1.3.C (✓)
- 8.2.3.C (✓)
- 8.3.2.B (✓)
- 8.3.3 (✓)

Independent verification NCO / 11/01/01
Signature/Date

9.2.2 Test completed. 11/01/01 0030 NCO
Date/Time

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

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

9.2.5 Completion of test recorded in NCO Log Book. NCO

10.0 **ACCEPTANCE CRITERIA**

10.1 Any of the following criteria are met:

10.1.1 Loop Flow Imbalance calculated in Step 8.1.3.C is less than 10%.

10.1.2 Total Core Flow Deviation calculated in Step 8.2.3.C is $\leq$10%.

10.1.3 Each Jet Pump Differential Pressure in Step 8.3.1 is within the range of the Upper Limit and Lower Limit calculated in Step 8.3.3.

11.0 ACCEPTANCE VERIFICATION

11.1 NCO/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 Review test to determine if test acceptance criteria has been satisfied.

11.1.4 Check one of the following as appropriate for test results:

(_) Acceptance criteria satisfied, no corrective action required.

(_) Acceptance criteria satisfied, corrective action required.

(_) Acceptance criteria not satisfied.

11.1.5 **IF** acceptance criteria is satisfied **AND** corrective action is required,
THEN perform the following:

A. Describe in Section 11.4, Remarks.

B. Initiate a PID and record PID number.

_____
PID Number

11.1.6 **IF** acceptance criteria is not satisfied,
THEN perform the following:

A. Immediately notify SM.

B. Initiate a PID and record PID number.

_____
PID Number

11.1.7 Sign and record date and time.

_____ _____
SNO or NCO Date/Time

11.2 **SM Review**

11.2.1 Verify current revision of surveillance test procedure was used.

11.2.2 Verify surveillance test was completed within required test frequency.

11.2.3 Verify data tables and attachments have been properly completed.

11.2.4 Verify required data has been recorded and is within required tolerances.

11.2.5 Verify required initials and signatures have been entered.

11.2.6 Review test to determine if test results satisfy acceptance criteria.

11.2.7 Check one of the following as appropriate for test results:

(_) Acceptance criteria satisfied.

(_) Acceptance criteria <u>not</u> satisfied.

11.2.8 **IF** acceptance criteria <u>is not</u> satisfied, **THEN** perform the following:

A. Immediately notify Operations Manager or Alternate.

B. Record name of person notified.

_____
Person Notified

C. Initiate required corrective and compensatory actions.

11.2.9 Sign and record date and time.

_____ _____
Shift Manager Date/Time

11.3 **Assistant Operations Manager Review**

11.3.1 Verify surveillance test was completed within required test frequency.

11.3.2 Verify data tables and attachments have been properly completed.

11.3.3 Verify required data has been recorded and is within required tolerances.

11.3.4 Verify required initials and signatures have been entered.

11.3.5 Review test to determine if test results satisfy acceptance criteria.

11.3.6 Verify required compensatory and corrective actions have been taken.

11.3.7 Attachment 3 forwarded to Reactor Engineering.

11.3.8 Sign and record date and time.

_____ _____

Assistant OPS Manager or alternate Date/Time

11.4 **Remarks**

12.0 **ATTACHMENTS**

1. TEST SIGNOFF LOG
2. CALCULATED CORE FLOW (WTSUB) vs. TOTAL DRIVE FLOW (WD)
3. ST-23C DATA FOR REACTOR ENGINEERING SUPPORT

ATTACHMENT 1

TEST SIGNOFF LOG

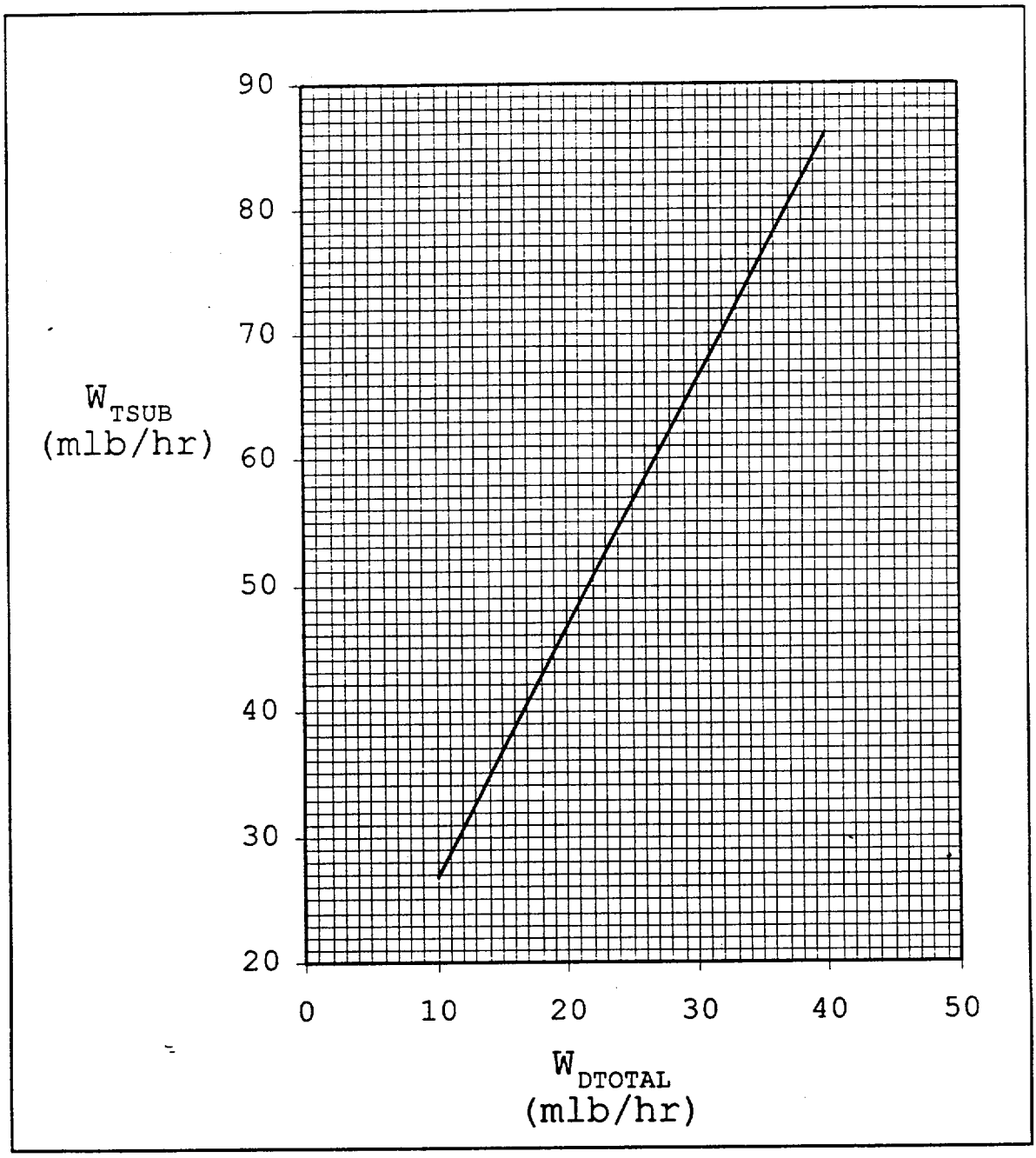
PRINTED NAME	INITIALS	DATE	HOURS WORKED
NCO	NCO	11/01/01	0.5
SM	SM	11/01/00	0.5

Total Man-Hours _____

ATTACHMENT 2

CALCULATED CORE FLOW (WTSUB) vs. TOTAL DRIVE FLOW (WD)

$$W_{TSUB} = 1.9752(W_{DTOTAL}) + 7.05$$



ATTACHMENT 3

ST-23C DATA FOR REACTOR ENGINEERING SUPPORT

_____
Date/Time

TO: REACTOR ENGINEERING

FROM: OPERATIONS

A. Recirc Loop A flow **(from Step 8.1.1)** _____ MLB/HR

B. Recirc Loop B flow **(from Step 8.1.2)** _____ MLB/HR

C. Total Core Flow **(from Step 8.2.1)** _____ MLB/HR

D. WTSUB **(from Step 8.2.2)** _____ MLB/HR

E. Photocopy of Table **(from Step 8.3.1)** 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

Operating Test Section A3, Radiation Protection

Question RO1

(1) Under what conditions are RWPs not initially required, in the radiologically controlled area (RCA), and (2) what action must be taken to protect the workers from excessive dose, under these conditions?

Answer:

(a) (0.5) An RWP is not required for initial response to emergency situations, such as:

Fire brigade response
Security response to avert threat to equipment or personnel
First aid team response
Plant emergency response

(b) (0.5) Radiation Protection shall provide response coverage.

Reference: AP-07.01 RADIATION WORK PERMIT PROGRAM

Operating Test Section A3, Radiation Protection

Question 2

A full core traversing incore probe (TIP) set was in progress when a TIP detector was withdrawn from the core past the in-shield position and can not be moved. The dose in the TIP room is 550 Rad/hr at 1 meter from the "A" TIP machine. Radiation protection and maintenance wants to enter the room to install shielding to reduce the general area dose rate outside the TIP room. The workers have received the necessary dose extension approvals. (1) What type of radiation work permit is required and (2) what individual(s) must approve entry into this area?

Answer:

(1) (0.5) Entry into this area requires a non-routine or specific RWP.

(2) (0.5) The Shift Manager and Radiation Protection Manager must both approve entry to VHRAs.

Reference:	AP-07.06	HIGH RADIATION AREA CONTROL
	AP-07.01	RADIATION WORK PERMIT PROGRAM

NEW YORK POWER AUTHORITY
JOB PERFORMANCE MEASURE

S/RO/NLO RO

Name: **Notification of Local Area Governments by the Control Room Communications Aid**

REV: 0 DATE: 11/01

NRC K/A SYSTEM NUMBER: **2.4.39 Knowledge of RO's Responsibilities in Emergency Plan Implementation.**

JAF TASK NUMBER: _____

JAF QUAL STANDARD NUMBER: _

ESTIMATED COMPLETION TIME: **TIME CRITICAL 15 Minutes**

SUBMITTED: _____

OPERATION REVIEW: ____

APPROVED: _____

CANDIDATE NAME: _____

S.S. NUMBER: ____

JPM Completion: ( ) Simulated ( ) Performed

Location: ( ) Plant ( ) Simulator

DATE PERFORMED: _____

TIME TO COMPLETE: ____ Minutes

PERFORMANCE EVALUATION: ( ) Satisfactory ( ) Unsatisfactory

COMMENTS: (MANDATORY FOR UNSATISFACTORY PERFORMANCE)

EVALUATOR: _____
SIGNATURE/PRINTED

CANDIDATE REVIEW: _____
SIGNATURE

JOB PERFORMANCE MEASURE
RECORD AND CHECKLIST

Current Update: _____ By: _____
Date Int.

Outstanding Items:

_____ Technical Review _____ Additional Information

_____ Questions and Answers _____ Validation

_____ Procedural Change Required _____ None

Comments:

Current Update: _____ By: _____
Date Int.

Previous Revision Dates:

I. SAFETY CONSIDERATIONS

A. None

II. REFERENCES

A. EAP-1.1, Offsite Notifications, Revision 44.

III. TOOLS AND EQUIPMENT

A. None

IV. SET UP REQUIREMENTS

A. Simulator - EDAMS operating

V. EVALUATOR NOTES

A. This is time critical JPM.

VI. TASK CONDITIONS

This is Time Critical

A. The shift manager has just declared an UNUSUAL EVENT based on EAL 8.2.1, confirmed fire in the boiler house and not being extinguished within 15 minutes of notifying the control room. The fire is currently extinguished. You have been designated as the control room communications aid. Security is currently notifying the plant emergency response organization and a plant page notifying personnel on site has been completed.

There is currently no radioactive release and none are expected. The shift manager has determined that no PAR is required.

Your task is to notify the state and local governments of the UNUSUAL EVENT.

*** - CRITICAL STEP**

VII. INITIATING CUE

THIS IS A TIME CRITICAL JPM

The shift manager has just declared an UNUSUAL EVENT based on EAL 8.2.1, confirmed fire in the boiler house and not being extinguished within 15 minutes of notifying the control room. The fire is currently extinguished. You have been designated as the control room communications aid. Security is currently notifying the plant emergency response organization and a plant page notifying personnel on site has been completed.

There is currently no radioactive release and none are expected. The shift manager has determined that no PAR is required.

Your task is to notify the state and local governments of the UNUSUAL EVENT.

	STEP	STANDARD	EVALUATION / COMMENT
		EVALUATOR: When the candidate states that he is ready to perform the task record the start time and tell the candidate that the UE was declared at this same time. Start Time: _____	
1	Obtain a controlled copy of EAP-1.1, Offsite Notifications.	The candidate obtains a controlled copy of EAP-1.1.	SAT / UNSAT
2	The candidate selects the appropriate section of the procedure.	The candidate selects section 4.2.2.	SAT / UNSAT
3	The candidate obtains a copy of EAP-1.1, Attachment 1, PART 1, General Information	**EVALUATOR:** Provide the candidate with a blank copy of EAP-1.1, Attachment 1	SAT / UNSAT
4*	Candidate will complete EAP-1.1, Attachment 1.	The candidate uses the EDAMS computer , data from Niagara Mohawk or the analog strip chart recorders. (EAP-42) **EVALUATOR:** Verify that the candidate has obtained the correct data for the source used. If the candidate contacts Niagra Mohawk provide the following information: 10 mph, at 100 feet, North (010) Stability class E	SAT / UNSAT
5	Candidate will have the Emergency Director approve the completed form.	**EVALUATOR:** Tell the candidate that the Emergency Director has approved the form.	SAT / UNSAT

6	Candidate will transmit the form using the digital sender to NY Warning Point, Oswego County Warning Pt Nine Mile Pt.		SAT / UNSAT
7	Candidate will contact the parties via the RECS phone and confirm /transmit the information	Pickup handset Press A then * Wait 10 seconds then transmit by by pressing button on underside of handset.	SAT / UNSAT
8	Perform roll call and check off on sheet	EVALUATOR tell candidate that all parties are on line.	SAT / UNSAT
9*	Transmit data within 15 minutes	**EVALUATOR:** Record the time that the candidate initially contacts the offsite agencies. Record Time: _____	SAT / UNSAT
10	Verify that they received data		SAT / UNSAT

JAFNPP FORM **EAP-1.1.1** ☐ Outgoing from FitzPatrick ☐ Incoming from Nine Mile Point Nuclear Site
Sequence Number_____ **Emergency Director Approval:** _____

New York State **PART I** Form **NOTIFICATION FACT SHEET**

"This is to report an incident at the James A. FitzPatrick Power Plant. Standby for conformation." (Conduct roll call to include the following stations:) ☐ **New York State Warning Point** ☐ **Oswego County Warning Point** ☐ **Nine Mile Point Nuclear Site**
Upon completion of roll call, ask each party if the form was received electronically and are there any questions or provide information as outlined below:

GENERAL INFORMATION (Note: O When Checked Indicates change in status)

☑ 1.Message transmitted on: (*Date*) _____ at (*Time*) _____ ☐AM ☐ PM Via: A. RECS B. Other

O 2.This Is A. NOT An Exercise B. An Exercise

O 3.Facility Providing Information: D. NMP #1 E. NMP #2 F. FitzPatrick

O 4.Classification: A. Unusual Event B. Alert C. Site Area Emergency D. General Emergency
E. Emergency Terminated F. Recovery G. Transportation Incident

O 5.This Emergency Classification Declared on: (*Date*) _____ at (*Time*) _____ ☐AM ☐ PM

O 6. Release of Radioactive Materials Due to The Classified Event

A. NO Release
B. Release BELOW federally approved operating limits (Technical Specification) ☐ To Atmosphere ☐ To Water
C. Release ABOVE federally approved operating limits (Technical Specification) ☐ To Atmosphere ☐ To Water
D. Unmonitored release requiring evaluation

O 7.Protective Action Recommendations:(*Circle all that apply*)

A. NO Need for Protective Actions Outside The Site Boundary

B. EVACUATE the following ERPA's: (*Circle Appropriate ERPA's*)

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29

C. SHELTER all remaining ERPAs.

O 8.EAL Number_____ Brief Event Description_____

_____

_____

O 9.Plant Status: A. Stable B. Improving C. Degrading D. Hot Shutdown E. Cold Shutdown

O 10. Reactor Shutdown: A. Not Applicable B. (*Date*) _____at: (*Time*)_____ ☐AM ☐ PM

O 11. Wind Speed _____ Miles/Hour at elevation _____ feet.

O 12. Wind Direction (From) _____ degrees at elevation _____ feet.

O 13. Stability Class (Pasquil) A B C D E F G

O 14. Reported By: Name _____ Phone Number (315)-_____

"(*Name of Agency*), did you copy?"
☐ **New York State Warning Point** ☐ **Oswego County Warning Point** ☐ **Nine Mile Point Nuclear Site**
"James A. FitzPatrick Nuclear Power Plant out at (*date, time*)"

JAFNPP ■ Outgoing from FitzPatrick
Sequence Number___ Emergency Director Approval: _____

New York State **PART 2** Form **RADIOLOGICAL FACT SHEET**

Radiological Assessment Data (*Use 24 hour clock for times*)

15. **Message transmitted at (Date)** _____ **(Time)** _____

Facility Transmitted From: **FitzPatrick** at location _____.

16. **General Release Information:**

A. Release > Tech Specs started: **Date** _____ **Time** _____

B. Release > Tech Specs expected to end: **Date** _____ **Time** _____ or **unknown Intermittent**

C. Release > Tech Specs ended: **Date** _____ **Time** _____

D. Reactor Shutdown: **N/A** or **Date** _____ **Time** _____

E. Wind Speed: _____ Mile/hour at elevation _____ feet.

F. Wind Direction from: _____ degrees at elevation _____ feet.

G. Stability Class: PASQUIL **A B C D E F G**

17. **Atmospheric Release Information**

A. Release from: ☐ **Ground** ☐ **Elevated** D. Noble Gas Release Rate _____ **Ci/sec**

B. Iodine/Noble Gas Ratio _____ E. Iodine Release Rate _____ **Ci/sec**

C. Total Release Rate _____ **Ci/sec** F. Particulate Release Rate _____ **Ci/sec**

18. **Waterborne Release Information**

A. Volume of Release _____ **gallons** or liters C. Radionuclides in Release _____(*or attach*)

B. Total Concentration _____ **µCi/ml** D. Total Activity Released _____

19. Dose Calculations (**based on an assumed release duration of** _____ **hours**)
Calculation based on (*circle one*)
A. Inplant Measurements B. Field Measurements C. Assumed Source Term

Table below applies to (*circle one*) **A. Atmospheric Release B. Waterborne Release**

DISTANCE	*DOSE*	
	TEDE (rem)	**CDE - Child Thyroid (rem)**
Site Boundary		
2 Miles		
5 Miles		
10 Miles		
_____ Miles		

20. Field Measurements at Dose Rates or Surface Contamination/Deposition

Mile/Sector OR Mile/Degrees	**Location OR Sampling Point**	**Time at Reading**	**Dose Rate OR Contamination (include Units)**

Facility: **FitzPatrick** Date of Examination: **November, 2001**
Examination Level (circle one): **SRO** Operating Test Number: _____

Administrative Topic/Subject Description		Describe method of evaluation: 1. ONE Administrative JPM, OR 2. TWO Administrative Questions
A.1	2.1.7 Ability to Evaluate Plant Performance and Make Operational Judgement Based on Instrument Interpretations. 4.4	**JPM** Verification of Core Thermal Power
		N/A
	2.1.1 Knowledge of Conduct of Operations Requirements 3.8	**Question 1** Knowledge of Overtime Restrictions
		Question 2 Shift Manning Requirements
A.2	2.2.12 Knowledge of Surveillance Procedures 3.4	**JPM** Complete surveillance ST-23C, "Jet Pump Operability Test for Two Loop Operation."
		N/A
A.3	2.3.10 Ability to Perform Procedures to Reduce Excessive Levels of Radiation and Guard Against Personnel Exposure. 3.3	**Question 1** protective actions for a accident involving radioactive materials
		Question 2 Entry into Very High Radiation Areas
A.4	2.4.41 Knowledge of the emergency levels and classifications 4.1	**JPM** Given the scenario that has just occurred, classify the event.
		N/A

NEW YORK POWER AUTHORITY
JOB PERFORMANCE MEASURE

S/RO/NLO **SRO** Name: **Verification of Core Thermal Power**

REV: 0 DATE: November 2001 NRC K/A 2.1.7
Ability to Evaluate Plant Performance and Make Operational Judgement Based on Instrument Interpretations.

JAF TASK NUMBER: JAF QUAL STANDARD NUMBER:

ESTIMATED COMPLETION TIME: 15 Minutes

SUBMITTED: _____ OPERATION REVIEW: ____

APPROVED: _____

CANDIDATE NAME: _____ S.S. NUMBER: ____

JPM Completion: ( ) Simulated ( ) Performed

Location: ( ) Plant ( ) Simulator

DATE PERFORMED: _____ TIME TO COMPLETE: ____ Minutes

PERFORMANCE EVALUATION: ( ) Satisfactory ( ) Unsatisfactory

COMMENTS: (MANDATORY FOR UNSATISFACTORY PERFORMANCE)

EVALUATOR: _____
SIGNATURE/PRINTED

CANDIDATE REVIEW: _____
SIGNATURE

JOB PERFORMANCE MEASURE
RECORD AND CHECKLIST

Comments:

Current Update: _____ By: _____
Date Int.

Previous Revision Dates:

JOB PERFORMANCE MEASURE
REQUIRED TASK INFORMATION

I. SAFETY CONSIDERATIONS

A. None

II. REFERENCES

A. RAP-7.3.3, "Core Thermal Power Evaluation"' Rev. 10

III. TOOLS AND EQUIPMENT

A. None

IV. SET UP REQUIREMENTS

A. A power and flow log at 78% power is available for the candidate.

V. EVALUATOR NOTES

A. None

VI. TASK CONDITIONS

A. The plant is stable at 78% power during startup. The operation manager has just informed the operating shift that "Verification of Core Thermal Power Heat Balance," was not completed at 75% power. Your task is to perform this verification in accordance with RAP-7.3.3, "Core Thermal Power Evaluation," starting at step 9.3.

*** - CRITICAL STEP**

VII. INITIATING CUE

Inform the candidate:

The plant is stable 78% power during startup. The operation manager has just informed the operating shift that "Verification of Core Thermal Power Heat Balance," was not completed at 75% power. Your task is to perform this verification in accordance with RAP-7.3.3, "Core Thermal Power Evaluation," starting at step 9.3.

	STEP	STANDARD	EVALUATION / COMMENT
1.		**EVALUATOR:** Provide the candidate with a copy of RAP-7.3.3, "Core Thermal Power Evaluation."	SAT / UNSAT
2.	The candidate uses Attachment 2 to calculate / verify core thermal power.		SAT / UNSAT
3.	The candidate obtains the first stage turbine pressure.	This will be obtained from the EPIC Computer, Point 1299. **EVALUATOR:** Provide the candidate with 557 psig.	SAT / UNSAT
4.	The candidate calculates a value of 88% power.		SAT / UNSAT
5.	The candidate obtains a copy the plant heat balance using section 9.1.1 of this procedure.	1. Go to Main Menu on the 3-D monicore program. 2. Input function number for reports current 3. Place "2" in execute box 4. Place "2" in Core Power & Flow Box 5. Type output device in "(E)" field 6. Press Enter 7. Position curser in Power & Flow report and depress "2" **EVALUATOR:** Provide candidate with copy of printed log. This should show at 80% power.	SAT / UNSAT
*6.	The candidates compares the two values for per cent core thermal power and determines that the difference is greater than 5%.	The candidate identifies that the values are greater than 5% off (10%).	SAT / UNSAT

8.	The candidate determines that an investigation should be started.	Directs the start of an investigation because there is a greater than 5% difference in core thermal power.	SAT / UNSAT
9.	The candidate will notify the Site Executive Officer.	**EVALUATOR:** The Site Execute Officer has been notified. (In addition this position may now be fulfilled by the General Manager - Plant Operations.) In addition, if the candidate says that he would use STD-3.120 and notify the shift manager then verify that the Execute office will be notified.	SAT / UNSAT

FITZPATRICK CY13S

CORE POWER AND FLOW LOG

ENERGY BALANCE
POWER (MW)

ELECTRICAL	657.8	77.4%
CORE	1973.8	77.8%
FEED WATER	1960.0	
CR DRIVES	11.4	
CLEAN-UP	3.7	
RADIATIVE LOSS	1.1	
PUMPS	2.4	

FLOW (MLB/HR)

TOTAL CORE	51.18	66.5%
MEASURED	51.18	
SUBSTITUTE	54.26	
FEEDWATER	8.19	
CLEAN-UP	0.12	
RECIRC	23.01	
CR DRIVES	0.03	

PRESSURE (PSIa)

DOME	1027.40
DROP (MEAS)	10.11

ENTHALPY/SUBCOOLING (BTU/LB)

SUBC	26.90
FEEDWATER	373.25
RECIRC INLET	519.06
CLEAN UP IN	508.13
CLEAN UP OUT	402.73

LOAD LINE SUMMARY

CORE POWER	77.8%
CORE FLOW	66.5%
LOAD LINE	99.6%
FLOW BASIS	MEAS.

TEMPERATURE (Deg F)

FEEDWATER	398.3
RECIRC IN	525.9
CLEAN UP IN	516.9
CLEAN UP OUT	425.4
CR DRIVES	95.0

APRM CALIBRATION

	A	B	C	D	E	F
READING	82.2	81.5	81.9	81.9	82.3	82.2
AGAF	0.946	0.954	0.951	0.950	0.946	0.947

FAILED SENSORS: NONE

NEW YORK POWER AUTHORITY
JAMES A. FITZPATRICK NUCLEAR POWER PLANT
REACTOR ANALYST PROCEDURE

CORE THERMAL POWER EVALUATION*
RAP-7.3.3
REVISION 10

APPROVED BY: Francisco Rodríguez by direction DATE 12-10-98
RESPONSIBLE PROCEDURE OWNER

APPROVED BY: DATE 12/10/98
GENERAL MANAGER

EFFECTIVE DATE: 12-11-98

FIRST ISSUE ☐ FULL REVISION ☐ LIMITED REVISION ☒

REFERENCE USE	TSR
TECHNICAL	CONTROLLED COPY 3

PERIODIC REVIEW DUE DATE APRIL 2003

REVISION SUMMARY SHEET

REV. NO.	CHANGE AND REASON FOR CHANGE
10	1. Per PCR 980027 and PCR 98-0031, revise Attachment 1 to use pump flow as indicated on 12FI-126A/B instead of 12-4FI-141A/B. This change has already been made on the computer calculation of the heat balance. 2. Per PCR 970063, change value for mini-purge on Attachment 1 line 35 from 4.98E-3 to 4.97E-3.
9	1. Per Temp Change dated 2/14/98, change reference temperature used in the feedwater correction factor on Attachment 1 from 424 °F to 420 °F. 2. Add the following to Note 1 at Step 9.3.1: The pressure coefficient has been revised for power uprate. 3. Per PCR 970027, add Step 7.4 to define records retention requirements for Quality Records. 4. Add the following to Note 1 at Step 9.2.1: EPIC points for the corresponding input parameters may also be used. RAP-7.3.17, Attachment 1, provides a listing of these points.

TABLE OF CONTENTS

SECTION PAGE

1.0 PURPOSE 4

2.0 APPLICABILITY 4

3.0 REFERENCES 4

4.0 REQUIREMENTS 4

5.0 DEFINITIONS 5

6.0 RESPONSIBILITIES 6

7.0 SPECIAL INSTRUCTIONS 6

8.0 PREREQUISITES 6

9.0 PROCEDURE 7

10.0 ATTACHMENTS 9

1. HEAT BALANCE CALCULATION SHEET 10

2. SHORT FORM HEAT BALANCE 11

3. VERIFICATION OF CORE THERMAL HEAT BALANCE 12

4. INSTRUCTIONS FOR OBTAINING FEEDWATER TEMPERATURE FROM CONTROL ROOM PANEL 09-21 13

5. DIAGRAM OF TERMINATION BOARD 14

6. FEEDWATER FLOW RATE DURING PLANT STARTUP 15

1.0 PURPOSE

Describe the methods for calculating the core thermal power.

2.0 APPLICABILITY

This procedure shall be used to calculate core thermal power for the purpose of satisfying Technical Specification requirements.

3.0 REFERENCES

3.1 Performance References

3.1.1 ASME Steam Tables

3.1.2 RAP-7.3.17, Computer Monitoring Software and Database Changes*

3.2 Developmental References

3.2.1 Station Nuclear Engineering Manual, NEDO-24810C, September 1986

3.2.2 LER-95-015 (JAF-CALC-CRD-02243, CSCR No. 96-0308, JTS-APL-95-034, ACTS 18786)

4.0 REQUIREMENTS

4.1 Technical Specifications

- Section 3.1
- Section 4.1

4.2 Expectations

4.2.1 Site Executive Officer shall be notified in case there is an unexpected difference between core power indications. Differences larger than 5% of rated power are unacceptable, and shall require management notification. (ACTS 19076, 19648)

6.0 RESPONSIBILITIES

Licensed Operators or Reactor Engineers shall perform and verify (when required) the calculations in this procedure.

7.0 SPECIAL INSTRUCTIONS

7.1 **IF** manual methods are being used to satisfy Technical Specifications,
THEN Section 9.2 shall be used to calculate core power.

7.2 **IF** manual calculations described in this procedure are performed to satisfy Technical Specifications,
THEN a second person shall review the calculations.

‡EXP4.2.1
7.3 Site Executive Officer shall be notified in case there is an unexpected difference between core power indications. Differences larger than 5% of rated power are unacceptable, and shall require management notification.

7.4 Attachments 1, 2, 3, and 5 are Quality Records retained in accordance with the JAF Records Retention and Turnover Schedule.

8.0 PREREQUISITES

None

9.2 **Core Thermal Power Calculated Manually Per Attachment 1**

NOTE 1: The manual method calculates reactor power in the same manner as the 3D-Monicore heat balance. EPIC points for the corresponding input parameters may also be used. RAP-7.3.17, Attachment 1, provides a listing of these points.

NOTE 2: Calculations described in Attachments 1 and 5 may be performed using the HEATBAL computer program.

9.2.1 Record the data listed in Steps 1 through 13 on Attachment 1. If this calculation is being performed at low power during plant statup, total feedwater flow, the sum of items 12 and 13, may be determined using flow element 34FE-100 per instructions on Attachment 5.

9.2.2 Use EPIC feedwater temperature points 407, 408, 410, 411, if available, to record items 14 and 15 on Attachment 1. Otherwise, obtain feedwater temperature per the instructions on Attachment 3.

9.2.3 Complete Items 16 through 23 on Attachment 1.

9.2.4 Use the ASME steam tables to calculate Items 24 through 30 on Attachment 1.

9.2.5 Complete Items 31 through 43 on Attachment 1.

9.2.6 Forward completed Attachments to Reactor Analyst Group for retention.

10.0 ATTACHMENTS

1. HEAT BALANCE CALCULATION SHEET
2. VERIFICATION OF CORE THERMAL HEAT BALANCE
3. INSTRUCTIONS FOR OBTAINING FEEDWATER TEMPERATURE FROM CONTROL ROOM PANEL 02-21
4. DIAGRAM OF TERMINATION BOARD
5. FEEDWATER FLOW RATE DURING PLANT STARTUP

VERIFICATION OF CORE THERMAL HEAT BALANCE

DATE/TIME _____/_____

A. First stage pressure from EPIC 1299 _____psig

[(0.1427 * 1st stg pr) + 8.4] = _____% power

B. Reactor power calculated from heat balance = _____% power

C. The two methods are within 5 percent of rated power of each other _____Yes ____No

D. If not within 5 percent, investigation initiated _____Yes ____No

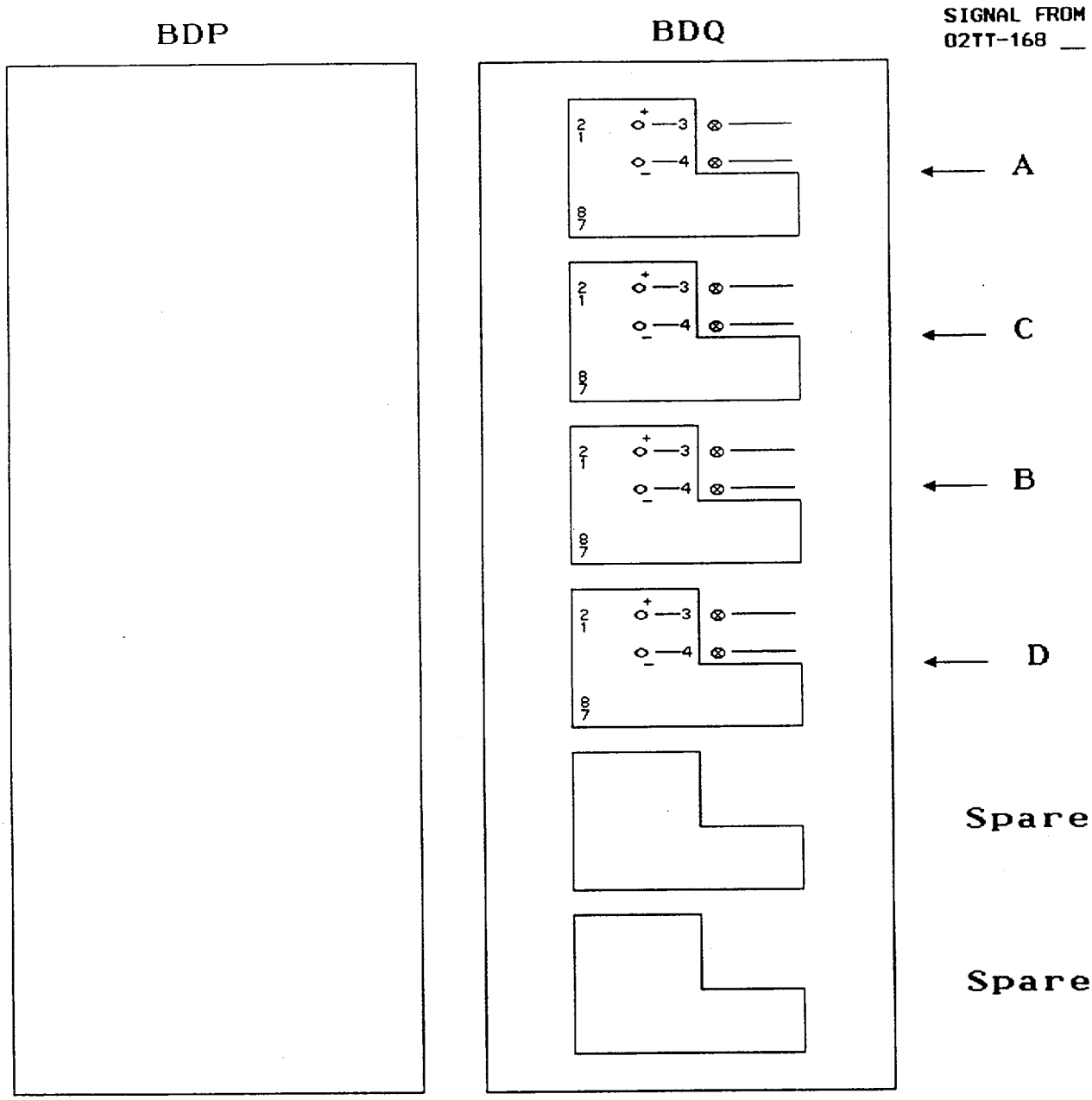
E. If GREATER THAN 5 percent, and unexplained, Site Executive Officer notified _____Yes ____No

Performed By: _____

Reviewed By: _____
Reactor Analyst Supervisor

- This IS a Quality Record -

ATTACHMENT 4
DIAGRAM OF TERMINATION BOARD



Operating Test Section A1, Conduct of Operations

Question 1

The plant is operating at 100% power with normal maintenance activities in progress. Following 4 days off, you stood watch on dayshift (12-hour shifts) for 5 consecutive days, Thursday through Monday. You are called Monday night and asked to stand watch 12 hours on Tuesday dayshift. You stand watch on Tuesday. You have no approval to exceed overtime guidelines. Can you work your normal scheduled shift on Wednesday dayshift, why or why not?

Answer:

No the individual has worked 72 hours in the last 6 days. If the individual works Wednesday he will exceed 72 hours in 7 days. This can be done if the individual has approval. In this case he dose not have approval.

Reference: AP-11.03 CONTROL OF OVERTIME*

Operating Test Section A1, Conduct of Operations

Question 2

The plant is operating at 100% power with the following shift manning.

One (1)	Shift Manager
One (1)	Controller (STA Qualified, not RO / SRO Licensed)
One (1)	Control Room Supervisor
One (1)	Senior Nuclear Operator
Two (2)	Nuclear Control Operator
Five (5)	Non Licensed Operators
One (1)	RP Technician

At 9:00 p.m., one (1) NCO and one (1) NLO are injured and taken offsite. The individuals are NOT contaminated. All operating personnel on shift are fire brigade qualified and are current on all training / certification requirements. In addition, all the Non Licensed Operators (NLO) on this shift are qualified for all NLO positions. (a) What actions must be taken in regard to plant staffing, and (b) at what time must they be completed.

Answer:

(a) (0.5) The Shift Manager must call in a NCO to ensure that minimum shift manning requirements are met.

(b) (0.5) The shift manning must meet the minimum shift manning by 11:00 pm, (within 2 hours).

Team	NCO	NLO	SRO	RP Tech	SM	Cont.	FB Lead
First Aid EAP-2		1	CRS or SNO	1			
Search & Rescue EAP-9		2	CRS or SNO				
Fire Brigade EAP-3		2	CRS or SNO				
AOP-43	2	2	CRS or SNO		1	1	CRS or SNO
TS Table 6.2-1	2	2	2	1		1(STA)	
Minimum Crew Requirements	**2**	**4**	**CRS**	**1**	**1**	**1**	**SNO**

The table above list the requirements for shift staffing for various procedures. In addition, AP-12.03 ADMINISTRATION OF OPERATIONS," section 6.8.31 states that the SRO must ensure an adequate number of qualified and fit for duty personnel are on shift to perform a plant shutdown from outside the Control Room per AOP-43, and simultaneously staff the Fire Brigade.

NEW YORK POWER AUTHORITY
JOB PERFORMANCE MEASURE

S/RO/NLO **SRO** Name: **Complete surveillance ST-23C, "Jet Pump Operability Test for Two Loop Operation."**

REV: 0 DATE: November 2001 NRC K/A **2.2.12 Knowledge of Surveillance Procedures**

JAF TASK NUMBER: JAF QUAL STANDARD NUMBER:

ESTIMATED COMPLETION TIME: 20 Minutes

SUBMITTED: _____ OPERATION REVIEW: ____

APPROVED: _____

CANDIDATE NAME: _____ S.S. NUMBER: ____

JPM Completion: ( ) Simulated ( ) Performed

Location: ( ) Plant ( ) Simulator

DATE PERFORMED: _____ TIME TO COMPLETE: ____ Minutes

PERFORMANCE EVALUATION: ( ) Satisfactory ( ) Unsatisfactory

COMMENTS: (MANDATORY FOR UNSATISFACTORY PERFORMANCE)

EVALUATOR: _____
SIGNATURE/PRINTED

CANDIDATE REVIEW: _____
SIGNATURE

JOB PERFORMANCE MEASURE
RECORD AND CHECKLIST

Changes

Comments:

Current Update: _____ By: _____
Date Int.

Previous Revision Dates:

JOB PERFORMANCE MEASURE
REQUIRED TASK INFORMATION

I. SAFETY CONSIDERATIONS

A. None

II. REFERENCES

A. A partially completed Surveillance ST-23C, "Jet Pump Operability Test for Two Loop Operation."

III. TOOLS AND EQUIPMENT

A. None

IV. SET UP REQUIREMENTS

A. None

V. EVALUATOR NOTES

A. None

VI. TASK CONDITIONS

Surveillance procedure ST-23C, "Jet Pump Operability Test for Two Loop Operation," has just been completed, excluding step 8.4, "Reactor Engineering Data Collection," which is not required at this time. The surveillance was last completed 12 hours ago with acceptable results. Your task as the SNO is to (1) complete the SNO review and (2) determine if any Technical Specification actions are required.

Additional Information:

1. There are no math errors in the procedure.
2. ST-23C, "Jet Pump Operability Test for Two Loop Operation," Rev. 16, is the current revision.

*** - CRITICAL STEP**

VII. INITIATING CUE

Inform the candidate:

Surveillance procedure ST-23C, "Jet Pump Operability Test for Two Loop Operation," has just been completed, excluding step 8.4, "Reactor Engineering Data Collection," which is not required at this time. The surveillance was last completed 12 hours ago with acceptable results. Your task as the SNO is to (1) complete the SNO review and (2) determine if any Technical Specification actions are required.

Additional Information:

1. There are no math errors in the procedure.
2. ST-23C, "Jet Pump Operability Test for Two Loop Operation," Rev. 16, is the current revision.

	STEP	STANDARD	EVALUATION / COMMENT
1.		**EVALUATOR:** Provide the candidate with a partially completed copy of ST-23C, "Jet Pump Operability Test for Two Loop Operation."	SAT / UNSAT
2.	Verify that the required data has been recorded and is within required tolerances.	The following is identified: The calculated loop flow imbalance is 11.5%, which does not meet the acceptance criteria of less than 10%. The calculated total core flow deviation is 11.9% which does not meet the acceptance criteria of less than 10%. Jet Pump 02-1JP9 & 10 have a Dp of 73.4 & 16.1% PSID respectively, which is not in the required band of 35.9% PSID to 43.9% PSID.	SAT / UNSAT
3.	Verify that the required initials and signatures have been entered.	Reviews the procedure and determines that signatures and initials have been completed as required.	SAT / UNSAT
4.*	Verifies that the test acceptance criteria is NOT satisfied.	The candidate determines that ALL acceptance criteria is NOT satisfied and checks the "Acceptance criteria not satisfied" on the surveillance.	SAT / UNSAT
5.*	Determine if any TS actions are required.	Determines that TS 3.6.G, Jet Pumps is not satisfied and based on this information the plant is in a 24 cold shutdown LCO. Note: Jet Pump 02-1JP9 has failed. Based on AOP-29, JP % PSID has failed high on JP that fails.	SAT / UNSAT

	STEP	STANDARD	EVALUATION / COMMENT
6.	Notifies the shift manager of the failed surveillance.		SAT / UNSAT
7.	Initiates a PID		SAT / UNSAT

NEW YORK POWER AUTHORITY
JAMES A. FITZPATRICK NUCLEAR POWER PLANT
OPERATIONS SURVEILLANCE TEST PROCEDURE

JET PUMP OPERABILITY TEST FOR
TWO LOOP OPERATION (EPIC AVAILABLE)*
ST-23C
REVISION 16

APPROVED BY: _____ DATE 12/29/99
RESPONSIBLE PROCEDURE OWNER

EFFECTIVE DATE: 12/29/99

FIRST ISSUE ☐ FULL REVISION ☐ LIMITED REVISION ☒

CONTINUOUS USE	TSR
TECHNICAL	CONTROLLED #3

PERIODIC REVIEW DUE DATE 5/2003

REVISION SUMMARY SHEET

REV. NO.	CHANGE AND REASON FOR CHANGE
16	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) 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. Updated Attachment 2 based on algorithm used in revising the 3D Monicore databank.
15	1. Revised Step 8.3.1 to enter data on one table on one page, instead of having twenty separate steps over five pages. This saves time and minimizes storage volume. This change incorporates PCR #7 dated 1/27/96. 2. Revised Step 8.2.2.A to obtain WTSUB from EPIC-A-6254, instead of from Core Power and Flow Log - SUBSTITUTE FLOW. Points are equivalent. This point is returned from 3D heat balance every 15 seconds, and is calculated by 3D Monicore. This change incorporates PCR dated 3/26/96. 3. Added Attachment 3, Subsection 8.4, and Step 11.3.7 to collect data for Reactor Engineering. Reduces frequency and duplication of data taken per RAP-7.3.7, 7.3.33, and ST-23C. DER 96-0095 (ACTS 19429). This change incorporates PCR dated 3/26/96.

TABLE OF CONTENTS

SECTION		PAGE
1.0	**REQUIREMENTS**	4
2.0	**PURPOSE**	4
3.0	**REFERENCES**	5
4.0	**PREREQUISITES**	6
5.0	**TEST EQUIPMENT, SPECIAL TOOLS AND MATERIALS**	6
6.0	**PRECAUTIONS AND LIMITATIONS**	7
7.0	**GENERAL TEST METHODS**	8
8.0	**PROCEDURE**	9
8.1	**Loop Flow Imbalance**	9
8.2	**Total Core Flow Deviation**	11
8.3	**Jet Pump Differential Pressure Variation**	13
8.4	**Reactor Engineering Data Collection**	15
9.0	**RETURN TO NORMAL**	16
10.0	**ACCEPTANCE CRITERIA**	17
11.0	**ACCEPTANCE VERIFICATION**	18
12.0	**ATTACHMENTS**	22
	1. TEST SIGNOFF LOG	23
	2. CALCULATED CORE FLOW (WTSUB) vs. TOTAL DRIVE FLOW (WD)	24
	3. ST-23C DATA FOR REACTOR ENGINEERING SUPPORT	25

1.0 REQUIREMENTS

1.1 Frequency

1.1.1 Daily whenever there is two loop recirculation flow with the reactor in the startup/hot standby or run modes.

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 if EPIC is not available in lieu of this test.

1.2 Technical Specifications

1.2.1 **Surveillance Requirements**

Section 4.6.G

1.2.2 **Limiting Conditions for Operation**

Section 3.6.G

1.3 Other

None

1.4 Commitments

None

1.5 Validation

Revision 12 validated

2.0 PURPOSE

To verify operability of Jet Pump Assemblies 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 8.4 Reactor Engineering Data Collection

		Init
4.0	**PREREQUISITES**	
4.1	SM has granted permission to perform this test.	SM
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.	SM
4.3	Test personnel have read this procedure and are thoroughly familiar with its contents.	SM
4.4	Start of test recorded. 11/01/01 0000 (Date/Time)	SM
4.5	Start of test recorded in NCO Log Book.	NCO
4.6	Recirculation pump speeds are within 5%.	NCO
4.7	EPIC is available.	SM
4.8	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 through 961 (I&C route IC039) (✓)	SM

5.0 TEST EQUIPMENT, SPECIAL TOOLS AND MATERIALS

None

6.0 PRECAUTIONS AND LIMITATIONS

6.1 Precautions

None

6.2 Limitations

6.2.1 Test personnel shall print name, sign initials, and enter date on Attachment 1 before performing Section 8 of this test.

6.2.2 When test personnel complete their assigned portion of this test, they shall enter hours worked on Attachment 1.

6.2.3 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.

6.2.4 Multiple working copies of this test may be used provided the following requirements are satisfied:

A. A working copy of this test is retained in the Control Room at all times.

B. The Control Room working copy shall be the legal record for documenting this test.

C. Data from all steps performed outside the Control Room, including signatures, initials, and recorded values, is transcribed into the Control Room working copy following completion of the applicable subsection.

7.0 GENERAL TEST METHODS

7.1 Recirculation Loop Flow Imbalance, Total Core Flow Deviation, and Jet Pump Differential Pressure Variation are calculated using EPIC to verify Tech Spec criteria is satisfied.

7.2 This procedure may be used for post-work testing and verification of operability for applicable equipment provided the following actions are performed:

7.2.1 The actions and requirements of Sections 1 through 6, 10, and 11 are satisfied.

7.2.2 The applicable portions of Sections 8 and 9 are performed.

7.2.3 Signoff for non-applicable portions of Sections 8 and 9 are marked "NA".

7.2.4 The reason for partial performance of this test is documented in Section 11.4.

8.0 **PROCEDURE** Init

NOTE 1: Options for obtaining readings are listed in the preferred order of use.

NOTE 2: The most reliable calculations are obtained if the same instrument type is used to obtain Loop A and Loop B readings.

8.1 **Loop Flow Imbalance**

8.1.1 Record recirculation Loop A flow using one of the following:

NOTE: EPIC-A-3317 is the average of EPIC-A-0415 and 0416.

(✓) EPIC-A-3317, RECIRC A FLOW

(_) EPIC-A-0415, RX LOOP A DRIVE FLOW

(_) EPIC-A-0416, RX LOOP A DRIVE FLOW

Loop A Flow: 19.3 NCO

8.1.2 Record recirculation Loop B flow using one of the following:

NOTE: EPIC-A-3318 is the average of EPIC-A-0420 and 0421.

(✓) EPIC-A-3318, RECIRC B FLOW

(_) EPIC-A-0420, RX LOOP B DRIVE FLOW

(_) EPIC-A-0421, RX LOOP B DRIVE FLOW

Loop B Flow: 17.3 NCO

Init

8.1.3 Determine Loop Flow Imbalance per the following:

NOTE: Units must be the same to perform calculation.

A. Record the higher reading of Loop A or Loop B flow from Step 8.1.1 or 8.1.2:

Higher Flow: 19.3 NCO

B. Record the lower reading of Loop A or Loop B flow from Step 8.1.1 or 8.1.2:

Lower Flow: 17.3 NCO

C. Calculate Loop Flow Imbalance using the values obtained in Steps A and B in the following formula:

$$\frac{(\text{Higher Flow}) - (\text{Lower Flow})}{(\text{Lower Flow})} \times 100$$

$$\frac{(\ 19.3\ ) - (\ 17.3\ )}{(\ 17.3\ )} \times 100 = 11.5\ \%$$

NCO

8.2 **Total Core Flow Deviation** Init

8.2.1 Record indicated core flow using one of the following:

(✓) EPIC-A-0414, RX TOTAL CORE FLOW

(_) Core Power and Flow Log - MEASURED FLOW (MLB/HR)

Indicated Core Flow: 73.5 NCO

8.2.2 Determine WTSUB core flow as follows:

A. Record WTSUB core flow from EPIC-A-6254 (MLB/HR)

WTSUB Core Flow: 82.3 NCO

B. **IF** WTSUB recorded in Step 8.2.2.A is -1, **THEN** determine WTSUB core flow as follows:

1. Sum Loop A and Loop B flows obtained in Steps 8.1.1 and 8.1.2.

Total Loop Flow: NA mlb/hr NA

2. Determine WTSUB core flow, using the Step 8.2.2.B.1 value for WD, from Attachment 2.

WTSUB Core Flow NA mlb/hr NA

Init

8.2.3 Determine Core Flow Deviation between indicated and WTSUB core flows as follows:

A. Record the higher core flow reading from Step 8.2.1 or 8.2.2:

Higher Flow: 82.3 NCO

B. Record the lower core flow reading from Step 8.2.1 or 8.2.2:

Lower Flow: 73.5 NCO

C. Calculate Total Core Flow Deviation using the values obtained in Steps A and B in the following formula:

$$\frac{(\text{Higher Flow}) - (\text{Lower Flow})}{(\text{Lower Flow})} \times 100$$

$$\frac{(82.3) - (73.5)}{(73.5)} \times 100 = 11.9\ \%$$

NCO

8.3 **Jet Pump Differential Pressure Variation** Init

8.3.1 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)
02-1JP-1	942	37.8
02-1JP-2	944	36.1
02-1JP-3	946	36.4
02-1JP-4	948	39.2
02-1JP-5	950	36.0
02-1JP-6	952	39.8
02-1JP-7	954	36.2
02-1JP-8	956	36.0
02-1JP-9	958	73.4
02-1JP-10	960	16.1
02-1JP-11	943	40.9
02-1JP-12	945	41.1
02-1JP-13	947	42.8
02-1JP-14	949	40.4
02-1JP-15	951	42.5
02-1JP-16	953	40.0
02-1JP-17	955	43.3
02-1JP-18	957	42.2
02-1JP-19	959	40.4
02-1JP-20	961	38.4

Init

8.3.2 Record Jet Pump Average DP using one of the following:

(✓) EPIC computed point 3383, AVG RECIRC LOOP A/B JET PMP % PSID

39.95 %PSID

(_) Calculate Jet Pump Average DP as follows:

A. Determine Total Jet Pump DP by adding all jet pump differential pressures from Step 8.3.1:

Total DP: NA %PSID

B. Calculate Jet Pump Average DP using the Total Jet Pump DP in Step A in the following formula:

$$\text{Average DP} = \frac{\text{Total Jet Pump DP}}{\text{Number of Jet Pumps}}$$

$$= \frac{NA}{20}$$

$$= NA \text{ \%PSID}$$

NA

Init

8.3.3 Calculate Upper Limit and Lower Limit using Average Jet Pump DP from Step 8.3.2 in the following formula:

- Lower Limit = 0.9 x Average DP

  = 0.9 x 39.95

  = 35.9 %PSID

- Upper Limit = 1.1 x Average DP

  = 1.1 x 39.95

  = 43.9 %PSID

NCO

8.4 **Reactor Engineering Data Collection**

Complete Attachment 3. NA

9.0 **RETURN TO NORMAL** Init

9.1 **System Restoration**

None

9.2 **Review and Signoff**

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

- 8.1.3.C (✓)
- 8.2.3.C (✓)
- 8.3.2.B (✓)
- 8.3.3 (✓)

Independent verification NCO / 11/01/01
Signature/Date

9.2.2 Test completed. 11/01/01 0030 NCO
Date/Time

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

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

9.2.5 Completion of test recorded in NCO Log Book. NCO

10.0 **ACCEPTANCE CRITERIA**

10.1 Any of the following criteria are met:

10.1.1 Loop Flow Imbalance calculated in Step 8.1.3.C is less than 10%.

10.1.2 Total Core Flow Deviation calculated in Step 8.2.3.C is $\leq$10%.

10.1.3 Each Jet Pump Differential Pressure in Step 8.3.1 is within the range of the Upper Limit and Lower Limit calculated in Step 8.3.3.

11.0 ACCEPTANCE VERIFICATION

11.1 NCO/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 Review test to determine if test acceptance criteria has been satisfied.

11.1.4 Check one of the following as appropriate for test results:

(_) Acceptance criteria satisfied, no corrective action required.

(_) Acceptance criteria satisfied, corrective action required.

(_) Acceptance criteria not satisfied.

11.1.5 **IF** acceptance criteria is satisfied **AND** corrective action is required,
THEN perform the following:

A. Describe in Section 11.4, Remarks.

B. Initiate a PID and record PID number.

_____
PID Number

11.1.6 **IF** acceptance criteria is not satisfied,
THEN perform the following:

A. Immediately notify SM.

B. Initiate a PID and record PID number.

_____
PID Number

11.1.7 Sign and record date and time.

_____ _____
SNO or NCO Date/Time

11.2 **SM Review**

11.2.1 Verify current revision of surveillance test procedure was used.

11.2.2 Verify surveillance test was completed within required test frequency.

11.2.3 Verify data tables and attachments have been properly completed.

11.2.4 Verify required data has been recorded and is within required tolerances.

11.2.5 Verify required initials and signatures have been entered.

11.2.6 Review test to determine if test results satisfy acceptance criteria.

11.2.7 Check one of the following as appropriate for test results:

(_) Acceptance criteria satisfied.

(_) Acceptance criteria <u>not</u> satisfied.

11.2.8 **IF** acceptance criteria <u>is not</u> satisfied, **THEN** perform the following:

A. Immediately notify Operations Manager or Alternate.

B. Record name of person notified.

_____
Person Notified

C. Initiate required corrective and compensatory actions.

11.2.9 Sign and record date and time.

_____ _____
Shift Manager Date/Time

11.3 **Assistant Operations Manager Review**

11.3.1 Verify surveillance test was completed within required test frequency.

11.3.2 Verify data tables and attachments have been properly completed.

11.3.3 Verify required data has been recorded and is within required tolerances.

11.3.4 Verify required initials and signatures have been entered.

11.3.5 Review test to determine if test results satisfy acceptance criteria.

11.3.6 Verify required compensatory and corrective actions have been taken.

11.3.7 Attachment 3 forwarded to Reactor Engineering.

11.3.8 Sign and record date and time.

_____ _____

Assistant OPS Manager or alternate Date/Time

11.4 **Remarks**

12.0 **ATTACHMENTS**

1. TEST SIGNOFF LOG
2. CALCULATED CORE FLOW (WTSUB) vs. TOTAL DRIVE FLOW (WD)
3. ST-23C DATA FOR REACTOR ENGINEERING SUPPORT

ATTACHMENT 1

TEST SIGNOFF LOG

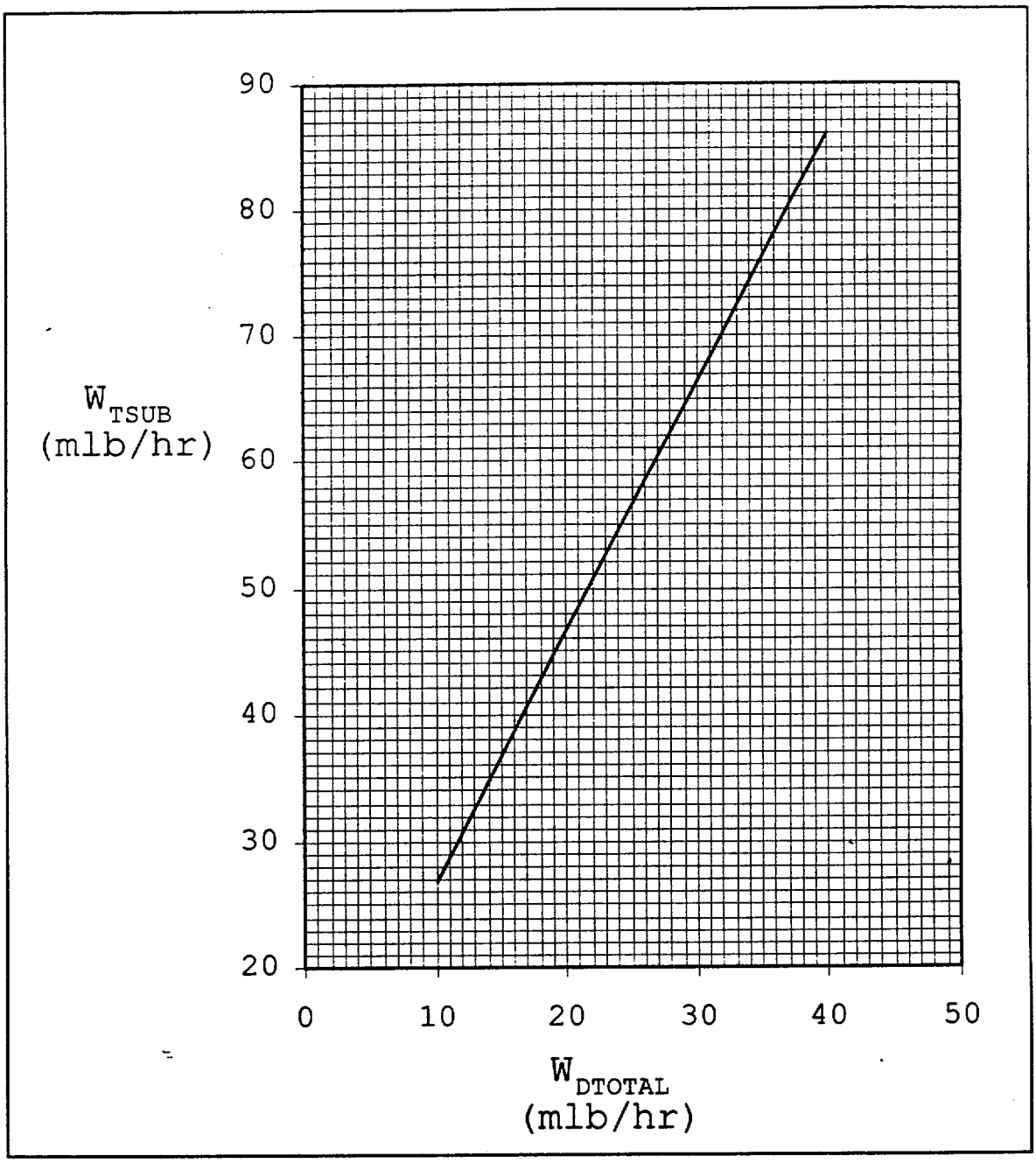
PRINTED NAME	INITIALS	DATE	HOURS WORKED
NCO	NCO	11/01/01	0.5
SM	SM	11/01/00	0.5

Total Man-Hours _____

ATTACHMENT 2

CALCULATED CORE FLOW (WTSUB) vs. TOTAL DRIVE FLOW (WD)

$$W_{TSUB} = 1.9752(W_{DTOTAL}) + 7.05$$



ATTACHMENT 3

ST-23C DATA FOR REACTOR ENGINEERING SUPPORT

_____
Date/Time

TO: REACTOR ENGINEERING

FROM: OPERATIONS

A. Recirc Loop A flow **(from Step 8.1.1)** _____ MLB/HR

B. Recirc Loop B flow **(from Step 8.1.2)** _____ MLB/HR

C. Total Core Flow **(from Step 8.2.1)** _____ MLB/HR

D. WTSUB **(from Step 8.2.2)** _____ MLB/HR

E. Photocopy of Table **(from Step 8.3.1)** 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

Operating Test Section A3, Radiation Protection

Question 1

You have just been notified by the New York State Police that there is a tractor trailer truck accident involving a cask shipment from FitzPatrick. The manifest shows that the cask contains spent demineralizer resin. The cask is still upright on the truck; however, the top of the cask is breached and the truck is engulfed in fire. The fire department has just arrived at the scene. Based on this information what are four personnel protective recommendations that should be provided to the emergency personnel at the scene?

Answer:

List any four of the following personnel protection recommendations for fire:

1. Keep unnecessary people at least 150 feet upwind; greater distances may be necessary if advised by qualified Radiation Authority.
2. Isolate hazard area and deny entry.
3. Self-contained breathing apparatus (SCBA) and structural firefighter's protective clothing will provide limited protection.
4. Detain uninjured persons and equipment exposed to radioactive material until arrival of instructions of qualified Radiation Authority.
5. Delay clean-up until arrival or instruction of qualified Radiation Authority.
6. If water pollution occurs, notify the appropriate authorities.
7. Do not move damaged containers; move undamaged containers out of fire zone.
8. Large Fires: Use water spray, fog (flooding amounts).
9. For massive fire in cargo area, use unmanned hose holder or monitor nozzles.
10. Fight fire from maximum distance. Stay away from ends of tanks.

Referneces: AP-06.02 RADIOACTIVE SHIPMENT TROUBLE*

Operating Test Section A3, Radiation Protection

Question 2

A full core traversing incore probe (TIP) set was in progress when a TIP detector was withdrawn from the core past the in-shield position and can not be moved. The dose in the TIP room is 550 Rad/hr at 1 meter from the "A" TIP machine. Radiation protection and maintenance wants to enter the room to install shielding to reduce the general area dose rate outside the TIP room. The workers have received the necessary dose extension approvals. (1) What type of radiation work permit is required and (2) what individual(s) must approve entry into this area?

Answer:

(1) (0.5) Entry into this area requires a non-routine or specific RWP.

(2) (0.5) The Shift Manager and Radiation Protection Manager must both approve entry to VHRAs.

Reference:	AP-07.06	HIGH RADIATION AREA CONTROL
	AP-07.01	RADIATION WORK PERMIT PROGRAM

NEW YORK POWER AUTHORITY
JOB PERFORMANCE MEASURE

S/RO/NLO **SRO** Name: **Emergency Plan Classification and Implementation (Scenario 1)**

REV: 0 DATE: November 2001 NRC K/A **2.4.41 (4.1) Knowledge of the Emergency Action Level Thresholds and Classifications**

JAF TASK NUMBER: 3340103044 JAF QUAL STANDARD NUMBER: 5EOP.110

ESTIMATED COMPLETION TIME: 10 Minutes

SUBMITTED: _____ OPERATION REVIEW: ____

APPROVED: _____

CANDIDATE NAME: _____ S.S. NUMBER: ____

JPM Completion: ( ) Simulated ( ) Performed

Location: ( ) Plant ( ) Simulator

DATE PERFORMED: _____ TIME TO COMPLETE: ____ Minutes

PERFORMANCE EVALUATION: ( ) Satisfactory ( ) Unsatisfactory

COMMENTS: (MANDATORY FOR UNSATISFACTORY PERFORMANCE)

EVALUATOR: _____
SIGNATURE/PRINTED

CANDIDATE REVIEW: _____
SIGNATURE

JOB PERFORMANCE MEASURE
RECORD AND CHECKLIST

Current Update: _____ By: _____
Date Int.

Outstanding Items:

_____ Technical Review _____ Additional Information

_____ Questions and Answers __XX__ Validation

_____ Procedural Change Required _____ None

Comments:

Current Update: _____ By: _____
Date Int.

Previous Revision Dates:

JOB PERFORMANCE MEASURE
REQUIRED TASK INFORMATION

I. SAFETY CONSIDERATIONS

A. None

II. REFERENCES

A. JAF Emergency Plan Implementing Procedures IAP-2, Rev. 20

III. TOOLS AND EQUIPMENT

A. None

IV. SET UP REQUIREMENTS

A. None

V. EVALUATOR NOTES

A. If simulating this task, then inform the candidate that the conditions of each step need only be properly identified and <u>not</u> actually performed.

VI. TASK CONDITIONS

A. See attached plant status sheet

*** - CRITICAL STEP**

PLANT STATUS SHEET – JPM 33401044F

SRO

Emergency Plan Classification and Implementation

Plant conditions existed as follows:

The plant was increasing power from 80% to 100% power when several events occurred.

The following sequence of events occurred:

C APRM fails to respond to power change
Inadvertent MSIV isolation / Scram
Control rod 06-31 fails to scram
SRV-71K inadvertently opens and discharge line breaks above the torus water level.
The Torus will be sprayed one time to reduce Pressure.
Loss of Bus 10500 result in the loss of A & B RHR Pumps
D RHR pump trips after start.
Emergency depressurization based on not being able to maintain torus pressure below pressure suppression pressure limit.

Current conditions are as follows:

The reactor vessel is depressurized with makeup greater than 50 gpm.

VII. INITIATING CUE

Inform the candidate:

> Based on the events that have just occurred determine if the current circumstances warrant classification in accordance with the JAF Emergency Plan and, if so, determine the appropriate classification level.

	STEP	STANDARD	EVALUATION / COMMENT
1.	Obtain a controlled copy of the JAF Emergency Plan Implementing Procedures, section IAP-2.	Obtains a controlled copy of IAP-2	SAT / UNSAT
*2.	Determine the appropriate classification level for the given conditions.	Utilizes Figure IAP-2.1 and the EALs referenced to determine that the event should be classified as: ALERT Based on 3.1.1, primary containment pressure can not be maintained less than 2.7 psig with normal means.	SAT / UNSAT
3.	EVALUATOR: Terminate task at this point		

NEW YORK POWER AUTHORITY
JOB PERFORMANCE MEASURE

S/RO/NLO **SRO** Name: **Emergency Plan Classification and Implementation (Scenario 2)**

REV: 0 DATE: November 2001 NRC K/A **2.4.41 (4.1) Knowledge of the Emergency Action Level Thresholds and Classifications**

JAF TASK NUMBER: 3340103044 JAF QUAL STANDARD NUMBER: 5EOP.110

ESTIMATED COMPLETION TIME: 10 Minutes

SUBMITTED: _____ OPERATION REVIEW: ____

APPROVED: _____

CANDIDATE NAME: _____ S.S. NUMBER: _____

JPM Completion: ( ) Simulated ( ) Performed

Location: ( ) Plant ( ) Simulator

DATE PERFORMED: _____ TIME TO COMPLETE: ____ Minutes

PERFORMANCE EVALUATION: ( ) Satisfactory ( ) Unsatisfactory

COMMENTS: (MANDATORY FOR UNSATISFACTORY PERFORMANCE)

EVALUATOR: _____
SIGNATURE/PRINTED

CANDIDATE REVIEW: _____
SIGNATURE

JOB PERFORMANCE MEASURE
RECORD AND CHECKLIST

Current Update: _____ By: _____
Date Int.

Outstanding Items:

_____ Technical Review _____ Additional Information

_____ Questions and Answers __XX__ Validation

_____ Procedural Change Required _____ None

Comments:

Current Update: _____ By: _____
Date Int.

Previous Revision Dates:

JOB PERFORMANCE MEASURE
REQUIRED TASK INFORMATION

I. SAFETY CONSIDERATIONS

A. None

II. REFERENCES

A. JAF Emergency Plan Implementing Procedures IAP-2, Rev. 20

III. TOOLS AND EQUIPMENT

A. None

IV. SET UP REQUIREMENTS

A. None

V. EVALUATOR NOTES

A. If simulating this task, then inform the candidate that the conditions of each step need only be properly identified and <u>not</u> actually performed.

VI. TASK CONDITIONS

A. See attached plant status sheet

*** - CRITICAL STEP**

PLANT STATUS SHEET – JPM 33401044F

SRO Emergency Plan Classification and Implementation

Plant conditions existed as follows:

The plant is at 90% power and being shutdown for a forced maintenance outage to perform condenser tube cleaning.

The following sequence of events occurred:

Swap running TBCLC pumps.
Power reduction from 95% CTP with Recirculation flow.
Trip of running CRD pump complicated by an HCU trouble alarm.
EHC pump trip. Standby pump start aggravates EHC leak
Turbine trip on loss of EHC
ATWS caused by partial hydraulic lock of both SDV's
Loss of BPV's as EHC goes away

Current conditions are as follows:

1. SLC Injecting
2. Control Rods being inserted with RMCS and/or repeated manual scrams
3. RPV water level being maintained between –19 and the T/P milestone
4. RPV pressure control stable on SRV's and main steam loads

VII. INITIATING CUE

Inform the candidate:

> Based on the events that have just occurred determine if the event warrant classification in accordance with the JAF Emergency Plan and, if so, determine the appropriate classification level.

	STEP	STANDARD	EVALUATION / COMMENT
1.	Obtain a controlled copy of the JAF Emergency Plan Implementing Procedures, section IAP-2.	Obtains a controlled copy of IAP-2	SAT / UNSAT
*2.	Determine the appropriate classification level for the given conditions.	Utilizes Figure IAP-2.1 and the EALs referenced to determine that the event should be classified as a SITE AREA because the highest classification must be used. SITE AREA 2.2.2, Automatic and manual scram was not successful and reactor power is greater than 2.5%	SAT / UNSAT
3.	EVALUATOR: Terminate task at this point		