

30-302

CRYSTAL RIVER 99-301 -- FEBRUARY 1999
INITIAL SUBMITTAL -- JPMS

DISTRIBUTION CODE
A070

Administrative Topics Outline

Facility: <u>Crystal River Unit 3</u>		Date of Examination: <u>2-8-99</u>
Exam Level: <u>RO</u>		Operating Test No. :
Administrative Topic/Subject Description		Describe method of evaluation: 1. ONE Administrative JPM, OR 2. TWO Administrative Questions
A1	Plant Parameter Verification	JPM - Perform a heat balance, SP-312A, Daily Heat Balance Power Comparison//015A1.01//3.5
	Fuel Handling	Question 1: Given the count rates from the two (2) source range instruments during refueling, what actions, if any, should be taken?//2.2.30//3.5 Question 2: Given conditions which includes Auxiliary Building fan operation and Radiation Monitor operability, what actions, if any, should be taken?//2.2.30//3.5
A2	Surveillance Testing	JPM – Perform the pump seal data sheet in SP-300, Operating Daily Surveillance Log//003A4.04//3.1
A3	Radiation Hazards (Surveys)	Question 1: Using a survey map, what are the existing conditions at a particular location in the Auxiliary Building?//2.3.2//2.5
		Question 2: Given conditions in a radiation control area, what is the proper posting?//2.3.1//2.6
A4	Emergency Dose Assessment	JPM – Perform and EM-204A, Off-Site Dose Assessments during Radiological Emergencies Initial Assessment Method//2.4.39//3.3

**REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE**

JPM A1A/ADMINISTRATIVE

Perform a Daily Heat Balance Power Comparison,
SP-312A

CANDIDATE _____

EXAMINER _____

PREPARED/
REVISED BY: *Melissa Belkin* Date/ 12-17-98

VALIDATED BY: * *D. Jones* Date/ 12-17-98

APPROVED BY: *F. W. Young* Date/ 12-18-98
(Operations Training Manager)

CONCURRED: ** _____ Date/ _____
(Operations Representative)

* Validation not required for minor enhancements, procedure Rev changes that do not affect the JPM, or individual step changes that do not affect the flow of the JPM.

** Operations Concurrence required for new JPMs and changes that affect the flow of the JPM (if not driven by a procedure revision).

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:

Perform a Daily Heat Balance Power Comparison, SP-312A.

Alternate Path:

N/A

Facility JPM #:

Requal JPM

K/ARating(s)/Task Number/AO, RO, SRO:

015A1.01//3.5/3.8//0150202003//RO, SRO

Task Standard:

Perform a Daily Heat Balance Power Comparison, SP-312A.

Preferred Evaluation Method:

Simulator _____ In-Plant _____

References:

SP-312A

Validation Time: 20 min.

Time Critical: NO

Candidate: _____

NAME

Time Start: _____

Performance Rating: SAT _____ UNSAT _____ Performance Time _____

Examiner: _____ / _____

NAME

SIGNATURE

DATE

COMMENTS

SIMULATOR OPERATOR INSTRUCTIONS:

N/A

Tools/Equipment/Procedures Needed:

SP-312A

READ TO OPERATORDIRECTIONS TO TRAINEE:

I will explain the initial conditions, and state the task to be performed. All in-plant steps, including any required communications, shall be simulated for this JPM. Under no circumstances are you to operate any plant equipment. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

You are the Reactor Operator.
The plant is at full power.
SP-312A is being done to comply with the daily 0200 requirements.
The Tag Status Verification Sheet has been completed, all instruments are within their allowable calibration frequency.
The plant has been at steady state conditions for > 15 minutes.
The plant computer is operable.
There are no computer points on the deleted point summary.
Control Console NI power is as follows: NI-5 101; NI-6 100; NI-7 101; NI-8 100.

INITIATING CUES:

You are requested to perform Enclosure 1 of SP-312A (Group 59 is attached).

START TIME: _____ Shaded Block Indicates Critical Step

<p><u>STEP 1:</u> Obtain a copy of appropriate procedure.</p> <p><u>STANDARD:</u> Operator obtains a copy of SP-312A.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 2:</u> IF a heat balance point is found on the "Deleted Point Summary", THEN the point may be returned to scan to determine operability, OR NPTS or Reactor Engineering may be contacted to determine operability.</p> <p><u>STANDARD:</u> N/A, see initial conditions.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 3:</u> Using Group 59 and initial condition information complete Enclosure 1.</p> <p><u>STANDARD:</u> Operator records values on Enclosure 1 from Group 59 and information provided in initial conditions.</p> <p><u>COMMENTS:</u></p> <p style="text-align: center;">END of TASK</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

STOP TIME: _____

CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

You are the Reactor Operator.
The plant is at full power.
SP-312A is being done to comply with the daily 0200 requirements.
The Tag Status Verification Sheet has been completed, all instruments are within their allowable calibration frequency.
The plant has been at steady state conditions for > 15 minutes.
The plant computer is operable.
There are no computer points on the deleted point summary.
Control Console NI power is as follows: NI-5 101; NI-6 100; NI-7 101; NI-8 100.

INITIATING CUES:

You are requested to perform Enclosure 1 of SP-312A (Group 59 is attached).

DAILY NI POWER TO HEAT BALANCE POWER COMPARISON

ENCLOSURE 1

Performance of this enclosure to meet the daily requirement should be as close to 0200 hrs as is reasonably possible. If it is performed early, or delayed, by more than 2 hours the NSM/NSS should refer to the completion time recorded for the last prior performance to determine the allowable window.

A		B	C	COMPARISON	
Heat Balance Power	<u>Detector</u>	NI Power	Control Console NI Power	Heat Balance (A) - NI Power (B) = (D)	
99.87 % RTP	NI-5	<u>100.88</u>	<u>101</u>	<u>99.87</u> - <u>100.88</u> = <u>-1.01</u>	1. IF (D) < 0.8% RTP, THEN (D) is acceptable.
Method Used (✓):	NI-6	<u>100.70</u>	<u>100</u>	<u>99.87</u> - <u>100.70</u> = <u>-0.83</u>	2. IF 0.8% RTP ≤ (D) ≤ 2.0% RTP, THEN refer to Step 5.2.2.
Group 59	NI-7	<u>100.76</u>	<u>101</u>	<u>99.87</u> - <u>100.76</u> = <u>-0.89</u>	3. IF (D) > 2.0% RTP, THEN refer to Step 5.2.1.
SP-312D	NI-8	<u>100.76</u>	<u>100</u>	<u>99.87</u> - <u>100.76</u> = <u>-0.89</u>	

NI Power - Heat Balance	Comparison (Control Console) NI Power - NI Power	(Control Console) NI Power - Heat Balance
(B) - (A) = (E)	(C) - (B) = (F)	(C) - (A) = (G)
NI-5 <u>100.88</u> - <u>99.87</u> = <u>1.01</u>	<u>101</u> - <u>100.88</u> = <u>0.12</u>	<u>101</u> - <u>99.87</u> = <u>1.13</u>
NI-6 <u>100.70</u> - <u>99.87</u> = <u>0.83</u>	<u>100</u> - <u>100.70</u> = <u>-0.7</u>	<u>100</u> - <u>99.87</u> = <u>0.13</u>
NI-7 <u>100.76</u> - <u>99.87</u> = <u>0.89</u>	<u>101</u> - <u>100.76</u> = <u>0.24</u>	<u>101</u> - <u>99.87</u> = <u>1.13</u>
NI-8 <u>100.76</u> - <u>99.87</u> = <u>0.89</u>	<u>100</u> - <u>100.76</u> = <u>-0.76</u>	<u>100</u> - <u>99.87</u> = <u>0.13</u>
IF (E) > 2.0% RTP, THEN refer to Step 5.2.3.	IF |(F)| > 5.0% RTP, THEN refer to Step 5.2.4.	IF |(G)| > 5.0% RTP, THEN refer to Step 5.2.5.

Computer groups 59 and 7 attached? Yes No (circle one)

Performed By: [Signature] Date: 10-29-98 Time: 0221
 Verified By: [Signature] Date: 10-29-98 Time: 0240

A1 (RO) QUESTION #1

Question: While inserting a fuel assembly into the core the count rates from the two (2) source range instruments changed as follows:

Instrument	Base Count Rate	Current Count Rate
#1	17	21
#2	32	49

What actions, if any, should be taken?

Answer: Withdraw the fuel assembly in question; immediately cease all other core alterations; perform subcritical multiplication steps 4.5.7 through 4.5.9 of FP-203; and obtain a boron analysis of the Reactor Coolant.

CANDIDATE'S RESPONSE

K/A Rating:
2.2.30//3.5

References:
FP-203

A1 (RO) QUESTION #1
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)

Question:

While inserting a fuel assembly into the core the count rates from the two (2) source range instruments changed as follows:

Instrument	Base Count Rate	Current Count Rate
#1	17	21
#2	32	49

What actions, if any, should be taken?

A1 (RO) QUESTION #2

Question: During Refueling operations the following plant conditions exist:

RM-G13 is inoperable.
RM-G14 is inoperable.
RM-G16 is in High alarm.
The Purge is in progress.

What action, if any, should be taken to continue refueling?

Answer: Meet the requirements of RM-G13 and RM-G14 with continuous HP coverage and an alarming dosimeter stationed in the affected areas (Decontamination Pit Area and Auxiliary Building Fuel Storage Pool). Secure the Containment Purge System and verify AHV-1A, AHV-1B, AHV-1C and AHV-1D are closed.

CANDIDATE'S RESPONSE

K/A Rating:
2.2.30//3.5

References:
FP-203

A1 (RO) QUESTION #2
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)

Question:

During Refueling operations the following plant conditions exist:

RM-G13 is inoperable.

RM-G14 is inoperable.

RM-G16 is in High alarm.

The Purge is in progress.

What action, if any, should be taken to continue refueling?

**REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE**

JPM A2R/ADMINISTRATIVE

Perform RC Pump Seal Data Sheet

CANDIDATE _____

EXAMINER _____

PREPARED/
REVISED BY: *Michelle Gallin* Date/ 12-17-98

VALIDATED BY: * *D. Jones* Date/ 12-17-98

APPROVED BY: *R. W. Young* Date/ 12-18-98
(Operations Training Manager)

CONCURRED: ** *[Signature]* Date/ 12-18-98
(Operations Representative)

* Validation not required for minor enhancements, procedure Rev changes that do not affect the JPM, or individual step changes that do not affect the flow of the JPM.

** Operations Concurrence required for new JPMs and changes that affect the flow of the JPM (if not driven by a procedure revision).

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:
Perform RC Pump Seal Data Sheet.

Alternate Path:
N/A

Facility JPM #:
New

K/ARating(s)/Task Number/AO, RO, SRO:
003A4.04//3.1//1150202001//RO

Task Standard:
Perform RC Pump Seal Data Sheet, SP-300 Enclosure 2.

Preferred Evaluation Method:
Simulator _____ In-Plant _____

References:
SP-300

Validation Time: 20 min. Time Critical: NO

Candidate: _____ Time Start: _____
NAME

Performance Rating: SAT _____ UNSAT _____ Performance Time _____

Examiner: _____ / _____
NAME SIGNATURE DATE

COMMENTS

SIMULATOR OPERATOR INSTRUCTIONS:

N/A

Tools/Equipment/Procedures Needed:

SP-300

READ TO OPERATORDIRECTIONS TO TRAINEE:

I will explain the initial conditions, and state the task to be performed. All in-plant steps, including any required communications, shall be simulated for this JPM. Under no circumstances are you to operate any plant equipment. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

You are the Reactor Operator.
The plant is at 100% rated thermal power.
Attached information sheet.

INITIATING CUES:

You are requested to complete the RC Pump Seal Data Sheet.

START TIME: _____ Shaded Block Indicates Critical Step

<p><u>STEP 1:</u> Obtain a copy of appropriate procedure.</p> <p><u>STANDARD:</u> Operator obtains a copy of SP-300, Enclosure 2.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 2:</u> Using supplied information sheet, complete Enclosure 2, page 4 of 12.</p> <p><u>STANDARD:</u> Operator uses information sheet to complete the RC Pump Seal Data Sheet.</p> <p>EXAMINER'S CUE: Computer points X922, X923, X924 and X925 are not available; use calculated CBO (Controlled Bleed-off) flow figure.</p> <p>EXAMINER'S NOTE: Rounding may cause slight variations between operator and key.</p> <p><u>COMMENTS:</u></p> <p style="text-align: center;">END of TASK</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

STOP TIME: _____

CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

You are the Reactor Operator.
The plant is at 100% rated thermal power.
Attached information sheet.

INITIATING CUES:

You are requested to complete the RC Pump Seal Data Sheet.

Reactor Inlet Temperature (R730) 557 °F

Date _____

RC System Pressure (R724) 2160 psig

Reactor Power (N766) 100 %

MUT Temperature 108 °F

RC PUMP	A	B	C	D	COMMENTS
RC RUNNING (✓)	✓	✓	✓	✓	
3rd Stage Seal Pressure	706	718	731	712	
2nd Stage Seal Pressure	1418	1431	1425	1450	
Seal Leak-Off Flow					
End Count/Time: <u>1200</u>	110	92	86	120	
Beginning Count/Time: <u>0800</u>	0	0	0	0	
Difference					
○ Time (4 hrs., nominal; convert time to minutes)					
Conversion Factor	.25	.24	.24	.25	
Leakage = $\frac{\text{Conversion Factor} \times \text{Difference}}{\text{○ Time in Min.}}$ - .05					
Seal Injection Flow	9.5	9.5	9.7	9.5	
Control Bleed-off Flow Rate* (X922, X923, X924, X925)					
Component Cooling Water Temp.	76	X	X	X	
3rd Stage Seal Temperature (X383, X386, X389, X392)	116	115	116	117	

*Sum of controlled leakage \leq 12 gpm.
(Calculated CBO Flow figure may be used as backup)

Data Taken By _____

COMMENTS:

OPERATING DAILY SURVEILLANCE LOG

SPECIAL SURVEILLANCES ENCLOSURE
RC PUMP SEAL DATA SHEET

ENCLOSURE 2
(Page 4 of 12)

Reactor Inlet Temperature (R730) 557 °F

RC System Pressure (R724) 2160 psig

Reactor Power (N766) 100 %

MUT Temperature 108 °F

Date _____

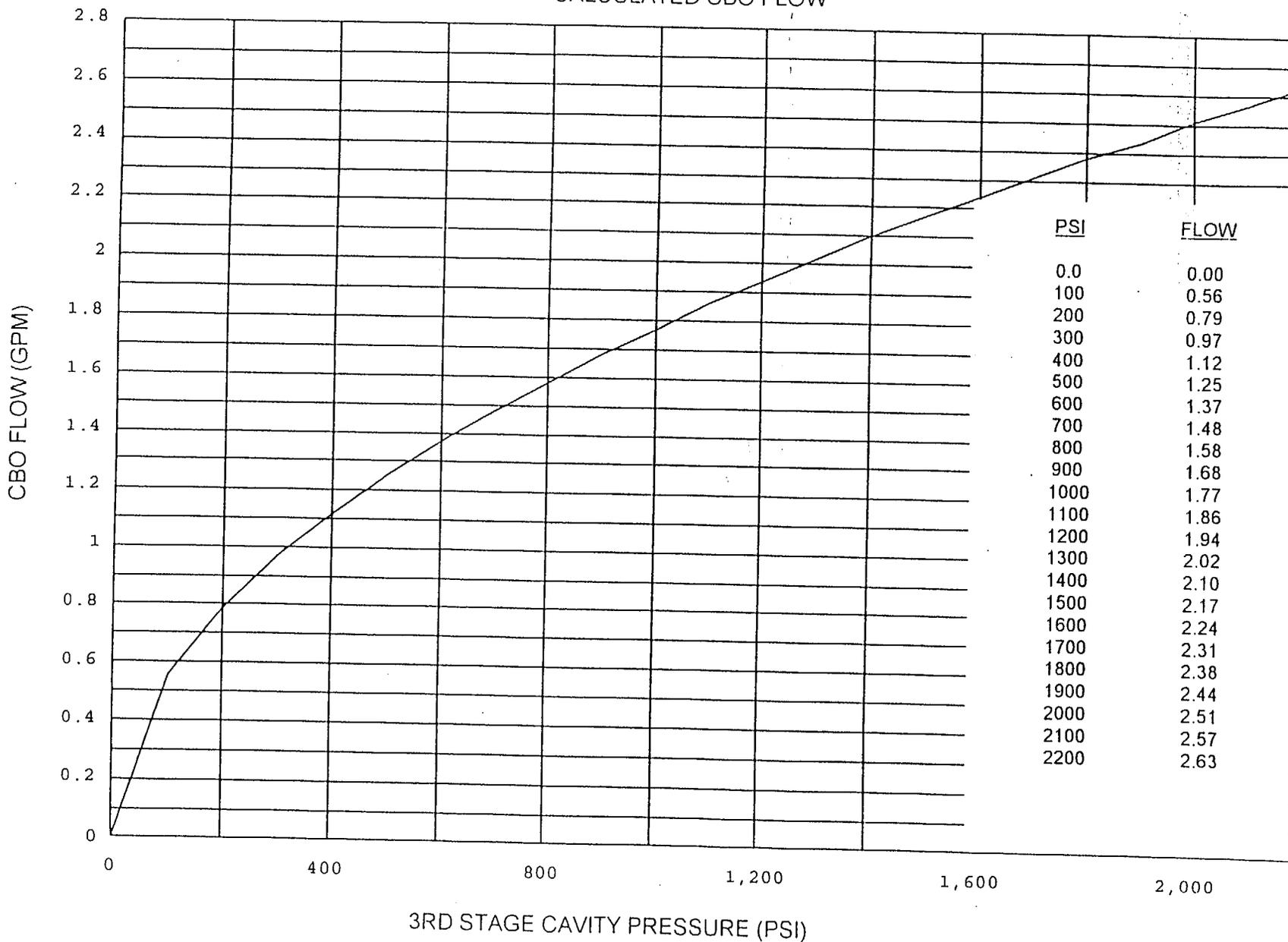
RC PUMP	A	B	C	D	COMMENTS
RC RUNNING (✓)	✓	✓	✓	✓	
3rd Stage Seal Pressure	706	718	731	712	
2nd Stage Seal Pressure	1418	1431	1425	1450	
Seal Leak-Off Flow					
End Count/Time: <u>1200</u>	110	92	86	120	
Beginning Count/Time: <u>0800</u>	0	0	0	0	
Difference	110	92	86	120	
○ Time (4 hrs., nominal; convert time to minutes)	240	240	240	240	
Conversion Factor	.25	.24	.24	.25	
Leakage = $\frac{\text{Conversion Factor} \times \text{Difference}}{\text{○ Time in Min.}}$ - .05 (gpm)	0.06	0.04	0.04	0.08	
Seal Injection Flow	9.5	9.5	9.7	9.5	
Control Bleed-off Flow Rate* (X922, X923, X924, X925)	1.5	1.5	1.5	1.5	
Component Cooling Water Temp.	76	X	X	X	
3rd Stage Seal Temperature (X383, X386, X389, X392)	116	115	116	117	

*Sum of controlled leakage \leq 12 gpm.
(Calculated CBO Flow figure may be used as backup)

Data Taken By _____

COMMENTS:

CALCULATED CBO FLOW



A3 (RO) QUESTION #1

Question: Using a survey map, what are the existing conditions at the Block Orifice?

Answer: Outside the barrier from the block orifice the dose is 25mR/hr; the contact reading is 140 mR/hr.

CANDIDATE'S RESPONSE

K/A Rating:
2.3.2//2.5

References:
Survey map

A3 (RO) QUESTION #1
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)

Question:

Using a survey map, what are the existing conditions at the Block Orifice?

A3 (RO) QUESTION #2

Question: Using survey map, #98-10-183, what sample points, if any, constitute a High Radiation Area?

Answer: Sample point 30.

CANDIDATE'S RESPONSE

K/A Rating:
2.3.2//2.5

References:
Survey map

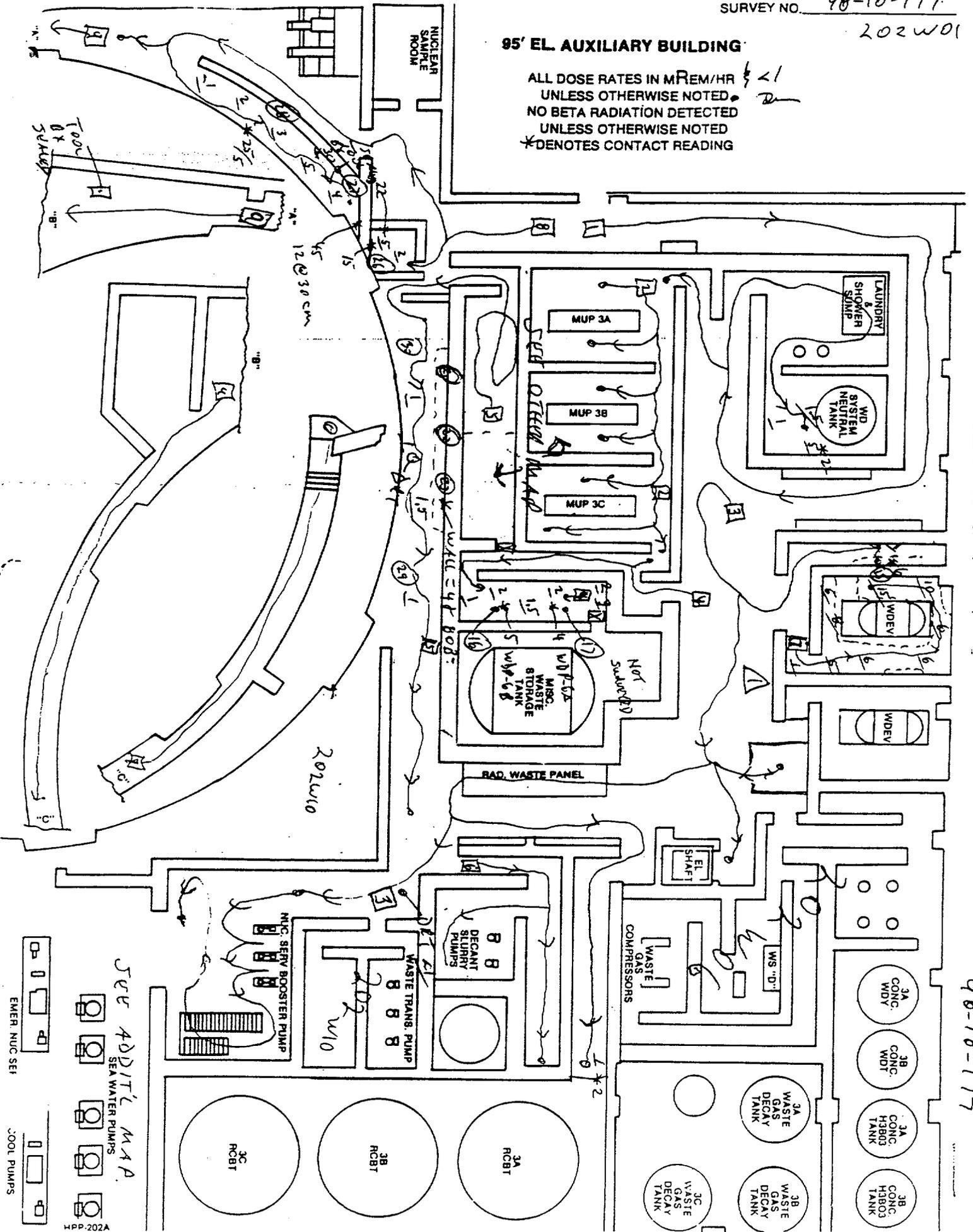
A3 (RO) QUESTION #2
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)

Question:

Using survey map, #98-10-183, what sample points, if any, constitute a High Radiation Area?

95' EL. AUXILIARY BUILDING

ALL DOSE RATES IN mREM/HR ≤ 1
 UNLESS OTHERWISE NOTED
 NO BETA RADIATION DETECTED
 UNLESS OTHERWISE NOTED
 *DENOTES CONTACT READING



98-10-177

SURVEY NO. 98-10-183
202 W02

119' EL. AUXILIARY BUILDING
 SPENT FUEL COOLANT PUMPS

NOTE:

SCALE 1/8" = 1'-0"

⊕ : FLOOR DRAIN

⊞ : ELECTRICAL OUTLET

PERSONNEL HATCH

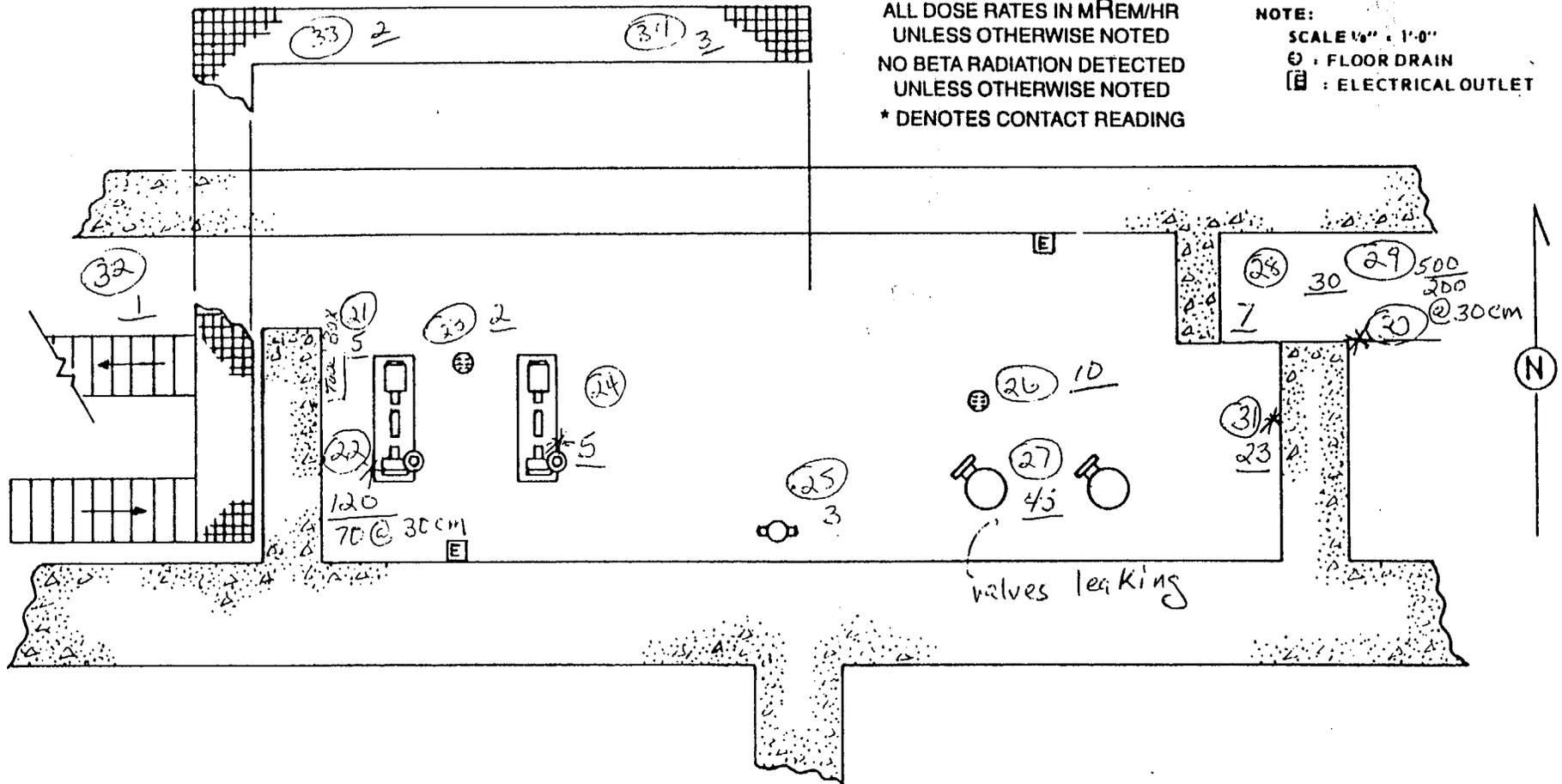
ALL DOSE RATES IN MREM/HR
 UNLESS OTHERWISE NOTED
 NO BETA RADIATION DETECTED
 UNLESS OTHERWISE NOTED
 * DENOTES CONTACT READING

NOTE:

SCALE 1/8" = 1'-0"

⊕ : FLOOR DRAIN

⊞ : ELECTRICAL OUTLET



**95' EL. AUXILIARY BUILDING
TRIANGLE ROOM**

NOTE:

SCALE 1/4" = 1'-0"

⊙ = FLOOR DRAIN

□ = ELECTRICAL OUTLET

ALL DOSE RATES IN mREM/HR

UNLESS OTHERWISE NOTED

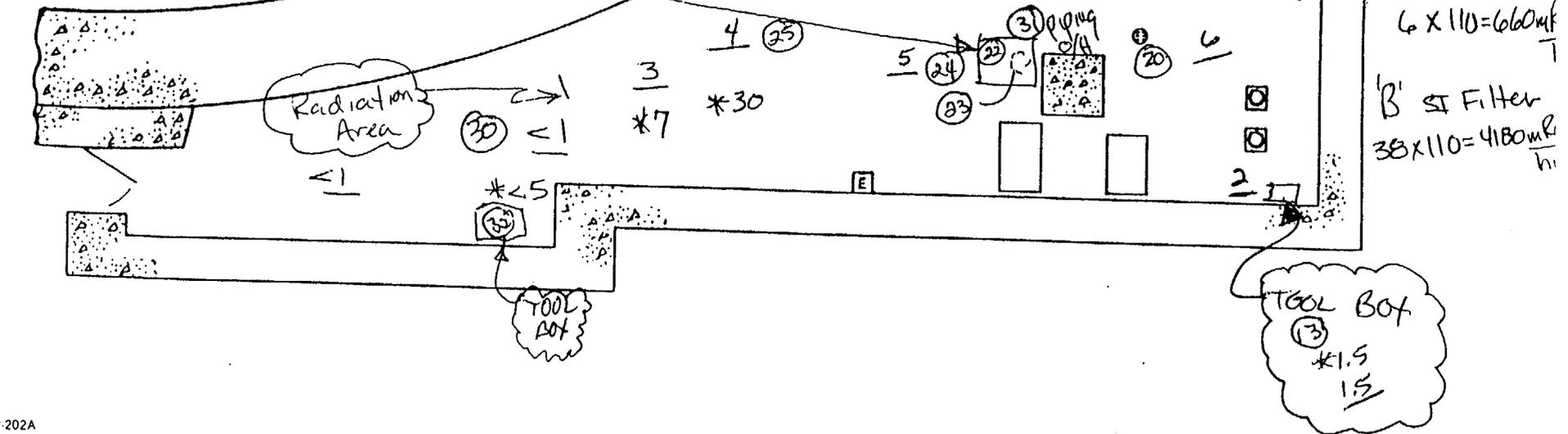
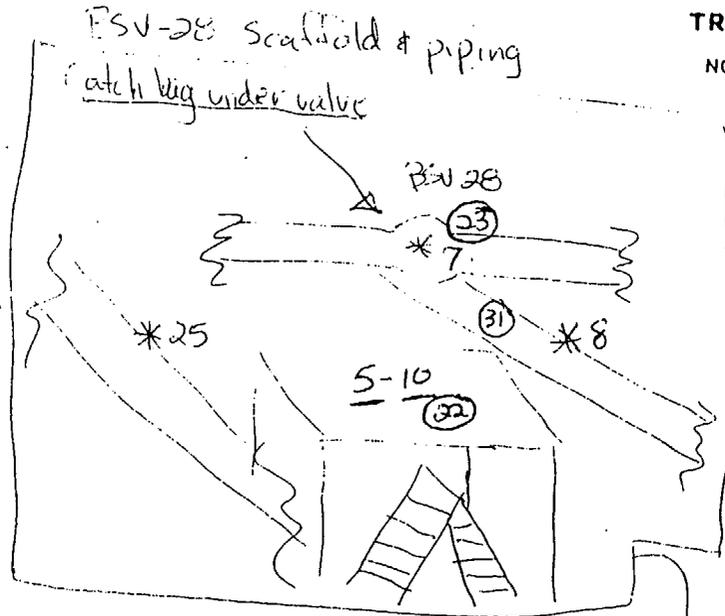
NO BETA RADIATION DETECTED

UNLESS OTHERWISE NOTED

* DENOTES CONTACT READING

HL = Head Level

CA = Contaminated Area





SURVEY NO. 98-10-0172

119' EL. AUXILIARY BUILDING

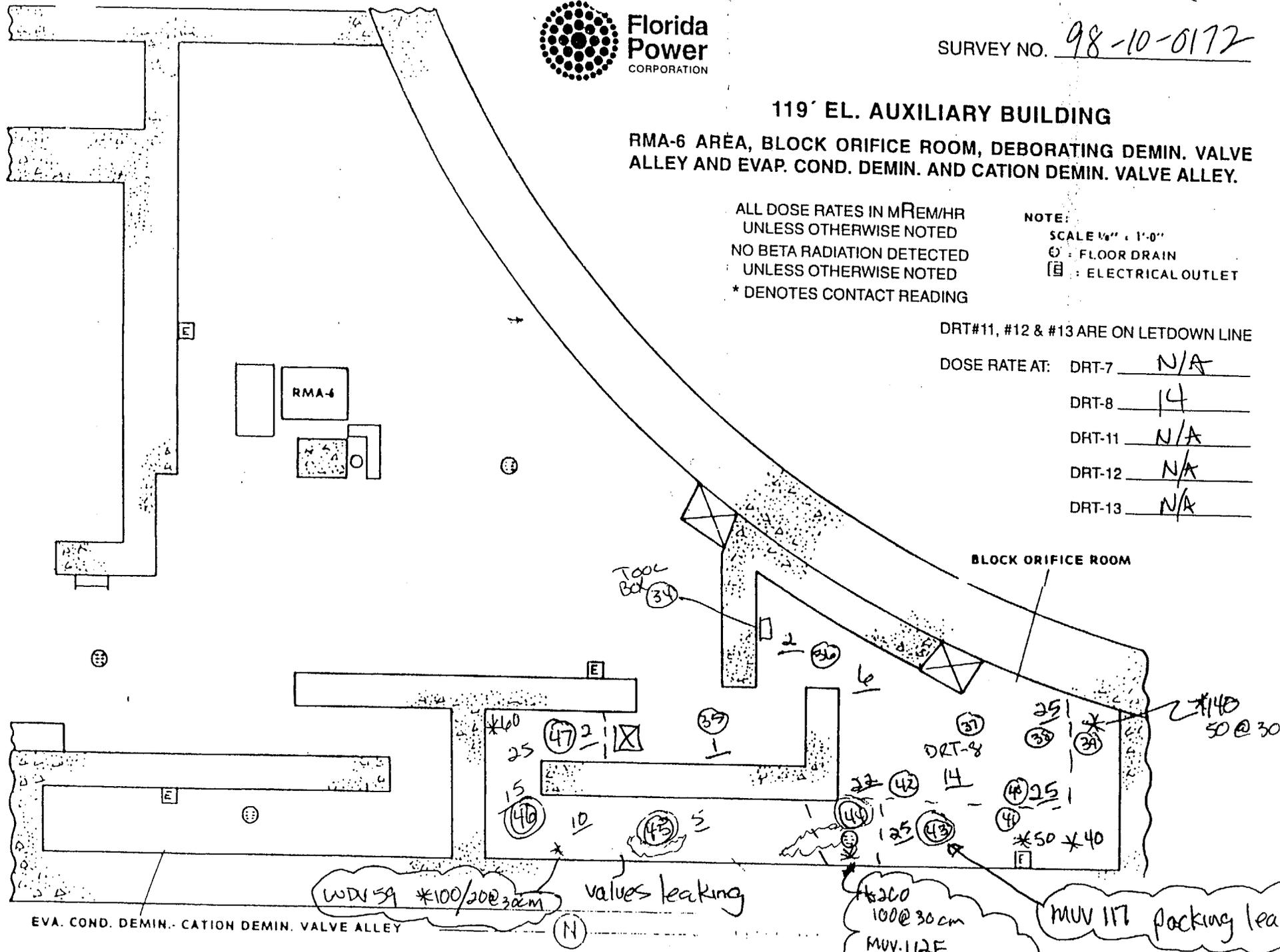
RMA-6 AREA, BLOCK ORIFICE ROOM, DEBORATING DEMIN. VALVE ALLEY AND EVAP. COND. DEMIN. AND CATION DEMIN. VALVE ALLEY.

ALL DOSE RATES IN mRem/HR
 UNLESS OTHERWISE NOTED
 NO BETA RADIATION DETECTED
 UNLESS OTHERWISE NOTED
 * DENOTES CONTACT READING

NOTE:
 SCALE 1/4" = 1'-0"
 ⊙ : FLOOR DRAIN
 ⊞ : ELECTRICAL OUTLET

DRT#11, #12 & #13 ARE ON LETDOWN LINE

DOSE RATE AT:	DRT-7	<u>N/A</u>
	DRT-8	<u>14</u>
	DRT-11	<u>N/A</u>
	DRT-12	<u>N/A</u>
	DRT-13	<u>N/A</u>



**REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE**

JPM A4R/ADMINISTRATIVE

Complete an Off-Site Dose Assessment During
Radiological Emergencies (Control Room Method)

CANDIDATE _____

EXAMINER _____

PREPARED/
REVISED BY: Robert Kelton Date/ 12-17-98

VALIDATED BY: * D. Jones Date/ 12-17-98

APPROVED BY: H. Wang Date/ 12-18-98
(Operations Training Manager)

CONCURRED: ** _____ Date/ _____
(Operations Representative)

* Validation not required for minor enhancements, procedure
Rev changes that do not affect the JPM, or individual step
changes that do not affect the flow of the JPM.

** Operations Concurrence required for new JPMs and changes
that affect the flow of the JPM (if not driven by a procedure
revision).

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:

Complete an Off-Site Dose Assessment during Radiological
Emergencies (Control Room Method).

Alternate Path:

N/A

Facility JPM #:

122 Modified

K/ARating(s)/Task Number/AO, RO, SRO:

2.4.39//3.3//1150402007//RO, SRO

Task Standard:

Complete an Off-Site Dose Assessment during Radiological
Emergencies (Control Room Method), EM-204A.

Preferred Evaluation Method:

Simulator _____ In-Plant _____

References:

EM-204A

Validation Time: 15 min.

Time Critical: YES

Candidate: _____
NAME

Time Start: _____

Performance Rating: SAT _____ UNSAT _____ Performance Time _____

Examiner: _____ / _____
NAME SIGNATURE DATE

COMMENTS

SIMULATOR OPERATOR INSTRUCTIONS:

N/A

Tools/Equipment/Procedures Needed:

EM-204A

READ TO OPERATOR

DIRECTIONS TO TRAINEE:

I will explain the initial conditions, and state the task to be performed. All in-plant steps, including any required communications, shall be simulated for this JPM. Under no circumstances are you to operate any plant equipment. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

You are the Reactor Operator.
A LOCA is in progress.

INITIATING CUES:

You are requested to perform EM-204A using the provided information sheet.

START TIME: _____ Shaded Block Indicates Critical Step

<p><u>STEP 1:</u> Obtain a copy of appropriate procedure.</p> <p><u>STANDARD:</u> Operator obtains a copy of EM-204A.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 2:</u> Using supplied information sheet, complete Enclosure 1.</p> <p><u>STANDARD:</u> Operator uses information sheet to complete the EM-204A Enclosure 1.</p> <p><u>COMMENTS:</u></p> <p>END of TASK</p>	<p>____ SAT</p> <p>____ UNSAT</p>

STOP TIME: _____

CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

You are the Reactor Operator.
A LOCA is in progress.

INITIATING CUES:

You are requested to perform EM-204A using the provided
information sheet.

DATA SHEET

STEP #	RAD AND MET MONITOR DATA			STATE NOT. FORM
4.1.1	RM-A2 LOW RANGE GAS CHANNEL	200 K	CPM	
or 4.1.2	RM-A2 MID-RANGE GAS CHANNEL		MR/HR	
4.2.1	TEMPERATURE		° F *	
or 4.2.2	SIGMA-THETA (33')	24.3	DEGREES **	
4.2.3	WIND FROM (33')	270	DEGREES *	II.A
4.2.4	WIND SPEED (33')	4.1	M/SEC	II.C mph = m/sec x 2.24
4.2.5	STABILITY CLASS			II.D
* 15 minute average from chart recorder on meteorological panel ** Meter displays a rolling 15 minute average				

DATA SHEET

STEP#	SITE BOUNDARY DOSE INFORMATION			STATE NOT. FORM
4.3.1 or 4.3.2	DDE mR/HR	THYROID mR/HR	TEDE mR/HR	
	2.1 E-01	6.3 E-01	2.3 E-01	
4.4.1	DOSE RATE CORRECTED FOR WIND SPEED = (mR/HR ÷ M/SEC)			10
	DDE mR/HR	THYROID mR/HR	TEDE mR/HR	
	0.05	0.15	0.06	
	Enter on State Form		Enter on State Form	
4.5.1	PROJECTED RELEASE DURATION _____ HOURS. (If duration can't be estimated, assume 1 hour.)			7.C,D
4.5.2	DOSE = (CORRECTED DOSE RATE X DURATION HOURS)			
	DDE mR	THYROID mR	TEDE mR	
	0.05	0.15	0.06	
4.6.1	NOBLE GAS CI/SEC	IODINE CI/SEC		8.A,B
	2.1 E-01	4.3 E-05		
4.6.2	AFFECTED SECTORS <u>D</u> , <u>E</u> , <u>F</u> , _____ (three minimum)			11.B
4.7.1	Performed by _____ Date/Time _____			
4.7.2	Emergency Coordinator _____ Date/Time _____			

Administrative Topics Outline

Facility: <u>Crystal River Unit 3</u>		Date of Examination: <u>2-8-99</u>
Exam Level: <u>SRO</u>		Operating Test No. :
Administrative Topic/Subject Description		Describe method of evaluation: 1. ONE Administrative JPM, OR 2. TWO Administrative Questions
A1	Plant Parameter Verification	JPM - Perform a heat balance, SP-312A Daily Heat Balance Power Comparison//015A1.01//3.8
	Key Control	JPM - A new valve has been installed; using CP-123, Restrained Components and Key Control, and flow diagrams, determine if the new valve meets the criteria for being locked/sealed//2.1.30//3.4
A2	Surveillance Testing	JPM – Review a completed SP-320, Operability of Boron Injection Sources and Pumps, for accuracy for transmittal //2.2.12//3.4
A3	Reportable Limits	JPM - Given certain radiation conditions use CP-151, External Reporting Requirements, and NOD-3, Reporting Requirement Program, to determine notifications //2.3.1//3.0
A4	Emergency PAR	JPM – Determine Emergency Action Level and Protective Action Recommendation for a given set of conditions //2.4.41//4.1 and 2.4.44//4.0

**REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE**

JPM A1A/ADMINISTRATIVE

Perform a Daily Heat Balance Power Comparison,
SP-312A

CANDIDATE _____

EXAMINER _____

PREPARED/
REVISED BY: *Michelle Pelletier* Date/ 12-17-98

VALIDATED BY: * *D. Jones* Date/ 12-17-98

APPROVED BY: *F. Wang* Date/ 12-18-98
(Operations Training Manager)

CONCURRED: ** _____ Date/ _____
(Operations Representative)

* Validation not required for minor enhancements, procedure Rev changes that do not affect the JPM, or individual step changes that do not affect the flow of the JPM.

** Operations Concurrence required for new JPMs and changes that affect the flow of the JPM (if not driven by a procedure revision).

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:

Perform a Daily Heat Balance Power Comparison, SP-312A.

Alternate Path:

N/A

Facility JPM #:

Requal JPM

K/ARating(s)/Task Number/AO, RO, SRO:

015A1.01//3.5/3.8//0150202003//RO, SRO

Task Standard:

Perform a Daily Heat Balance Power Comparison, SP-312A.

Preferred Evaluation Method:

Simulator _____ In-Plant _____

References:

SP-312A

Validation Time: 20 min.

Time Critical: NO

Candidate: _____
NAME

Time Start: _____

Performance Rating: SAT ____ UNSAT ____ Performance Time _____

Examiner: _____ / _____
NAME SIGNATURE DATE

COMMENTS

SIMULATOR OPERATOR INSTRUCTIONS:

N/A

Tools/Equipment/Procedures Needed:

SP-312A

READ TO OPERATORDIRECTIONS TO TRAINEE:

I will explain the initial conditions, and state the task to be performed. All in-plant steps, including any required communications, shall be simulated for this JPM. Under no circumstances are you to operate any plant equipment. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

You are the Reactor Operator.
The plant is at full power.
SP-312A is being done to comply with the daily 0200 requirements.
The Tag Status Verification Sheet has been completed, all instruments are within their allowable calibration frequency.
The plant has been at steady state conditions for > 15 minutes.
The plant computer is operable.
There are no computer points on the deleted point summary.
Control Console NI power is as follows: NI-5 101; NI-6 100; NI-7 101; NI-8 100.

INITIATING CUES:

You are requested to perform Enclosure 1 of SP-312A (Group 59 is attached).

START TIME: _____ Shaded Block Indicates Critical Step

<p><u>STEP 1:</u> Obtain a copy of appropriate procedure.</p> <p><u>STANDARD:</u> Operator obtains a copy of SP-312A.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 2:</u> IF a heat balance point is found on the "Deleted Point Summary", THEN the point may be returned to scan to determine operability, OR NPTS or Reactor Engineering may be contacted to determine operability.</p> <p><u>STANDARD:</u> N/A, see initial conditions.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 3:</u> Using Group 59 and initial condition information complete Enclosure 1.</p> <p><u>STANDARD:</u> Operator records values on Enclosure 1 from Group 59 and information provided in initial conditions.</p> <p><u>COMMENTS:</u></p> <p style="text-align: center;">END of TASK</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

STOP TIME: _____

CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

You are the Reactor Operator.
The plant is at full power.
SP-312A is being done to comply with the daily 0200 requirements.
The Tag Status Verification Sheet has been completed, all instruments are within their allowable calibration frequency.
The plant has been at steady state conditions for > 15 minutes.
The plant computer is operable.
There are no computer points on the deleted point summary.
Control Console NI power is as follows: NI-5 101; NI-6 100; NI-7 101; NI-8 100.

INITIATING CUES:

You are requested to perform Enclosure 1 of SP-312A (Group 59 is attached).

DAILY NI POWER TO HEAT BALANCE POWER COMPARISON

ENCLOSURE 1

Performance of this enclosure to meet the daily requirement should be as close to 0200 hrs as is reasonably possible. If it is performed early, or delayed, by more than 2 hours the NSM/NSS should refer to the completion time recorded for the last prior performance to determine the allowable window.

A		B	C	COMPARISON		
Heat Balance Power	Detector	NI Power	Control Console NI Power	Heat Balance (A)	- NI Power (B) = (D)	
99.87 % RTP	NI-5	<u>100.88</u>	<u>101</u>	99.87	- 100.88 = -1.01	1. IF (D) < 0.8% RTP, THEN (D) is acceptable.
Method Used (✓):	NI-6	<u>100.70</u>	<u>100</u>	99.87	- 100.70 = -0.83	2. IF 0.8% RTP ≤ (D) ≤ 2.0% RTP, THEN refer to Step 5.2.2.
Group 59 (✓)	NI-7	<u>100.76</u>	<u>101</u>	99.87	- 100.76 = -0.89	3. IF (D) > 2.0% RTP, THEN refer to Step 5.2.1.
SP-312D	NI-8	<u>100.76</u>	<u>100</u>	99.87	- 100.76 = -0.89	

NI Power - Heat Balance	Comparison (Control Console) NI Power - NI Power	(Control Console) NI Power - Heat Balance
(B) - (A) = (E)	(C) - (B) = (F)	(C) - (A) = (G)
NI-5 <u>100.88</u> - <u>99.87</u> = <u>1.01</u>	<u>101</u> - <u>100.88</u> = <u>0.12</u>	<u>101</u> - <u>99.87</u> = <u>1.13</u>
NI-6 <u>100.70</u> - <u>99.87</u> = <u>0.83</u>	<u>100</u> - <u>100.70</u> = <u>-0.7</u>	<u>100</u> - <u>99.87</u> = <u>0.13</u>
NI-7 <u>100.76</u> - <u>99.87</u> = <u>0.89</u>	<u>101</u> - <u>100.76</u> = <u>0.24</u>	<u>101</u> - <u>99.87</u> = <u>1.13</u>
NI-8 <u>100.76</u> - <u>99.87</u> = <u>0.89</u>	<u>100</u> - <u>100.76</u> = <u>-0.76</u>	<u>100</u> - <u>99.87</u> = <u>0.13</u>
IF (E) > 2.0% RTP, THEN refer to Step 5.2.3.	IF |(F)| > 5.0% RTP, THEN refer to Step 5.2.4.	IF |(G)| > 5.0% RTP, THEN refer to Step 5.2.5.

Computer groups 59 and 7 attached? Yes No (circle one)

Performed By: [Signature]

Date: 10-29-98

Time: 0221

Verified By: [Signature]

Date: 10-29-98

Time: 0240

*

98 ~~10-29-98~~ 10-29-98

10/29/98 GROUP 59 REACTOR CORE PARAMETERS 2:18:00 AM

CORE POWER IMBALANCE = TOP - BOTTOM, % FP

	INCORE	NI-5	NI-6	NI-7	NI-8
NI POWER, %	NA	100.88	100.70	100.76	100.76
IMBALANCE, %FP	-4.96	-5.71	-3.51	-4.85	-4.85
CALC IMBALANCE LIMITS		NEG = -18.05		POS = 15.26	

CORE POWER TILT = ((QUAD POW/AVG QUAD POW)-1)*100 = %

	WX QUAD	XY QUAD	YZ QUAD	ZW QUAD
INCORE SYM DET, % =	-.56	-.22	.71	.07
OUTCORE NI DET, % =	.11	-.02	-.08	-.02
CALC TILT LIMITS, % =	4.49 STEADY STATE, 4.49 TRANSIENTS			

CONTROL ROD WITHDRAWAL INDEXES, %WD = 291.38 GPS 5,6,7

CALC GP 5,6,7 INDEX LIMITS, %WD MIN = 266.41 MAX = 305.00

%WD = 30.96 GP 8 (APSR)

CALC GP 8 INDEX LIMIT, %WD MIN = -1.00 MAX = 105.00

TOP HALF CORE POWER, MWT = 1207.7 POWUP BOT HALF = 1333.9 POWLW

SHIFT AVG CORE POWER (ANY POWER) = 2538.9 MWT

CORE POWER ALPHA CONSTANTS 1= 1.000 2= .000 3= .000 4= .000

NUMBER OF RC PUMPS RUNNING = 4

REFERENCE CORE POWER (QCORE) = 2540.8 MWT = 99.87 % FP (2 MIN)

* Computer data entered in correctly -

C. M. Hean
10-29-98

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

JPM A1BS/ADMINISTRATIVE

Use CP-123, Determine if a New Valve Meets
Criteria to be Locked/Sealed

CANDIDATE _____

EXAMINER _____

PREPARED/
REVISED BY: Melissa Selkin Date/ 12-17-98

VALIDATED BY: * [Signature] Date/ 12-17-98

APPROVED BY: [Signature] Date/ 12-18-98
(Operations Training Manager)

CONCURRED: ** [Signature] Date/ 12-18-98
(Operations Representative)

* Validation not required for minor enhancements, procedure
Rev changes that do not affect the JPM, or individual step
changes that do not affect the flow of the JPM.

** Operations Concurrence required for new JPMs and changes
that affect the flow of the JPM (if not driven by a procedure
revision).

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:

Using CP-123, determine if a New Valve Meets Criteria to be Locked/Sealed.

Alternate Path:

N/A

Facility JPM #:

New

K/ARating(s)/Task Number/AO, RO, SRO:

2.1.30//3.4//1150101010//SRO

Task Standard:

Using CP-123, determine if a New Valve Meets Criteria to be Locked/Sealed.

Preferred Evaluation Method:

Simulator _____ In-Plant _____

References:

CP-123

Validation Time: 8 min.

Time Critical: NO

Candidate: _____
NAME

Time Start: _____

Performance Rating: SAT _____ UNSAT _____ Performance Time _____

Examiner: _____ / _____
NAME SIGNATURE DATE

COMMENTS

SIMULATOR OPERATOR INSTRUCTIONS:

N/A

Tools/Equipment/Procedures Needed:

CP-123

READ TO OPERATOR

DIRECTIONS TO TRAINEE:

I will explain the initial conditions, and state the task to be performed. All in-plant steps, including any required communications, shall be simulated for this JPM. Under no circumstances are you to operate any plant equipment. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

You are a Senior Reactor Operator.
A MAR is installing a recirculation line around EFP-4 (see provided print) and will provide autostart capability for EFP-4.
There are no commitments associated with this MAR.
Management has made no decision concerning the new valves' restraining requirements.

INITIATING CUES:

You are requested to determine if the new valves installed in this MAR meet the criteria for being locked/sealed using CP-123.

START TIME: _____ Shaded Block Indicates Critical Step

<p><u>STEP 1:</u> Obtain a copy of appropriate procedure.</p> <p><u>STANDARD:</u> Operator obtains a copy of CP-123.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 2:</u> Using CP-123, determine if new valves meet lock/seal criteria.</p> <p><u>STANDARD:</u> Operator looks at print and reviews CP-123. Operator states EFV-1111 meets the criteria and EFV-1112 does NOT meet the criteria.</p> <p><u>COMMENTS:</u></p> <p>END of TASK</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

STOP TIME: _____

CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

You are a Senior Reactor Operator.

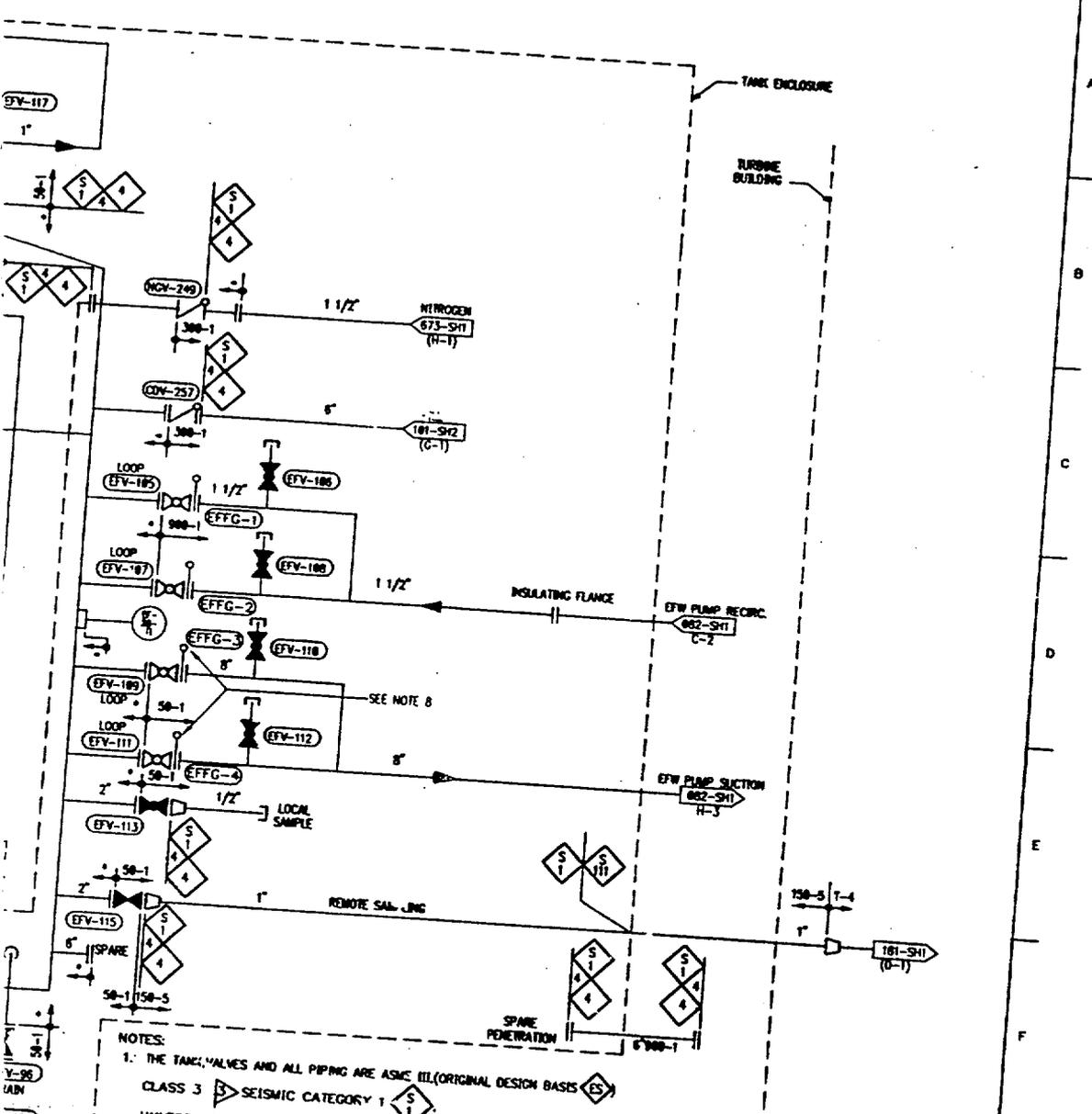
A MAR is installing a recirculation line around EFP-4 (see provided print) and will provide autostart capability for EFP-4.

There are no commitments associated with this MAR.

Management has made no decision concerning the new valves' restraining requirements.

INITIATING CUES:

You are requested to determine if the new valves installed in this MAR meet the criteria for being locked/sealed using CP-123.



- NOTES:
1. THE TANK, VALVES AND ALL PIPING ARE ASME III (ORIGINAL DESIGN BASIS) CLASS 3 SEISMIC CATEGORY I UNLESS OTHERWISE NOTED.
 2. PIPING SHOWN DASHED IS TANK INTERNAL PIPING.
 3. ALL INSTRUMENTS ARE TAGGED EF UNLESS OTHERWISE NOTED.
 4. VENTS AND DRAINS ARE 1" EXCEPT AS NOTED.
 5. INSTRUMENT ROUTE VALVES ARE 3/4".
 6. * DENOTES "BY TANK VENDOR".
 7. ALL NON-SAFETY VALVES AND EQUIPMENT INSIDE THE ENCLOSURE ARE SEISMIC CATEGORY III BUT SUPPORTED SEISMIC CATEGORY I.
 8. INSTALLATION OF SPECTACLE FLANGE IS OPTIONAL.

CAUTION:
302 DRAWINGS MAY NOT REFLECT ACTUAL VALVE POSITIONS IN THE PLANT. ACTUAL POSITIONS ARE CONTROLLED THROUGH OPERATING PROCEDURES. NOCS (62846)

15	REVISED PER DCH 88-201P	MAD	LSM	CS	PH
14	REVISED PER DCH 86-186	TDF	ORC	CS	8-28-86
13	REVISED PER DCH 86-1780	TDF	KLM	CS	8-7-86
12	REVISED PER DCH 86-1780	BY	ORIGIN	APPROVED	DATE

FLORIDA POWER CORPORATION
OF PENNSACOLA, FLORIDA

UNIT NO. 3
CRYSTAL RIVER PLANT
TURBINE PIPING

E.F.C.D.N.G. SYSTEM FLOW DIAGRAM
655,000 KW

EMERGENCY FEEDWATER (DEDICATED STORAGE TANK)

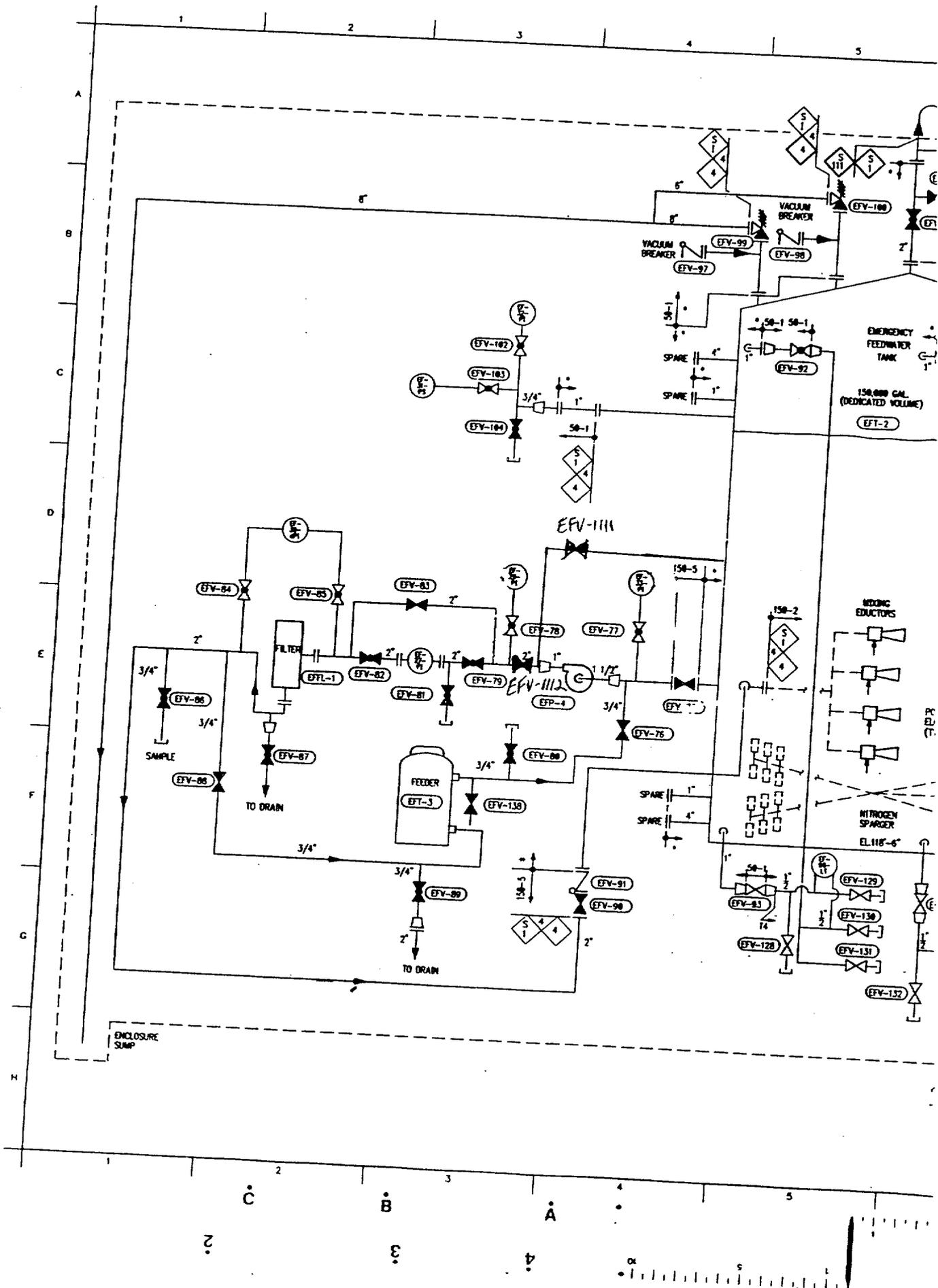
1ST AND ORIGINAL DESIGN BASIS CODE CLASSES

REDRAWN ON CAD SYSTEM

RAYMONT ENGINEERING COMPANY

DATE: 01-28-87
DATE: 01-28-87
DATE: 01-28-87

SCALE: _____
SHEET #2 OF #3
15
0-9-8



D

C

B

A

2

3

4

5

1

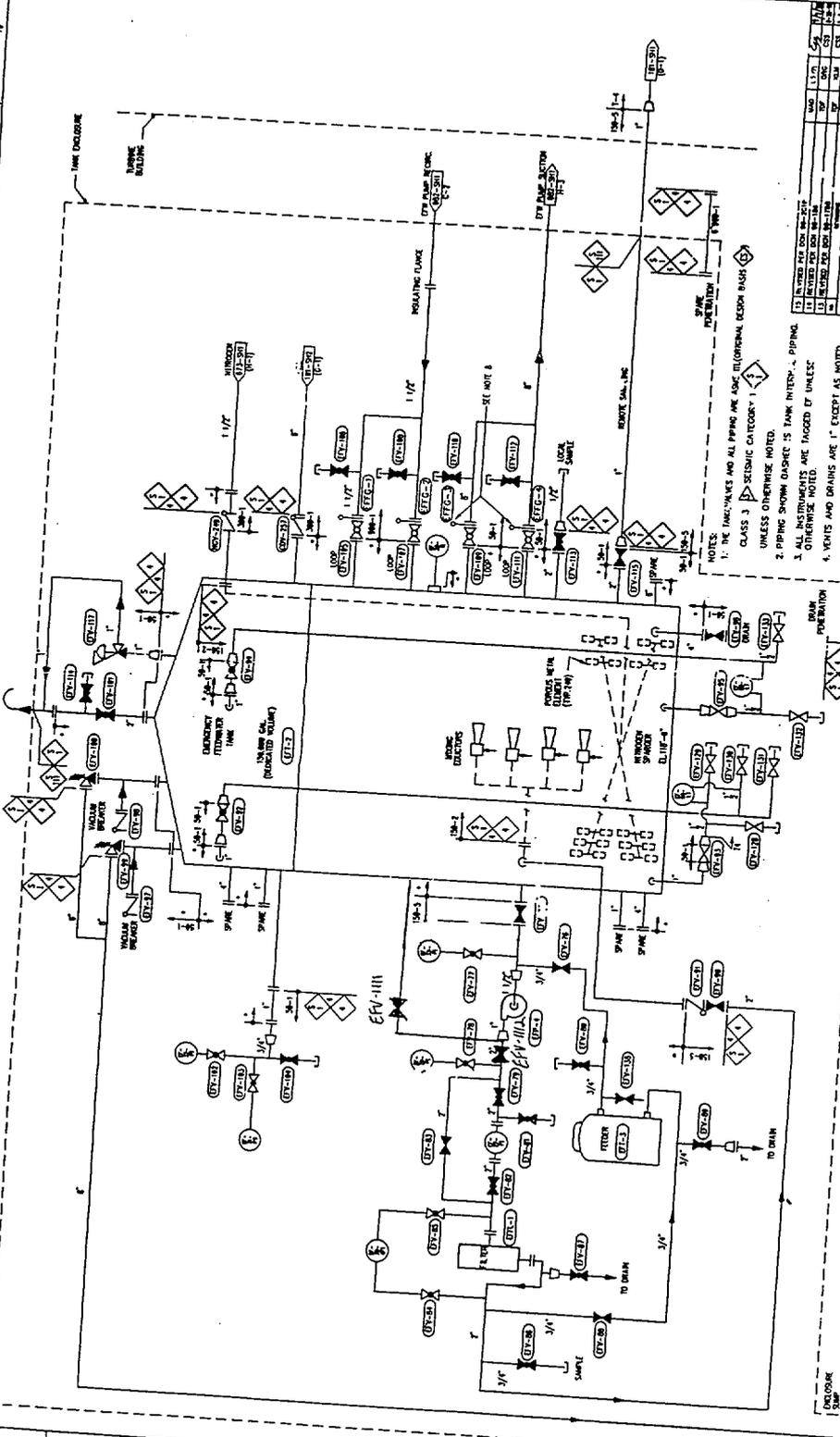
2

3

4

5

REV. 0 04/23/87



NO.	DATE	BY	CHKD	APP'D	REVISION
1	11/10/86	J. L. ...	J. L. ...	J. L. ...	...
2	11/10/86	J. L. ...	J. L. ...	J. L. ...	...
3	11/10/86	J. L. ...	J. L. ...	J. L. ...	...
4	11/10/86	J. L. ...	J. L. ...	J. L. ...	...
5	11/10/86	J. L. ...	J. L. ...	J. L. ...	...
6	11/10/86	J. L. ...	J. L. ...	J. L. ...	...
7	11/10/86	J. L. ...	J. L. ...	J. L. ...	...
8	11/10/86	J. L. ...	J. L. ...	J. L. ...	...
9	11/10/86	J. L. ...	J. L. ...	J. L. ...	...
10	11/10/86	J. L. ...	J. L. ...	J. L. ...	...
11	11/10/86	J. L. ...	J. L. ...	J. L. ...	...
12	11/10/86	J. L. ...	J. L. ...	J. L. ...	...
13	11/10/86	J. L. ...	J. L. ...	J. L. ...	...
14	11/10/86	J. L. ...	J. L. ...	J. L. ...	...
15	11/10/86	J. L. ...	J. L. ...	J. L. ...	...

FLORIDA POWER CORPORATION
 CRYSTAL RIVER PLANT
 EMERGENCY STOP TANK (DEDICATED STORAGE TANK)
 TURBINE PIPING

NOTES:
 1. THE TANK VALVES AND ALL PIPING ARE ASIC IN ORIGINAL DESIGN CLASS.
 2. PIPING SHOWN DASHED IS TANK INTERV. - PIPING UNLESS OTHERWISE NOTED.
 3. ALL INSTRUMENTS ARE TAGGED ET UNLESS OTHERWISE NOTED.
 4. VENTS AND DRAINS ARE "I" EXCEPT AS NOTED.
 5. INSTRUMENT ROUTE VALVES ARE 3/4".
 6. "S" DENOTES "BY TANK VENDOR".
 7. ALL NON-SAFETY VALVES AND EQUIPMENT INSIDE THE TANK ARE SEISMIC CATEGORY III BUT SUPPLEMENTARY SEISMIC CATEGORY I.
 8. INSTALLATION OF SPECIFIC FLANGE IS OPTIONAL.

WARNING: SEE DRAWINGS FOR TANK VALVE POSITIONS AND CONDITIONS IN THE PLANT. VALVE POSITIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE THROUGH OPERATING PROCEDURES. (NOCS 82748)

8-8-0-0 11 15

FD-102-00215

EMERGENCY STOP TANK (DEDICATED STORAGE TANK)

CRYSTAL RIVER PLANT

FLORIDA POWER CORPORATION

EMERGENCY STOP TANK (DEDICATED STORAGE TANK)

TURBINE PIPING

NOCS 82748

SEE DRAWINGS FOR TANK VALVE POSITIONS AND CONDITIONS IN THE PLANT. VALVE POSITIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE THROUGH OPERATING PROCEDURES. (NOCS 82748)

REGION II INITIAL LICENSE EXAMINATION JOB PERFORMANCE MEASURE

JPM A2S/ADMINISTRATIVE

Review a Completed SP-320, Operability of Boron
Injection Sources and Pumps, for Accuracy

CANDIDATE _____

EXAMINER _____

PREPARED/
REVISED BY: Malisa Galbraith Date/ 12-17-98

VALIDATED BY: * D. Jones Date/ 12-17-98

APPROVED BY: F. Van Horn Date/ 12-18-98
(Operations Training Manager)

CONCURRED: ** J. Hill Date/ 12-18-98
(Operations Representative)

* Validation not required for minor enhancements, procedure
Rev changes that do not affect the JPM, or individual step
changes that do not affect the flow of the JPM.

** Operations Concurrence required for new JPMs and changes
that affect the flow of the JPM (if not driven by a procedure
revision).

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:
Review a completed SP-320, Operability fo Boron Injection Sources
and Pumps, for accuracy.

Alternate Path:
N/A

Facility JPM #:
New

K/ARating(s)/Task Number/AO, RO, SRO:
2.2.12//3.4//1190201001//SRO

Task Standard:
Review a completed SP-320, Operability of Boron Injection Sources
and Pumps, for accuracy.

Preferred Evaluation Method:
Simulator _____ In-Plant _____

References:
SP-320

Validation Time: 10 min. Time Critical: NO

Candidate: _____ Time Start: _____
NAME

Performance Rating: SAT _____ UNSAT _____ Performance Time _____

Examiner: _____ / _____
NAME SIGNATURE DATE

COMMENTS

SIMULATOR OPERATOR INSTRUCTIONS:

N/A

Tools/Equipment/Procedures Needed:

SP-320

READ TO OPERATOR

DIRECTIONS TO TRAINEE:

I will explain the initial conditions, and state the task to be performed. All in-plant steps, including any required communications, shall be simulated for this JPM. Under no circumstances are you to operate any plant equipment. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

You are the Shift Supervisor.
The plant is at 100% rated thermal power.
SP-320 has been completed.

INITIATING CUES:

You are requested to review the portions completed by the operators of SP-320 for accuracy for transmittal.

START TIME: _____ Shaded Block Indicates Critical Step

<p>EXAMINER'S NOTE: Provide Operator with a completed copy of SP-320.</p> <p>STEP 1: Obtain a copy of completed procedure.</p> <p>STANDARD: Operator is given a copy of SP-320.</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>STEP 2: Using supplied SP-320 review for accuracy.</p> <p>STANDARD: Operator uses supplied copy of SP-320 and find the following errors:</p> <p>HT-001-TR Ch 6 reads 103 and should be circled and commented. Total BAST volume had not been added correctly.</p> <p>COMMENTS:</p> <p>END of TASK</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

STOP TIME: _____

CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

You are the Shift Supervisor.
The plant is at 100% rated thermal power.
SP-320 has been completed.

INITIATING CUES:

You are requested to review the portions completed by the operators
of SP-320 for accuracy for transmittal.

Effective Date 10/15/98

SURVEILLANCE PROCEDURE

SP-320

FLORIDA POWER CORPORATION

CRYSTAL RIVER UNIT 3

AVAILABILITY OF BORON INJECTION SOURCES AND PUMPS

APPROVED BY: Procedure Owner

(SIGNATURE ON FILE)

DATE: _____

PROCEDURE OWNER: Supervisor, Nuclear Plant
Technical Support

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1.0 PURPOSE

1.1 INTENT

1.1.1 To satisfy the Technical Specifications and FPC Commitments listed in Step 2.2.1. This procedure verifies the availability of the boron injection sources, pumps, and flow paths required in various plant modes.

1.2 CMIS EQUIPMENT

1.2.1 The following tags are listed in CMIS as being affected by this procedure:

CAP-1A	CAP-1B	CAT-5A	CAT-5B	CAV-36	
CAV-37	CAV-38	CAV-39	CAV-40	CAV-41	
CAV-42	CAV-43	CAV-44	CAV-45	CAV-46	
CAV-47	CAV-48	CAV-49	CAV-50	CAV-51	
CAV-52	CAV-53	CAV-55	CAV-60	CAV-64	
CAV-67	CAV-101	CAV-112	CAV-113	CAV-116	
CAV-119	CAV-120	CAV-123	CAV-412	CAV-414	
DHT-1	SFP-1B	SFP-2	SFV-7	SFV-11	
SFV-12	SFV-13	SFV-14	SFV-28	SFV-34	
SFV-35	SFV-37	SFV-46	SFV-49	SFV-50	
SFV-54	SFV-87	SFV-88			
BS-1-FI1	BS-1-FI2	CA-11-LI	CA-25A-LI	CA-25A-PI	CA-25B-PI
CA-45-FE	CA-45-FI	DH-1-FI1	DH-1-FI2	DH-7-LI	DH-58-LI
DH-59-LI	HT-001-TR	HT-002-TR	SF-2-FI	CAMX-1A	CAMX-1B
CAMX-1C	CAMX-1D	CAV-57			

2.0 REFERENCES

2.1 IMPLEMENTING REFERENCES

- 2.1.1 OP-406, Spent Fuel Cooling System
- 2.1.2 OP-403B, Chemical Addition - Boric Acid System
- 2.1.3 OP-404, Decay Heat Removal System
- 2.1.4 OP-405, Reactor Building Spray System

2.2 DEVELOPMENTAL REFERENCES

2.2.1 Technical Specification References

<u>Applicable References</u>	<u>Surv. Perf. During Modes</u>	<u>LCO/Other Requirements During Modes</u>	<u>Surv. Freq.</u>	<u>Freq. Notes</u>	<u>Mode Notes</u>
FPC #62189	5,6	5,6	M		None
FPC #60595	1,2,3,4	1,2,3,4	M	40	
FPC #62193	5,6	5,6	M		None
FPC #62190	1,2,3,4	1,2,3,4	M	40	
3.5.4.3	1,2,3,4	1,2,3,4	M, (SP)	40	
FPC #62192	5,6	5,6	M	23	
FPC #62191	1,2,3,4	1,2,3,4	M	23,40	
FPC #62194	5,6	5,6	M		
FPC #62195	1,2,3,4	1,2,3,4	M		
FPC #62196	1,2,3,4	1,2,3,4	M		
FPC #62316	5,6	5,6	M		

SURVEILLANCE FREQUENCY:

M - Monthly

SP - Within 12 hours after each solution volume increase of ≥ 4000 gallons.

FREQUENCY NOTES:

23 - Prior to returning equipment to service.

40 - Establish surveillance prior to ascending into the applicable mode.

MODE NOTES:

None

- 2.2.2 Therman Manufacturing Company, Dwg. 72-120A, Sht. 2-4
- 2.2.3 FPC Drawing Numbers 302-671, 302-641, 302-621
- 2.2.4 SP-334B, SFP Quarterly Operability Surveillance
- 2.2.5 OP-403A, Recirculation of Boric Acid Storage Tank "A" or "B"
- 2.2.6 OP-103F, Tank Volumes Curve
- 2.2.7 IOC NEA 93-0859, Minimum Initial RB Pressure Limit to Mitigate Accidental RB Spray Actuation Effects
- 2.2.8 Calculation I95-0017, Reactor Building Narrow Range Pressure
- 2.2.9 REA 95-0589, Minimum Level in BWST

- 2.2.10 PC 97-0085, Restart Issue D-18
- 2.2.11 PC 97-0994, Loss of BWST Seismic Qualification
- 2.2.12 NOE 97-0250, Design Basis Concern Relative to Using a Non-Seismic System to Recirculate the BWST
- 2.2.13 Calculation F97-0016, Determination of Boric Acid Requirements for 1% $\Delta k/k$ Makeup Capability

3.0 PERSONNEL INDOCTRINATION

3.1 SET POINTS

None

3.2 DESCRIPTION

- 3.2.1 The boron concentration of the Borated Water Storage Tank (BWST) shall be demonstrated to be within limits monthly in Modes 1 through 4 as shown on Enclosure 1.

NOTE: In Modes 1 through 4, one train of the Boric Acid Storage System is required to be available by FPC Commitment. A train shall include the tank, pump, piping (lined up monthly in SP-347), and heat tracing. In Modes 5 and 6, either the BWST or one train of the Boric Acid Storage System is required to be available.

- 3.2.2 The Boric Acid Storage System shall be demonstrated available, in Modes 1 through 4, as follows:
 - 3.2.2.1 The Boric Acid Storage Tank(s) (BASTs) shall be demonstrated available monthly by satisfying the applicable FPC Commitment limits of Enclosure 1.
 - 3.2.2.2 The flow path from a BAST via a BA pump (CAP) and Makeup Pump (MUP) or Decay Heat Pump (DHP) to the Reactor Coolant System (RCS) shall be demonstrated available monthly by verifying the pipe temperature of the heat traced portions of the flow path is $\geq 105^{\circ}\text{F}$ per Enclosure 2.
 - 3.2.3 The boron concentration of the Borated Water Storage Tank (BWST) shall be demonstrated to be within limits monthly, in Modes 5 and 6, as shown on Enclosure 1, when the BWST is the required emergency boration injection water source.

3.2.4 At least one train of the Boric Acid Storage System shall be demonstrated available monthly, in Modes 5 and 6, when the Boric Acid Storage System is the required emergency boration injection water source, by satisfying the applicable FPC Commitment limits of Enclosure 1.

3.2.5 In all Modes, each BA pump (CAP-1A, 1B) should be run monthly to assure proper operation. Testing of these pumps is not required by the Inservice Inspection Program since they are non safety related. They are required to be available by an FPC commitment.

3.3 DEFINITIONS

None

3.4 RESPONSIBILITIES

3.4.1 Nuclear Plant Technical Support will be responsible for the content of this procedure.

3.4.2 The CR-3 Operations Department will be responsible for the performance of this procedure.

3.4.3 As required, I&C personnel will perform the installation and removal of any temporary ultrasonic flow instrumentation and verify the proper operation of the electronics associated with the instrumentation.

3.5 LIMITS AND PRECAUTIONS

3.5.1 When level indications are used to calculate suction pressure, indicators should be closely monitored for deviation in level until data retrieval is complete.

3.5.2 Heat tracing temperature measurements shall be performed under static or no flow conditions, before the tanks are recirculated. Adequate time should be allowed for temperatures to increase when flow has been placed through the heat traced lines.

3.5.3 For work located in Radiation Controlled Area, due consideration must be given to the ALARA Program. This may result in a determination that special preparations and/or precautions are necessary.

3.5.4 The minimum RB pressure allowed during the performance of this procedure is -0.25 psig as indicated on BS-93-PIR, or -0.43 psig as indicated on Plant Computer Point P254.

3.5.5 Do NOT operate BAST mixers (CAMX-1A, -1B, -1C, -1D) of BAST level < 55% (59 inches).

3.6 ACCEPTANCE CRITERIA

NOTE: The BWST is required to be operable in Modes 1 through 4 by Technical Specifications. The remainder of the Acceptance Criteria below originates from FPC Commitments.

- 3.6.1 In Modes 1 through 4, the BWST shall be demonstrated operable by verifying monthly BWST boron concentration between 2270 and 3000 ppm.
- 3.6.2 In Modes 1 through 4, the Boric Acid Storage System shall be demonstrated available monthly by:
- o Verifying a minimum volume of 6000 gallons (83 inches).
 - o Verifying a boron concentration between 11,600 and 14,000 ppm.
 - o Verifying a minimum solution temperature of $\geq 105^{\circ}\text{F}$.
 - o Verifying the temperature of the heat traced portion of the flow path pipe is $\geq 105^{\circ}\text{F}$, under no flow conditions.
- Verifying at least one BA pump in the Boron Injection Flowpath is capable of being powered from an operable emergency bus.
- o Verifying EITHER CAV-60 OR CAV-57 is available.
- 3.6.3 IF the plant is in Mode 5 or 6, THEN either the BWST OR one train of the Boric Acid Storage System shall be demonstrated available as follows:
- 3.6.3.1 IF the BWST is the required emergency boration water source, THEN monthly, the BWST shall be demonstrated available by:
- o Verifying a minimum volume of $\geq 35,000$ gallons (11 ft)
 - o Verifying a boron concentration between 2270 and 3000 ppm
- 3.6.3.2 IF the Boric Acid Storage System is the required emergency boration water source, THEN monthly, the Boric Acid Storage System shall be demonstrated available by:
- o Verifying a minimum volume of ≥ 1200 gallons (28 inches).
 - o Verifying a boron concentration $\geq 11,600$ and $\leq 14,000$ ppm.
 - o Verifying a minimum solution temperature of $\geq 105^{\circ}\text{F}$.
 - o Verifying the temperature of the heat traced portion of the flow path piping is $\geq 105^{\circ}\text{F}$, under no flow conditions.
 - o Verifying at least one BA pump in the Boron Injection Flowpath is capable of being powered from an operable emergency bus.
- o Verifying EITHER CAV-60 OR CAV-57 is available.

3.6.4 In all Modes, the BA pumps (CAP-1A, 1B) should be demonstrated available monthly by verifying the data is within the values listed in Enclosures 3 & 4. The pumps are required to deliver ≥ 10 gpm.

3.7 PREREQUISITES

3.7.1 Notify the Nuclear Shift Supervisor on Duty prior to starting this procedure.

ME, 2-3-98
Initial/Date

3.7.2 Section 3.0, Personnel Indoctrination, must have been read and understood by those who will be performing this procedure.

3.7.3 Prior to running CAP-1A/1B, verify no evolutions are in progress which would interfere with tank recirculations such as a clearance, operating procedures, etc.

ME, 2-8-98
Initial/Date

4.0 INSTRUCTIONS

NOTE: Performance of every section below may not be required. Performance is required only for the applicable subsections as required to satisfy Technical Specification requirements and FPC Commitments based on plant mode. All steps not used during performance of Section 4.0 should be N/A'd.

NOTE: Sections of this procedure may be performed concurrently or in any order except only one BAST may be recirculated at a time.

4.1 OPERABILITY CHECK OF THE BWST

CAUTION: BWST level should be monitored prior to and at least 20 minutes after starting recirculation to ensure BWST inventory has not been inadvertently transferred.

NOTE: During Modes 1 through 4, this section is required monthly, or when the solution volume is increased by $\geq 4,000$ gallons. During Modes 5 & 6, this section is required to be performed monthly, when the BWST is the required emergency boration water source.

NOTE: SFP-2 is the preferred method to recirculate the BWST. Utilizing DHP-1A/1B or BSP-1A/1B requires entry into a Technical Specification Action Statement.

4.1.1 Align the BWST for recirculation by one of the following AND check the appropriate box.

- Recirc using SFP-2 per OP-406, []
- OR
- Recirc using DHP-1A per OP-404, []
- OR
- Recirc using DHP-1B per OP-404, []
- OR
- Recirc using BSP-1A per OP-405, []
- OR
- Recirc using BSP-1B per OP-405, []
- OR
- BWST on recirc via DHP-1A per SP-340B []
- OR
- BWST on recirc via DHP-1B per SP-340E []
- OR
- BWST on recirc via BSP-1A per SP-340B []
- OR
- BWST on recirc via BSP-1B per SP-340E []

4.1.2 Start the applicable pump AND check the appropriate box.

IF SFP-2 is used,
THEN use flowmeter (SF-2-FI)
for measurement.

[]

IF DHP-1A/B is used,
THEN maintain flowrate between 1500 gpm
and 3400 gpm utilizing DH-1-FI1/2.

[]

IF BSP-1A/B pump is used,
THEN maintain flowrate between 1400 gpm and 1700 gpm
utilizing BS-1-FI1/2.

[]

ME / 12-8-98
Initial/Date

4.1.3 Calculate the required time to recirculate two tank volumes,
using information in OP-103F. You may use the formula provided
below:

$[(\text{Gallons in tank} \times 2) \div (\text{gpm flowrate})] \div 60 = \text{hours to recirc}$

$[(\underline{423,390} \text{ gallons} \times 2) \div (\underline{3000} \text{ gpm})] \div 60 = \underline{4.7} \text{ hours}$

Calculated by: ME / 12-8-98
Initial/Date

Verified by: SC / 12-8-98
Initial/Date

4.1.4 Request a boron analysis for the BWST, specifying the completion
time for the required recirculation duration.

ME / 12-8-98
Initial/Date

4.1.5 WHEN sampling is complete,
THEN perform the following:

- o Stop recirculation, if desired
- o Restore system per the procedure or enclosure selected in Step 4.1.1.

ME / 12-8-98
Initial/Date

4.1.6 Complete Enclosure 1 for the BWST.

ME / 12-8-98
Initial/Date

4.1.7 Rezero the Control Center Note Book (CCNB) for BWST additions.

ME / 12-8-98
Initial/Date

4.2 HEAT TRACE

NOTE: If any recorder(s) are inoperable, I&C should be contacted to read the appropriate channel locally.

NOTE: Heat tracing temperature measurements shall be performed under no flow conditions, before the tanks are recirculated. Adequate time should be allowed for temperatures to increase when flow has been placed through the lines.

4.2.1 Record the heat tracing recorder data on Enclosure 2.

ML 12-8-98
Initial/Date

4.3 RECIRCULATION OF CAT-5A USING CAP-1A

CAUTION: BAST level should be monitored prior to and at least 20 minutes after starting the recirculation to ensure BAST inventory has not been inadvertently transferred.

4.3.1 Obtain CAT-5A local level from CA-11-LI and calculate CAP-1A suction pressure on Enclosure 3.

ML 12-8-98
Initial/Date

4.3.2 Perform the CAT-5A/CAP-1A recirculation lineup per Enclosure 5.

ML 12-8-98
Initial/Date

4.3.3 Operate CAP-1A as follows:

4.3.3.1 Start CAP-1A from the Control Center.

ML 12-8-98
Initial/Date

4.3.3.2 Record start time on Enclosure 3.

ML 12-8-98
Initial/Date

NOTE: If CA-45-FI is unavailable, the flow rate may be obtained from a temporarily installed, calibrated, flow instrument.

- 4.3.3.3 IF an instrument other than CA-45-FI is used, THEN record the information requested below. IF CA-45-FI is used, THEN NA this step.

Instrument Identification: _____

Instrument Calibration Due Date: _____

N/A
Initial/Date

- 4.3.3.4 Throttle CAV-36 to obtain between 20 and 48 gpm on either, CA-45-FI, or alternate indication.

MB 12-8-98
Initial/Date

- 4.3.4 WHEN constant flow is established, THEN, record flow rate from either, CA-45-FI, or alternate indication, on Enclosure 3.

MB 12-8-98
Initial/Date

- 4.3.5 Record CAP-1A discharge pressure from CA-25A-PI on Enclosure 3.

MB 12-8-98
Initial/Date

- 4.3.6 Calculate CAP-1A differential pressure on Enclosure 3.

MB 12-8-98
Initial/Date

- 4.3.7 Verify that the calculated differential pressure is between the minimum and maximum differential pressure listed in Enclosure 3.

MB 12-8-98
Initial/Date

- 4.3.8 IF CAP-1A is being utilized to recirculate CAT-5A for Boron analysis, THEN GO TO STEP 4.4.1.2, otherwise NA this step.

MB 12-8-98
Initial/Date

- 4.3.9 SECURE CAP-1A, RECORD stop time on Enclosure 3, and RESTORE the Boric Acid System per Enclosure 5.

Initial/Date

4.5 RECIRCULATION OF CAT-5B USING CAP-1B

CAUTION: BAST level should be monitored prior to and at least 20 minutes after starting the recirculation to ensure BAST inventory has not been inadvertently transferred.

4.5.1 Obtain CAT-5B local level from CA-13-LI and calculate CAP-1B suction pressure on Enclosure 4.

ML 12-8-98
Initial/Date

4.5.2 Perform the CAT-5B/CAP-1B recirculation lineup per Enclosure 6.

ML 12-8-98
Initial/Date

4.5.3 Operate CAP-1B as follows:

4.5.3.1 Start CAP-1B from the Control Center.

ML 12-8-98
Initial/Date

4.5.3.2 Record start time on Enclosure 4.

ML 12-8-98
Initial/Date

NOTE: If CA-45-FI is unavailable, the flow rate may be obtained from a temporarily installed, calibrated, flow instrument.

4.5.3.3 IF an instrument other than CA-45-FI is used,
THEN record the information requested below.
IF CA-45-FI is used,
THEN NA this step.

Instrument Identification: _____

Instrument Calibration Due Date: _____

N/A
Initial/Date

4.5.3.4 Throttle CAV-37 to obtain between 20 and 48 gpm on either, CA-45-FI, or alternate indication.

ME, 2-8-98
Initial/Date

4.5.4 WHEN constant flow is established, THEN record flow rate from either, CA-45-FI, or alternate indication, on Enclosure 4.

ME, 2-8-98
Initial/Date

4.5.5 Record CAP-1B discharge pressure from CA-25B-PI on Enclosure 4.

ME, 2-8-98
Initial/Date

4.5.6 Calculate CAP-1B differential pressure on Enclosure 4.

ME, 2-8-98
Initial/Date

4.5.7 Verify that the calculated differential pressure is between the minimum and maximum differential pressure listed in Enclosure 4.

ME, 2-8-98
Initial/Date

4.5.8 IF CAP-1B is being utilized to recirculate CAT-5B for Boron analysis, THEN GO TO STEP 4.6.1.2, otherwise NA this step.

ME, 2-8-98
Initial/Date

4.5.9 SECURE CAP-1B. RECORD stop time on Enclosure 4, and RESTORE the Boric Acid System per Enclosure 6.

ME, 2-8-98
Initial/Date

4.7 BORIC ACID PUMP POWER AVAILABILITY VERIFICATION

4.7.1 Determine and record below if each boric acid pump is capable of being powered from an OPERABLE emergency bus:

Pump Power Available

CAP-1A (ES-MCC-3A1, Brkr. 10B) Yes / No

CAP-1B (ES-MCC-3B1, Brkr. 4B) Yes / No

ML 12-8-98
Initial/Date

4.8 STROKE TEST TO VERIFY BORON INJECTION FLOWPATHS

NOTE: There are no time requirements on the speed that these valves open or close. This stroke exercise verifies system availability.

4.8.1 Stroke CAV-60 open/close. Ensure valve responds.

ML 12-8-98
Initial/Date

4.8.2 Stroke CAV-57 open/close. Ensure valve responds.

ML 12-8-98
Initial/Date

5.0 FOLLOW-UP ACTIONS

5.1 RESTORATION INSTRUCTIONS

5.1.1 Restoration is performed within Section 4 of this procedure.

5.1.2 IF a temporary instrument is used, in lieu of, CA-45-FI,
THEN ensure the temporary instrument is removed, when no longer required.

IF CA-45-FI is used,
THEN NA this step.

N/A
Initial/Date

5.1.3 Notify the Nuclear Shift Supervisor on Duty upon completion of this procedure.

ML 12-8-98
Initial/Date

5.2 CONTINGENCIES

5.2.1 Modes 1 through 4:

5.2.1.1 IF the BWST does not meet the its Acceptance Criteria,
THEN refer to the actions of LCO 3.5.4.

5.2.1.2 IF the Boric Acid Storage System does not meet its Acceptance
Criteria,
THEN perform the following:

- o With neither train of the Boric Acid Storage System available;
restore an unavailable train to available status within 7 days
or initiate a Precursor Card to document and track the
corrective actions. The Precursor Card should include the
following information:
 - o The FPC commitment to have at least one operable BAST flow
path for emergency boration was previously contained in STS
3.1.2.2 and 3.1.2.1.
 - o FPC current commitments for at least one available BAST flow
path for emergency boration are contained in FSAR 4.2.5.5,
NOCS 62148, and SP-320.

5.2.2 Modes 5 and 6:

5.2.2.1 IF no boron injection flowpaths are available (BWST or one train of
the Boric Acid Storage System),
THEN suspend all operations involving CORE ALTERATION or positive
reactivity changes until at least one injection path is restored to
available status.

5.2.3 All Modes:

NOTE: The acceptance criteria for CAPs is ≥ 10 gpm. Differential
pressure versus flow rate may show degradation and should be
investigated, but does not affect availability.

5.2.3.1 IF a Boric Acid Pump does not satisfy the d/p versus flow
requirements of Enclosure 3 or 4,
THEN contact Nuclear Plant Systems Engineering the next scheduled
working day.

COMMENTS:

BWST AND BORIC ACID STORAGE SYSTEM DATA

Parameter	Modes Req'd	Limit	Notes	Reading
BWST Level	1, 2, 3, 4	Min \geq 44.39 ft * Max $<$ 47.46 ft *	(2) (4)	45 ft.
	5, 6	Min \geq 11 ft *	(3) (5)	
BWST Boron Concentration	1, 2, 3, 4	Min \geq 2270 ppm Max \leq 3000 ppm	(2)	2500 ppm
		Min \geq 2300 ppm Max \leq 2960 ppm	(1)	
	5, 6	Min \geq 2270 ppm Max \leq 3000 ppm	(3)	
CAT-5A Level	1, 2, 3, 4	Min \geq 83 "in"	(1)	100 in.
CA-11-LI	5, 6	Min \geq 28 "in"		
CAT-5B Level	1, 2, 3, 4	Min \geq 83 "in"	(1)	85 in.
CA-13-LI	5, 6	Min \geq 28 "in"		
Total BAST Volume	1, 2, 3, 4	Min \geq 6000 gals	(3)	13,397 gals
	5, 6	Min \geq 600 gals		
CAT-5A Boron Concentration	All Modes	Min \geq 11,600 ppm Max \leq 14,000 ppm	(3)	12,490 ppm
		Min \geq 11,800 ppm Max \leq 13,800 ppm	(1)	
CAT-5B Boron Concentration	All Modes	Min \geq 11,600 ppm Max \leq 14,000 ppm	(3)	11,870 ppm
		Min \geq 11,800 ppm Max \leq 13,800 ppm	(1)	
CAT-5A Temperature	All Modes	Min \geq 105°F	(3)	150 °F
CAT-5B Temperature	All Modes	Min \geq 105°F	(3)	155 °F

* Modes 1-4 Tech Spec Requires BWST volume \geq 415,200 gallons and \leq 449,000 gallons; Modes 5-6 FSAR requires BWST usable volume \geq 35,000 gallons; the levels specified include corrections for instrument error

- (1) Administrative Limits
 (2) Tech Spec Requirement
 (3) FPC Commitment (Non Tech Spec)
 (4) Utilize DH-58-LI for monitoring BWST level. If DH-58-LI is not available, utilize DH-59-LI. The level limits above also apply to DH-59-LI.
 (5) Utilize DH-7-LI for monitoring BWST level.

COMMENTS: _____

Performed By M. J. Klein Date 2-8-98 Time 1700
 Reviewed By S. Clouse Date 2-8-98 Time 1800

HEAT TRACING RECORDER DATA

Location	Recorder	Ch	Temperature °F (required $\geq 105^{\circ}\text{F}$)
MU System Chemical Inlet Piping	HT-001-TR	2	120
MUV-106 to MU System Chemical Piping		3	145
MUV-156 to MUV-155 via MUV-108		6	103
MUV-156 to MUV-106 via MUV-158		7	115
MUV-106 to MUV-105 via MUV-107		9	119
CAV-59 to CAV-57/CAV-60		10	127
CAV-60 to MUV-114		12	* 160
CAV-57 to MUV-109		13	* 155
MUV- 541 Associated Piping		20	130
BAST "B" to CAV-44		HT-002-TR	3	176
CAV-44 to CAV-121	4		160
CAV-41 to CAV-121	5		187
BAST "A" to CAV-41	6		132
CAV-49 to CAV-50 via CAP-1B	14		147
CAV-48 to CAV-50 via CAP-1A	15		133
CAV-121 to CAV-48/CAV-49	17		158
CAV-50 to CAV-59	24		119

NOTE: Required temperatures $\geq 105^{\circ}\text{F}$. are only applicable when there is no flow through the line. Heat tracing is designed to maintain $\geq 105^{\circ}\text{F}$. only during no flow conditions.

- * Only one of these paths is required to be operable to meet the flowpath requirements. However, if both lines contain boric acid, then both lines should be $> 105^{\circ}\text{F}$ to prevent boron crystallization.
1. The channels listed meet the FPC Commitment for the boric acid storage system.
 2. Valve numbers are used as approximate locations of a heat trace string. Thermon Manufacturing Company Drawings: 72-120A, Sheets 2 through 4, may be used for more details if needed.

COMMENTS: _____

Performed By M. Ballin Date 2-8-98 Time 1700
 Reviewed By S. Clouse Date 2-8-98 Time 1800

BORIC ACID PUMP (CAP-1A)

FLOW (GPM)	DIFFERENTIAL PRESSURE (PSI)		FLOW (GPM)	DIFFERENTIAL PRESSURE (PSI)	
	MIN. DP	MAX. DP		MIN. DP	MAX. DP
20	58	71	35	54	66
21	58	71	36	53	65
22	58	71	37	53	65
23	58	70	38	53	64
24	57	70	39	52	64
25	57	69	40	52	63
26	57	69	41	51	63
27	56	69	42	51	62
28	56	68	43	50	61
29	56	68	44	50	61
30	56	67	45	49	60
31	55	67	46	49	60
32	55	67	47	48	59
33	54	66	48	48	58
34	54	66			

CAP-1A

Start Time: 0800Stop Time: 1600Flow Rate: 31 gpm
psiDischarge Pressure: 65

Calculation of Suction Pressure

(CAT-5A Water Level - CAP-1A Elevation) X (Conversion Factor) = Suction Pressure

 $(\underline{100} \text{ in.} - 14 \text{ in.}) \times (0.0361 \text{ lb}_f/\text{in}^3) = \underline{3.1} \text{ psi}$

Calculation of Differential Pressure

Discharge Pressure - Suction Pressure = Differential Pressure

 $\underline{65} \text{ psi} - \underline{3.1} \text{ psi} = \underline{61.9} \text{ psi}$ Performed By M. GallianDate 2-8-98
7600 M₂-8-98Reviewed By S. ClouseDate 2-8-98
7600 M₂-8-98

BORIC ACID PUMP (CAP-1B)

FLOW (GPM)	DIFFERENTIAL PRESSURE (PSI)		FLOW (GPM)	DIFFERENTIAL PRESSURE (PSI)	
	MIN. DP	MAX. DP		MIN. DP	MAX. DP
20	58	71	35	54	66
21	58	71	36	53	65
22	58	71	37	53	65
23	58	70	38	53	64
24	57	70	39	52	64
25	57	69	40	52	63
26	57	69	41	51	63
27	56	69	42	51	62
28	56	68	43	50	61
29	56	68	44	50	61
30	56	67	45	49	60
31	55	67	46	49	60
32	55	67	47	48	59
33	54	66	48	48	58
34	54	66			

CAP-1B

Start Time: 0100Stop Time: 0700Flow Rate: 40 gpm
psiDischarge Pressure: 65

Calculation of Suction Pressure

(CAT-5B Water Level - CAP-1B Elevation) X (Conversion Factor) = Suction Pressure

85 in. - 14 in.) X (0.0361 lb_r/in³) = 2.6 psi

Calculation of Differential Pressure

Discharge Pressure - Suction Pressure = Differential Pressure

65 psi - 2.6 psi = 62.4 psiPerformed By A. Gallin Date 2-8-98Reviewed By S. Clouse Date 2-8-98

RECIRCULATION AND RESTORATION LINEUP FOR CAT-5A/CAP-1A

NOTE: CAT-5B/CAP-1B in service.

System: Chemical Addition and Sampling		Flow Diagram No. FD-302-671	
Valve No.	Description	Position	Initials Performed by
	RECIRCULATION LINEUP FOR CAT-5A/CAP-1A		
CAV-36	Recirculation Return Inlet to CAT-5A	Throttle 2 Turns Open	MB
CAV-64	BAST Recirc. Iso.	Open	MB
CAV-412	CAP-1A Recirc.	Open	MB
CAV-51	CAP-1A Disch.	Closed	MB
	RESTORATION LINEUP FOR CAT-5A/CAP-1A		Perform/Verify
CAV-36	Recirculation Return Inlet to CAT-5A	Closed	MB 1 SC
CAV-64	BAST Recirc. Iso.	Closed	MB 1 SC
CAV-412	CAP-1A Recirc.	Closed	MB 1 SC
CAV-51	CAP-1A Disch.	Open	MB 1 SC

RESTORATION LINEUP FOR CAT-5A/CAP-1A:

Performed By *Michael Salter* Date *2-8-98*Verified By *S. Clane* Date *2-8-98*

RECIRCULATION AND RESTORATION LINEUP FOR CAT-5B/CAP-1B

NOTE: CAT-5A/CAP-1A in service.

System: Chemical Addition and Sampling		Flow Diagram No. FD-302-671	
Valve No.	Description	Position	Initials Performed by
	RECIRCULATION LINEUP FOR CAT-5B/CAP-1B		
CAV-37	Recirculation Return Inlet to CAT-5B	Throttle 2 Turns Open	ME
CAV-64	BAST Recirc. Iso.	Open	ME
CAV-50	CAP-1B Disch.	Closed	ME
CAV-55	CAP-1B Recirc.	Open	ME
	RESTORATION LINEUP FOR CAT-5B/CAP-1B		Perform/Verify
CAV-37	Recirculation Return Inlet to CAT-5B	Closed	ME 1 SC
CAV-64	BAST Recirc. Iso.	Closed	ME 1 SC
CAV-50	CAP-1B Disch.	Open	ME 1 SC
CAV-55	CAP-1B Recirc.	Closed	ME 1 SC

RESTORATION LINEUP FOR CAT-5B/CAP-1B:

Performed By M. Mellin Date 2-8-98Verified By S. Clouse Date 2-8-98

BORATED WATER STORAGE TANK: DHT-1

Notes:

ITS 3.5.4.2 Minimum Total Volume 415,200 gallons (Based on Total Volume not Usable Volume)

ITS 3.5.4.2 Maximum Total Volume 449,000 gallons (Based on Total Volume not Usable Volume)

Calculations I-91-0012 and M-93-0017.

INDICATED LEVELS ARE NOT ERROR CORRECTED

Tank Level DH-7-LI DH-37-LI (ft)	Tank Level DH-58-LI DH-59-LI (ft)	Tank Volume (gal)	REMARKS
0.0		0	
0.5		4,700	
1.0		9,400	Minimum Level Indication (9.75")
1.5		14,100	Centerline of DH Suction (15.75")
2.0		18,801	
2.5		23,501	
3.0		28,201	
3.5		32,901	
4.0		37,601	Heater Interlock (46 3/4 in = 3' 10 3/4")
4.5		42,301	
5.0		47,001	
5.5		51,702	Accident Vortex Limit (5.5')
6.0		56,402	
6.5		61,102	
7.0		65,802	Low-Low Alarm (7')
7.5		70,502	
8.0		75,203	
8.5		79,905	
9.0		84,607	
9.5		89,310	
10.0		94,012	
10.5		98,714	
11.0		103,416	
11.5		108,118	
12.0		112,821	
12.5		117,523	
13.0		122,225	
13.5		126,927	
14.0		131,630	
14.5		136,332	
15.0		141,034	Low Alarm (15')
15.5		145,736	
16.0		150,440	
16.5		155,144	

INDICATED LEVELS ARE NOT ERROR CORRECTED

Tank Level DH-7-LI DH-37-LI (ft)	Tank Level DH-58-LI DH-59-LI (ft)	Tank Volume (gal)	REMARKS
17.0		159,848	
17.5		164,553	
18.0		169,257	
18.5		173,961	
19.0		178,665	
19.5		183,370	
20.0		188,074	
20.5		192,778	
21.0		197,482	
21.5		202,187	
22.0		206,891	
22.5		211,595	
23.0		216,299	
23.5		221,004	
24.0		225,710	
24.5		230,416	
25.0		235,123	
25.5		239,829	
26.0		244,535	
26.5		249,242	
27.0		253,948	
27.5		258,654	
28.0		263,361	
28.5		268,067	
29.0		272,773	
29.5		277,480	
30.0		282,186	
30.5		286,892	
31.0		291,598	
31.5		296,305	
32.0		301,012	
32.5		305,719	
33.0		310,426	
33.5		315,132	
34.0		319,839	
34.5		324,546	
35.0		329,253	
35.5		333,960	
36.0		338,667	

INDICATED LEVELS ARE NOT ERROR CORRECTED

Tank Level DH-7-LI DH-37-LI (ft)	Tank Level DH-58-LI DH-59-LI (ft)	Tank Volume (gal)	REMARKS
36.5		343,373	
37.0		348,080	
37.5		352,787	
38.0		357,494	
38.5		362,201	
39.0		366,908	
39.5		371,614	
40.0		376,321	
40.5		381,028	
41.0		385,735	
41.5		390,442	
42.0		395,149	
42.5		399,856	
43.0		404,562	
43.5		409,269	
44.0	44.00	413,976	
	44.10	414,917	
	44.12	415,106	
	44.13	415,200	ITS 3.5.4.2 Min. Volume = 415,200 gal
	44.20	415,859	
	44.30	416,800	
	44.40	417,742	
44.5	44.50	418,683	
	44.60	419,624	Low Level Alarm (44.56')
	44.70	420,566	
	44.80	421,507	
	44.90	422,448	
45.0	45.00	423,390	
	45.10	424,331	
	45.20	425,273	
	45.30	426,214	
	45.40	427,155	
45.5	45.50	428,097	
	45.60	429,038	
	45.70	429,979	
	45.80	430,921	
	45.90	431,862	
46.0	46.00	432,803	
	46.10	433,745	

INDICATED LEVELS ARE NOT ERROR CORRECTED

Tank Level DH-7-LI DH-37-LI (ft)	Tank Level DH-58-LI DH-59-LI (ft)	Tank Volume (gal)	REMARKS
	46.20	434,686	
	46.30	435,628	High Level Alarm (47.29')
	46.40	436,569	
46.5	46.50	437,510	
	46.60	438,452	
	46.70	439,393	
	46.80	440,334	
	46.90	441,276	
47.0	47.00	442,217	
	47.10	443,156	
	47.20	444,094	
	47.30	445,030	
	47.40	445,964	
47.5	47.50	446,897	
	47.60	447,828	
	47.70	448,757	
	47.72	448,943	ITS 3.5.4.2 Max. Volume = 449,000 gal
	47.73	449,036	
	47.80	449,684	
	47.90	450,610	
48.0	48.00	451,533	
48.5		456,120	
49.0		460,650	
49.5		465,094	
50.0		469,428	

NOTES:

Maximum Indicated Usable Volume = 7,162 gallons

Calculation M-93-0035

INDICATED LEVELS ARE NOT ERROR CORRECTED

Level (in)	Tank Level CA-11-LI CA-13-LI (in)	Tank Volume (gal)	Usable Volume (gal)	REMARKS
0	0	0		
1	1	11		
2	2	30	0	Vortex Limit (2")
3	3	54	24	
4	4	83	53	Minimum Level Indication for CA-11-LI (4")
5	5	116	86	
6	6	152	122	
7	7	192	162	
8	8	234	204	
9	9	279	250	Top of Heaters (9")
10	10	329	299	
11	11	380	350	
12	12	433	403	
13	13	488	458	Minimum Level Indication for CA-13-LI (13")
14	14	545	515	
15	15	604	575	
16	16	665	635	
17	17	728	698	
18	18	792	762	
19	19	858	828	
20	20	925	895	
21	21	994	964	
22	22	1,063	1,034	
23	23	1,135	1,105	
24	24	1,207	1,177	
25	25	1,281	1,251	
26	26	1,355	1,326	
27	27	1,431	1,401	
28	28	1,508	1,478	
29	29	1,586	1,556	
30	30	1,664	1,635	Low-Level Alarm and Heater Interlock (30")
31	31	1,744	1,714	
32	32	1,824	1,795	

INDICATED LEVELS ARE NOT ERROR CORRECTED

Level (in)	Tank Level CA-11-LI CA-13-LI (in)	Tank Volume (gal)	Usable Volume (gal)	REMARKS
33	33	1,906	1,876	
34	34	1,988	1,958	
35	35	2,070	2,040	
36	36	2,153	2,124	
37	37	2,237	2,207	
38	38	2,322	2,292	
39	39	2,407	2,377	
40	40	2,492	2,463	
41	41	2,579	2,549	
42	42	2,665	2,635	
43	43	2,752	2,722	
44	44	2,839	2,809	
45	45	2,927	2,897	
46	46	3,015	2,985	
47	47	3,103	3,073	
48	48	3,191	3,161	
49	49	3,280	3,250	
50	50	3,368	3,339	
51	51	3,457	3,427	
52	52	3,546	3,516	
53	53	3,635	3,605	
54	54	3,724	3,694	
55	55	3,813	3,783	
56	56	3,902	3,872	
57	57	3,991	3,961	
58	58	4,080	4,050	
59	59	4,169	4,139	
60	60	4,257	4,227	
61	61	4,345	4,315	
62	62	4,433	4,404	
63	63	4,521	4,491	
64	64	4,609	4,579	
65	65	4,696	4,666	
66	66	4,782	4,752	
67	67	4,869	4,839	
68	68	4,954	4,925	
69	69	5,040	5,010	
70	70	5,125	5,095	

INDICATED LEVELS ARE NOT ERROR CORRECTED

Level (in)	Tank Level CA-11-LI CA-13-LI (in)	Tank Volume (gal)	Usable Volume (gal)	REMARKS
71	71	5,209	5,179	
72	72	5,292	5,262	
73	73	5,375	5,345	
74	74	5,458	5,428	
75	75	5,539	5,509	
76	76	5,620	5,590	
77	77	5,700	5,670	
78	78	5,779	5,749	
79	79	5,857	5,827	
80	80	5,935	5,905	
81	81	6,011	5,981	
82	82	6,085	6,056	
83	83	6,160	6,130	
84	84	6,233	6,203	
85	85	6,305	6,275	
86	86	6,376	6,346	
87	87	6,445	6,415	
88	88	6,513	6,483	
89	89	6,579	6,549	
90	90	6,644	6,614	
91	91	6,708	6,678	
92	92	6,769	6,740	
93	93	6,829	6,800	
94	94	6,888	6,858	
95	95	6,944	6,914	Hi-Level Alarm (95")
96	96	6,998	6,968	
97	97	7,050	7,020	
98	98	7,100	7,070	
99	99	7,147	7,117	
100	100	7,192	7,162	
101		7,234	7,204	
102		7,273	7,243	
103		7,308	7,278	
104		7,340	7,310	
105		7,367	7,338	
106		7,390	7,360	
107		7,405	7,376	
107.5		7,409	7,379	Top of Tank (I. D. = 107.5")

REGION II INITIAL LICENSE EXAMINATION JOB PERFORMANCE MEASURE

JPM A3S/ADMINISTRATIVE

Using CP-151, Determine External Reporting
Requirements

CANDIDATE _____

EXAMINER _____

PREPARED/
REVISED BY: *Melissa Gallin* Date/ 12-17-98

VALIDATED BY: * *D. Jones* Date/ 12-17-98

APPROVED BY: *F. Wes Long* Date/ 12-18-98
(Operations Training Manager)

CONCURRED: ** *[Signature]* Date/ 12-18-98
(Operations Representative)

* Validation not required for minor enhancements, procedure Rev changes that do not affect the JPM, or individual step changes that do not affect the flow of the JPM.

** Operations Concurrence required for new JPMs and changes that affect the flow of the JPM (if not driven by a procedure revision).

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:
Using CP-151, determine external reporting requirements.

Alternate Path:
N/A

Facility JPM #:
New

K/ARating(s)/Task Number/AO, RO, SRO:
2.3.1//3.0//1190101035//SRO

Task Standard:
Using CP-151, determine external reporting requirements.

Preferred Evaluation Method:
Simulator _____ In-Plant _____

References:
CP-151; 10CFR

Validation Time: 10 min. Time Critical: NO

Candidate: _____ Time Start: _____
NAME

Performance Rating: SAT _____ UNSAT _____ Performance Time _____

Examiner: _____ / _____
NAME SIGNATURE DATE

COMMENTS

SIMULATOR OPERATOR INSTRUCTIONS:

N/A

Tools/Equipment/Procedures Needed:

CP-151
10CFR

READ TO OPERATOR

DIRECTIONS TO TRAINEE:

I will explain the initial conditions, and state the task to be performed. All in-plant steps, including any required communications, shall be simulated for this JPM. Under no circumstances are you to operate any plant equipment. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

You are the Shift Supervisor.
The plant is at 100% rated thermal power.
A Health Physics Supervisor has called the Control Room reporting a source is missing.
The missing source has a concentration of 240,000 μCi of Cs-136.
The source was normally kept in the Health Physics Calibration Laboratory.

INITIATING CUES:

You are requested to determine external reporting requirements.

START TIME: _____ Shaded Block Indicates Critical Step

<p>EXAMINER'S NOTE: Provide Operator with a copy of CP-151.</p> <p>STEP 1: Obtain a copy of procedure.</p> <p>STANDARD: Operator is given a copy of CP-151.</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>STEP 2: Using supplied CP-151, operator determines reportability.</p> <p>STANDARD: Operator uses supplied copy of CP-151 and determines that from the initial conditions that an immediate notification shall be made to the NRC Operations Center. A written follow-up report must be submitted within 30 days of the verbal notification.</p> <p>COMMENTS:</p> <p style="text-align: center;">END of TASK</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

STOP TIME: _____

CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

You are the Shift Supervisor.

The plant is at 100% rated thermal power.

A Health Physics Supervisor has called the Control Room reporting a source is missing.

The missing source has a concentration of 240,000 μCi of Cs-136.

The source was normally kept in the Health Physics Calibration Laboratory.

INITIATING CUES:

You are requested to determine external reporting requirements.

REGION II INITIAL LICENSE EXAMINATION JOB PERFORMANCE MEASURE

JPM A4S/ADMINISTRATIVE

Determination of Protective Action Requirements

CANDIDATE _____

EXAMINER _____

PREPARED/
REVISED BY: *Richard Mallin* Date/ *12-17-98*

VALIDATED BY: * *D. Jones* Date/ *12-17-98*

APPROVED BY: *F. Williams* Date/ *12-18-98*
(Operations Training Manager)

CONCURRED: ** *S. Hill* Date/ *12-18-98*
(Operations Representative)

* Validation not required for minor enhancements, procedure Rev changes that do not affect the JPM, or individual step changes that do not affect the flow of the JPM.

** Operations Concurrence required for new JPMs and changes that affect the flow of the JPM (if not driven by a procedure revision).

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:
Using EM-202, determine protective action requirements.

Alternate Path:
N/A

Facility JPM #:
New

K/ARating(s)/Task Number/AO, RO, SRO:
2.4.41/2.4.44//4.1/4.0//1150101001//SRO

Task Standard:
Using EM-202, determine protective action requirements.

Preferred Evaluation Method:
Simulator _____ In-Plant _____

References:
EM-202

Validation Time: 15 min. Time Critical: YES

Candidate: _____ Time Start: _____
NAME

Performance Rating: SAT _____ UNSAT _____ Performance Time _____

Examiner: _____ / _____
NAME SIGNATURE DATE

COMMENTS

SIMULATOR OPERATOR INSTRUCTIONS:

N/A

Tools/Equipment/Procedures Needed:

EM-202

READ TO OPERATORDIRECTIONS TO TRAINEE:

I will explain the initial conditions, and state the task to be performed. All in-plant steps, including any required communications, shall be simulated for this JPM. Under no circumstances are you to operate any plant equipment. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

You are the Emergency Coordinator.
The following events have occurred:

A small break LOCA is in progress.

No HPI is available.

No Main or Auxiliary Feedwater is available.

The "A" Emergency Diesel Generator is unavailable.

There is no power supply for the "A" 4160ES bus.

The steam driven Emergency Feedwater pump experiences a catastrophic failure and the subsequent steam leak causes EFP-1 to trip.

There has been no core cooling for 25 minutes.

Incores indicate that the RCS has entered the Severe Accident Region.

RM-G29's reading escalates to 100 R/hr and RM-G30 escalates to 120 R/hr and both are increasing.

Reactor Building Spray has failed.

INITIATING CUES:

You are requested to determine the appropriate Protective Action Recommendation, if any.

START TIME: _____ Shaded Block Indicates Critical Step

<p>EXAMINER'S NOTE: Provide Operator with a copy of EM-202.</p> <p>STEP 1: Obtain a copy of procedure.</p> <p>STANDARD: Operator is given a copy of EM-202.</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>STEP 2: Using supplied EM-202, operator determines emergency classification and the protective action.</p> <p>STANDARD: Operator uses supplied copy of EM-202 and determines a General Emergency. Operator determines that the Protective Action Recommendation is to Evacuate for 5 miles 360° and shelter 5-10 miles 360°.</p> <p>COMMENTS:</p> <p style="text-align: center;">END of TASK</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

STOP TIME: _____

CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

You are the Emergency Coordinator.
The following events have occurred:

A small break LOCA is in progress.
No HPI is available.
No Main or Auxiliary Feedwater is available.
The "A" Emergency Diesel Generator is unavailable.
There is no power supply for the "A" 4160ES bus.
The steam driven Emergency Feedwater pump experiences a catastrophic failure and the subsequent steam leak causes EFP-1 to trip.
There has been no core cooling for 25 minutes.
Incores indicate that the RCS has entered the Severe Accident Region.
RM-G29's reading escalates to 100 R/hr and RM-G30 escalates to 120 R/hr and both are increasing.
Reactor Building Spray has failed.

INITIATING CUES:

You are requested to determine the appropriate Protective Action Recommendation, if any.

Individual Walk-through Test Outline

Facility: <u>Crystal River Unit 3</u>		Date of Examination: <u>2-8-99</u>
Exam Level: <u>RO/SRO</u>		Operating Test No. : 1
System / JPM Title / Type Codes*	Safety Function	Planned Follow-up Questions: K/A/G // Importance // Description
Control Rod Drive //Transfer Single Rod to Auxiliary Power Supply//001A4.03//4.0/3.7//S, N	1	<p>A. 001K5.07//3.3/4.0//What are the Technical Specification requirements, if any, when given the positions of each rod in group 7 (one rod will be asymmetric)?</p> <p>B. 001K5.05//3.5/3.9//How much reactivity is added when group 7 is withdrawn from 85% to 93%?</p>
Reactor Coolant System (RCS)//Respond to an RCS leak while Decay Heat Removal is in service//09EA2.02//3.5/3.8//S, N, L	2	<p>A. 002A2.01//4.3/4.4//Given a set of plant data, where is the Reactor Coolant System (RCS) leak location?</p> <p>B. 006A1.14//3.5/3.8//If the RCS leak developed while during a drained down condition, what is the minimum level required to maintain Net Positive Suction Head (NPSH) for a given flow through the operating Decay Heat Pump?</p>
Reactor Building (RB)//Start an RB pressure Equalization /Mini-Purge under Non-Accident Conditions//029A2.03/2.7/3.1//S, N	8	<p>A. 029K3.01//2.9/3.1//Is the average Reactor Building (RB) temperature acceptable, given a list of RB temperatures from SP-300?</p> <p>B. 029K4.03//3.2/3.5//While securing the RB equalization two (2) of the isolation valves do not close, what are the Technical Specification actions, if any?</p>

<p>Building Spray (BS) //Ensure BS actuation//026A3.01// 4.3/4.5//S, A, N</p>	<p>5</p>	<p>A. 026K3.01//3.9/4.1//What Technical Specification action, if any, is required for the loss of one Reactor Building Fan and the control valve for one Building Spray pump?</p> <p>B. 026K4.07//3.8/4.1//What is the required flow for the control valve for the operating Building Spray pump given a set of plant conditions?</p>
<p>Non-Nuclear Instrumentation (NNI)//Re-energize NNI-X//062A4.01 //3.3/3.1//CR, N</p>	<p>6</p>	<p>A. 015K6.01//2.9/3.2//While at 100% full power; power is lost to Nuclear Instrument, NI-6, given the readings from the other Nuclear Instruments and that the neutron flux selector switch is selected to NI-5/6; what are the results of this failure?</p> <p>B. 016K4.03//2.8/2.9//“A” Loop Turbine header pressure is selected to PT-2; MS-10 is selected to the “A” side for Turbine control; if Non-Nuclear Instrument, NNI-X, losses power what will happen to the “A” side Turbine Bypass Valves and Turbine control?</p>
<p>Reactor Protection System (RPS)//Reset an RPS channel //012A4.04//3.3/3.3//CR, D</p>	<p>7</p>	<p>A. 012K4.02//3.9/4.3//Given a set of plant parameters (variable low pressure trip), what is the condition of the Reactor Protection System (RPS)?</p> <p>B. 003K3.04//3.9/4.2//At 60% power, given the condition of the Reactor Coolant Pump Power Monitor and a set of the Reactor Coolant Pumps' kilowatt usage, what is the condition of the RPS system?</p>
<p>AC Electrical Distribution//Enable Turbine Lockout Functions prior to Generator Synchronization Startup//045A3.04//3.4/ 3.6//CR, N</p>	<p>4</p>	<p>A. 045K4.11//3.6/3.9//After the completion of step 4.3.21, in OP-203, Plant Startup, given Condensate Heater levels, what is the condition of the Turbine Stop Valve Lockout (86/TURB-1)?</p> <p>B. 045K1.18//3.6/3.7//With 423 Megawatts (electric) and Feedwater flow at 8.2×10^5 lbm/hr, what is the condition of the Turbine Stop Valve Lockout (86/TURB-1)?</p>

<p>Reactor Coolant System (RCS) //Depressurize RCS using High Pressure Auxiliary Spray //010A2.02//3.9/3.9//P, R, D</p>	<p>3</p>	<p>A. 010K5.01//3.5/4.0//During a cooldown directed in an Emergency Operating Procedure, High Pressure Auxiliary Spray is used to reduce pressure, at 530°F, what is the lowest pressure that can be achieved prior to loss of adequate subcooling margin?</p> <p>B. 010K4.03//3.8/4.1//What are the Low Temperature Over Pressure (LTOP) Technical Specification actions, if any, given a list of plant conditions (Pressurizer level will be high with the Power Operated Relief Valve, PORV, inoperable)?</p>
<p>Emergency Feedwater (EFW)//Crosstie Emergency Feedwater Pumps using EFV-12 and EFV-13//061A2.04 //3.4/3.8//P, N</p>	<p>4</p>	<p>A. 061K4.01//4.1/4.2//With CDV-103 open, what is the total volume available to the Emergency Feedwater Pumps if the level in Condensate Storage Tank is 8.5 feet and the level in Emergency Feedwater Tank is 9.25 feet?</p> <p>B. 061A2.08//2.7/2.9//Given plant conditions (Inadequate Subcooling Margin) and Emergency Feedwater flow control valves are in manual, what is the required Emergency Feedwater flow rate?</p>
<p>Liquid Radwaste//Start an Evaporator Condensate Storage Tank (ECST) release //068A4.02//3.2/3.1//P, N, R</p>	<p>9</p>	<p>A. 068K4.01//3.4/4.1//During a release of the "A" Evaporator Condensate Storage Tank, the flow instrument, WD-101-FIT, becomes inoperable; what are the requirements, if any, regarding the release?</p> <p>B. B. 068A4.02//3.2/3.1//Given a partially filled out Enclosure 1, from OP-407A, Operation of the Evaporator Condensate Storage Tanks, what are the release rates for the associated time periods?</p>

* - Type codes: (D)irect from bank, (M)odified from bank, (N)ew, (A)lternate path, (C)ontrol room, (S)imulator, (L)ow Power, (P)lant, (R)CA, (T)ime critical

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

JPM 1S/SIMULATOR

Transfer a Single Rod to the Auxiliary Power
Supply

CANDIDATE _____

EXAMINER _____

PREPARED/
REVISED BY: *Michelle Nelson* Date/ 12-17-98

VALIDATED BY: * *D. Jones* Date/ 12/17/98

APPROVED BY: *F. W. Gray* Date/ 12-18-98
(Operations Training Manager)

CONCURRED: ** *O. Ford* Date/ 12-18-98
(Operations Representative)

* Validation not required for minor enhancements, procedure
Rev changes that do not affect the JPM, or individual step
changes that do not affect the flow of the JPM.

** Operations Concurrence required for new JPMs and changes
that affect the flow of the JPM (if not driven by a procedure
revision).

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:

Transfer a single control rod to the Auxiliary Power Supply.

Alternate Path:

N/A

Facility JPM #:

New

K/A Rating(s)/Task Number/AO, RO, SRO:

001A4.03//4.0/3.7//0010102010//RO, SRO

Task Standard:

Transfer a single control rod to the Auxiliary Power Supply by using OP-502, Control Rod Drive System, Section 4.16, Transferring a Group or Rod to the Auxiliary Power Supply.

Preferred Evaluation Method:

Simulator X In-Plant

References:

OP-502

Validation Time: 6 min.

Time Critical: NO

Candidate: _____

NAME

Time Start: _____

Performance Rating: SAT UNSAT Performance Time

Examiner: _____ / _____

NAME

SIGNATURE

DATE

COMMENTS

SIMULATOR OPERATOR INSTRUCTIONS:

1. Normal 100% power operations.
2. IC #11.

Tools/Equipment/Procedures Needed:

OP-502

READ TO OPERATOR**DIRECTIONS TO TRAINEE:**

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task, return the handout sheet I provided you.

INITIAL CONDITIONS:

You are the Reactor Operator.
The Plant is at 100% normal power.
Control Rod troubleshooting is underway.

INITIATING CUES:

You are requested to transfer Rod 5-4 to the Auxiliary Power Supply. Following transfer of the rod, leave the reactor diamond and demand station in manual for further manipulations.

START TIME: _____ Shaded Block Indicates Critical Step

<p><u>STEP 1:</u> Obtain a copy of appropriate procedure.</p> <p><u>STANDARD:</u> Operator obtains a copy of OP-502.</p> <p>EXAMINER'S CUE: For purposes of this JPM assume SRO concurs with each rod manipulation.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>CAUTION: Tave control may go to Feedwater regulation.</p> <p><u>STEP 2:</u> Place Reactor Demand control station in HAND if not in Mini Track.</p> <p><u>STANDARD:</u> Operator depresses HAND and verifies that the white HAND light is ON and the red AUTO light is OFF. (Annunciator K-6-2)</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 3:</u> Place Reactor Diamond in MANUAL.</p> <p><u>STANDARD:</u> Operator depresses MANUAL and verifies that the green MANUAL light is ON and the white AUTO light is OFF. The operator will also verify the Reactor Demand control station is in Mini Track by verifying that both red AUTO and white HAND lights are ON.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 4:</u> Select GROUP SELECT Switch to desired group.</p> <p><u>STANDARD:</u> Operator rotates GROUP SELECT Switch to Group 5.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 5:</u> Select ALL or desired rod.</p> <p><u>STANDARD:</u> Operator rotates SINGLE SELECT Switch to Rod 4.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 6:</u> Select SEQ OR.</p> <p><u>STANDARD:</u> Operator depresses SEQ/SEQ OR pushbutton and verifies amber SEQ OR light ON and green SEQ light ON.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 7:</u></p> <p><u>STANDARD:</u></p> <p><u>COMMENTS:</u></p>	<p>Select AUXIL.</p> <p>Operator depresses GROUP/AUXIL pushbutton and verifies AUXIL light ON and GROUP light OFF. The operator will also verify the CONTROL ON white light for group 5 is ON.</p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 8:</u></p> <p><u>STANDARD:</u></p> <p><u>COMMENTS:</u></p>	<p>Place SPEED SELECTOR switch in JOG.</p> <p>Operator rotates RUN/JOG switch to JOG and verifies that the white SY light ON.</p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 9:</u></p> <p><u>STANDARD:</u></p> <p><u>COMMENTS:</u></p>	<p>Select CLAMP.</p> <p>Operator depresses CLAMP/CLAMP RELEASE pushbutton and verifies green CLAMP light ON and amber CLAMP REL light OFF.</p>	<p>____ SAT</p> <p>____ UNSAT</p>

<p>CAUTION: If amber CONTROL ON lights for more than one group is on, STOP, and notify Shift Management.</p>		
<p>STEP 10: Depress MAN TRANS.</p>		<p>_____ SAT</p>
<p>STANDARD: Operator depresses MAN TRANS pushbutton and verifies white TR CF light ON. The operator will also verify the amber CONTROL ON light for rod 5-4 is ON.</p>		<p>_____ UNSAT</p>
<p>COMMENTS:</p>		
<p>STEP 11: Select CLAMP REL.</p>		<p>_____ SAT</p>
<p>STANDARD: Operator depresses CLAMP/CLAMP RELEASE pushbutton and verifies amber CLAMP REL light ON and green CLAMP light OFF.</p>		<p>_____ UNSAT</p>
<p>COMMENTS:</p>		
<p>STEP 12: Select GROUP.</p>		<p>_____ SAT</p>
<p>STANDARD: Operator depresses GROUP/AUXIL pushbutton and verifies green GROUP light ON and amber AUXIL light OFF. The operator will also verify the SY light OFF.</p>		<p>_____ UNSAT</p>
<p>COMMENTS:</p>		

<p><u>STEP 13:</u> If latching Safety Rods in accordance with Section 4.2, return to Section 4.2.3 after completion of this step.</p> <p><u>STANDARD:</u> This step N/A.</p> <p>EXAMINER'S CUE: Rod 5-4 is on the Auxiliary Power Supply.</p> <p><u>COMMENTS:</u></p> <p>END of TASK</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
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STOP TIME: _____

JPM QUESTION #1

Question: At 100% full power, Control Rod Group 7 Rods have the following positions. What are the Technical Specification requirements, if any?

ROD	POSITION WITHDRAWN
7-1	98.3%
7-2	97.8%
7-3	91.4%
7-4	99.1%
7-5	98.5%
7-6	97.9%
7-7	98.7%
7-8	99.2%

Answer: L.C.O. 3.1.4 is not met. The required actions for condition "A" must be performed.

Either align all CONTROL RODS in the group to within 6.5% of the group average height, while maintaining the rod insertion, group sequence, and group overlap limits in accordance with LCO 3.2.1, "Regulating Rod Insertion Limits" (A.1) in 1 hour.

OR

Either verify SDM is $\geq 1\% \Delta k/k$ (A.2.1.1) in 1 hour and once per 12 hours thereafter; OR initiate boration to restore SDM to within limit (A.2.1.2) within 1 hour; AND, Reduce THERMAL POWER to $\leq 60\%$ of the ALLOWABLE THERMAL POWER (A.2.2) in 2 hours. AND, Reduce the nuclear overpower trip setpoint to $\leq 70\%$ of the ALLOWABLE THERMAL POWER (A.2.3) in 10 hours. AND, Verify the potential ejected rod worth is within the assumptions of the rod ejection analysis (A.2.4) in 72 hours. AND, Perform SR 3.2.5.1, power peaking factors verification (A.2.5) in 72 hours.

CANDIDATE'S RESPONSE

Time:

K/A Rating:

001K5.07//3.3/4.0

References:

Technical Specifications

JPM QUESTION #2

Question: At 100% full power, 300 EFPD, with equilibrium xenon and Control Rod Group 8 at its normal position, how much reactivity is added when group 7 is withdrawn from 85% to 93% withdrawn?

Answer: 0.0655 % $\Delta k/k$ is added. $[-0.0225 \% \Delta k/k - (-0.088 \% \Delta k/k) = 0.0655 \% \Delta k/k]$

CANDIDATE'S RESPONSE

Time:

K/A Rating:

001K5.05//3.5/3.9

References:

OP-103C

**JPM QUESTION #2
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)**

Question:

At 100% full power, 300 EFPD, with equilibrium xenon and Control Rod Group 8 at its normal position, how much reactivity is added when group 7 is withdrawn from 85% to 93% withdrawn?

**JPM QUESTION #1
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)**

Question:

At 100% full power, Control Rod Group 7 Rods have the following positions. What are the Technical Specification requirements, if any?

ROD	POSITION WITHDRAWN
7-1	98.3%
7-2	97.8%
7-3	91.4%
7-4	99.1%
7-5	98.5%
7-6	97.9%
7-7	98.7%
7-8	99.2%

**CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)**

INITIAL CONDITIONS:

You are the Reactor Operator.
The Plant is at 100% normal power.
Control Rod troubleshooting is underway.

INITIATING CUES:

You are requested to transfer Rod 5-4 to the Auxiliary Power Supply.
Following transfer of the rod, leave the reactor diamond and demand station in manual for further manipulations.

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

JPM 2S/SIMULATOR

Respond to a Reactor Coolant System Leak While
Decay Heat Removal is in Service

CANDIDATE _____

EXAMINER _____

PREPARED/
REVISED BY: *Madison Nelson* Date/ 12-17-98

VALIDATED BY: * *D. Jones* Date/ 12/17/98

APPROVED BY: *G. W. [Signature]* Date/ 12-18-98
(Operations Training Manager)

CONCURRED: ** *[Signature]* Date/ 12-18-98
(Operations Representative)

* Validation not required for minor enhancements, procedure Rev changes that do not affect the JPM, or individual step changes that do not affect the flow of the JPM.

** Operations Concurrence required for new JPMs and changes that affect the flow of the JPM (if not driven by a procedure revision).

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:

Respond to a Reactor Coolant System Leak while Decay Heat Removal is in service.

Alternate Path:

N/A

Facility JPM #:

New

K/A Rating(s)/Task Number/AO, RO, SRO:

09EA2.02//3.5/3.8//0020402013//RO, SRO

Task Standard:

Respond to a Reactor Coolant System (RCS) Leak using AP-520, Loss of RCS Coolant or Pressure, while Decay Heat Removal is in service.

Preferred Evaluation Method:

Simulator X In-Plant

References:

AP-520

Validation Time: 20 min.

Time Critical: NO

Candidate: _____

NAME

Time Start: _____

Performance Rating: SAT UNSAT Performance Time

Examiner: _____ / _____

NAME

SIGNATURE

DATE

COMMENTS

SIMULATOR OPERATOR INSTRUCTIONS:

1. The plant is on Decay Heat Removal.
2. The "A" Decay Heat (DH) Train is in service.
3. There is a small leak in the "A" DH Heat Exchanger.
4. The "A" Decay Heat Closed Cycle Cooling Storage Tank (DCT-1A) level is increasing.
5. All Chemical Addition Valves found on the Control Board are closed.
6. OP-209 clearance is in place. (make new set)
7. IC #66.

Tools/Equipment/Procedures Needed:

AP-520

READ TO OPERATOR

DIRECTIONS TO TRAINEE:

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

You are the Reactor Operator.
The Shift Supervisor has entered AP-520, due to loss of Reactor Coolant, and is now at step 3.77.
The Primary Plant Operator (PPO) has walked down the entire length of the drop line and has found no leak.
The "A" Decay Heat Train is in service.
The "B" Decay Heat Train is available.

INITIATING CUES:

You are requested to take appropriate actions for an RCS leak starting with step 3.77 of AP-520.

START TIME: _____ Shaded Block Indicates Critical Step

<p><u>STEP 1:</u> Obtain a copy of appropriate procedure.</p> <p><u>STANDARD:</u> Operator obtains a copy of AP-520.</p> <p>EXAMINER'S NOTE: There is a possibility that the Operator will look at the annunciator response and decide to use OP-404 to swap Decay Heat Trains. This will accomplish the task also.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 2:</u> Determine leak location.</p> <p><u>STANDARD:</u> Operator will see alarm for RM-L5 and notice an increase in DCT-1A indicating a leak from the "A" Decay Heat Train into the "A" Decay Heat Closed Cycle Cooling Train.</p> <p>EXAMINER'S CUE: (If needed) The Auxiliary Building is accessible.</p> <p>The Reactor Building Sump level annunciator has not been in alarm for 4 hours.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 3:</u> IF leak to SF pool exists, THEN isolate SF pool from DHR.</p> <p><u>STANDARD:</u> N/A.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 4:</u> IF leak stops, THEN EXIT this procedure.</p> <p><u>STANDARD:</u> N/A</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 5:</u> GO TO applicable step in this procedure based on leak location.</p> <p><u>STANDARD:</u> Operator transitions to step 3.100.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>

<p><u>STEP 6:</u> IF alternate DHR train is available, THEN start alternate DHR train. IF "A" Train DHR is running, THEN PERFORM Enclosure 4, Starting "B" Train DHR, in this procedure.</p> <p><u>STANDARD:</u> Operator continues on in the procedure, Enclosure 4.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 7:</u> Position DCV-178-MS to "0".</p> <p><u>STANDARD:</u> Operator rotates knob of DCV-178-MS to "0".</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 8A:</u> Isolate MU purification flow. Close DHV-105</p> <p><u>STANDARD:</u> Operator verifies DHV-105 is closed by green light ON and red light OFF.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 8B:</u> Close DHV-75.</p> <p><u>STANDARD:</u> Operator verifies DHV-75 is closed by green light ON and red light OFF.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 9:</u> Align DHP-1B for DHR. Ensure the following valves are closed: DHV-35, DHV-43, DHV-7, DHV-106, DHV-76.</p> <p><u>STANDARD:</u> Operator locates each valve's control switch and verifies green light ON. DHV-35 is verified by amber ES status light. DHV-43 is red tagged closed.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 10A:</u> Open DHP-1B isolation valves. DHV-40</p> <p><u>STANDARD:</u> Operator rotates DHV-40 control switch to OPEN and verifies red light ON green light OFF.</p> <p>EXAMINER'S NOTE: The stroke time on this valve is long.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 10B:</u> Open DHP-1B isolation valves. DHV-6</p> <p><u>STANDARD:</u> Operator rotates DHV-6 control switch to OPEN and holds until red light ON green light OFF.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 11:</u> Adjust DH control valves for 1500 gpm. DHV-111 and DHV-110</p> <p><u>STANDARD:</u> Operator adjusts thumb-wheel on each valve's controller to 1500 gpm. (Annunciator A-3-6)</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 12A:</u> Start "B" DHR train. Start DCP-1B.</p> <p><u>STANDARD:</u> Operator rotates DCP-1B control handle to START and verifies green light OFF and red light ON. Operator may also verify amperage and discharge pressure increases and stabilizes.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>

<p><u>STEP 12B:</u> Start "B" DHR train. Start RWP-3B.</p> <p><u>STANDARD:</u> Operator rotates RWP-3B control handle to START and verifies green light OFF and red light ON. Operator may also verify amperage and discharge pressure increases and stabilizes. (Annunciator D-6-5 will alarm and then clear as pressure increases)</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 12C:</u> Start "B" DHR train. Start DHP-1B.</p> <p><u>STANDARD:</u> Operator rotates DHP-1B control handle to START and verifies green light OFF and red light ON. Operator may also verify amperage increases and stabilizes. (Annunciator D-2-4 will alarm and then may clear as flow decreases).</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 13:</u> Establish RCS cooling. Adjust DCV-178-MS for desired cooling.</p> <p><u>STANDARD:</u> Operator rotates knob of DCV-178-MS to a throttled position.</p> <p><u>EXAMINER'S NOTE:</u> Operator may need to be cued that "adjustment of DCV-177 is appropriate for cooldown" to save time. Operator may match DCV-178-MS to the setting of DCV-177-MS.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 14:</u></p> <p><u>STANDARD:</u></p> <p><u>COMMENTS:</u></p>	<p>Stop DHP-1A.</p> <p>Operator rotates DHP-1A control handle to STOP and verifies red light OFF and green light ON. (Annunciator A-3-6)</p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 15A:</u></p> <p><u>STANDARD:</u></p> <p><u>COMMENTS:</u></p>	<p>Isolate "B" DHR train. Close the following valves: DHV-39</p> <p>Operator rotates DHV-39 control switch to CLOSE and verifies green light ON red light OFF.</p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 15B:</u></p> <p><u>STANDARD:</u></p> <p><u>COMMENTS:</u></p>	<p>Isolate "B" DHR train. Close the following valves: DHV-5</p> <p>Operator rotates DHV-5 control switch to CLOSE and verifies green light ON red light OFF.</p>	<p>____ SAT</p> <p>____ UNSAT</p>

<p><u>STEP 16:</u> Control RCS temperature. Adjust DHV-111 setpoint to 3000 gpm.</p> <p><u>STANDARD:</u> Operator adjusts thumb-wheel of DHV-111 to 3000 gpm. (Annunciator D-3-6 may or may be in alarm and will clear).</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 17:</u> Control RCS temperature. Adjust DCV-178-MS for desired cooling.</p> <p><u>STANDARD:</u> Operator rotates knob of DCV-178-MS to a throttled position.</p> <p>EXAMINER'S NOTE: Operator may need to be cued that "adjustment of DCV-178 is appropriate for cooldown" to save time.</p> <p><u>COMMENTS:</u></p> <p style="text-align: center;">END OF TASK</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

STOP TIME: _____

JPM QUESTION #1

Question: Given the following set of plant data, where is the Reactor Coolant System (RCS) leak location?

The Reactor Building Sump level is 1 foot and not rising.
The Auxiliary Building Sump is 1.3 feet and not rising.
The Reactor Coolant Drain Tank is at 11 feet and not rising.

The SW Surge Tank is at 12 feet and has increased 2 inches in the last 30 minutes.

Both DC Surge Tanks are at 11 feet and the "A" tank has increased 1 inch in the last hour.

RM-L5 is in alarm.

No other RMLs are in alarm.

Answer: The "A" Decay Heat Heat Exchanger is the source of the leak.

CANDIDATE'S RESPONSE

Time:

K/A Rating:

002A2.01//4.3/4.4

References:

AP-330

JPM QUESTION #2

Question: If the RCS leak developed while during a drained down condition, what is the minimum tygon tube level required to maintain Net Positive Suction Head (NPSH) for 2000 gpm flow through the operating Decay Heat Pump?

Answer: 129 feet 10 inches using the instrument error corrected curve

CANDIDATE'S RESPONSE

Time:

K/A Rating:

006A1.14//3.5/3.8

References:

OP-103B Curve 18

**JPM QUESTION #2
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)**

Question:

If the RCS leak developed while during a drained down condition, what is the minimum tygon tube level required to maintain Net Positive Suction Head (NPSH) for 2000 gpm flow through the operating Decay Heat Pump?

**JPM QUESTION #1
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)**

Question: Given the following set of plant data, where is the Reactor Coolant System (RCS) leak location?

The Reactor Building Sump level is 1 foot and not rising.
The Auxiliary Building Sump is 1.3 feet and not rising.
The Reactor Coolant Drain Tank is at 11 feet and not rising.

The SW Surge Tank is at 12 feet and has increased 2 inches in the last 30 minutes.

Both DC Surge Tanks are at 11 feet and the "A" tank has increased 1 inch in the last hour.

RM-L5 is in alarm.

No other RMLs are in alarm.

**CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)**

INITIAL CONDITIONS:

You are the Reactor Operator.

The Shift Supervisor has entered AP-520, due to loss of Reactor Coolant, and is now at step 3.77.

The Primary Plant Operator (PPO) has walked down the entire length of the drop line and has found no leak.

The "A" Decay Heat Train is in service.

The "B" Decay Heat Train is available.

INITIATING CUES:

You are requested to take appropriate actions for an RCS leak starting with step 3.77 of AP-520.

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

JPM 3S/SIMULATOR

Start a Reactor Building Pressure
Equalization/Mini-Purge under Non-Accident
Conditions

CANDIDATE _____

EXAMINER _____

PREPARED/
REVISED BY: Melissa Galbraith Date/ 12-17-98

VALIDATED BY: * D. Jones Date/ 12/17/98

APPROVED BY: H. [Signature] Date/ 12-18-98
(Operations Training Manager)

CONCURRED: ** [Signature] Date/ 12-18-98
(Operations Representative)

* Validation not required for minor enhancements, procedure Rev changes that do not affect the JPM, or individual step changes that do not affect the flow of the JPM.

** Operations Concurrence required for new JPMs and changes that affect the flow of the JPM (if not driven by a procedure revision).

SIMULATOR OPERATOR INSTRUCTIONS:

1. The plant is at 100% normal full power.
2. IC #11.
3. Power up RM-A1G/I/P monitoring and pump.

Tools/Equipment/Procedures Needed:

OP-417
Calculator

READ TO OPERATOR**DIRECTIONS TO TRAINEE:**

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

You are the Reactor Operator.
Chemistry has asked that a mini-purge be started in the Reactor Building (RB).
The previous shift has completed OP-417 up to and including step 4.7.14.

INITIATING CUES:

You are requested to finish the start of the RB mini-purge.

START TIME: _____ Shaded Block Indicates Critical Step

<p><u>STEP 1:</u> Obtain a copy of appropriate procedure.</p> <p><u>STANDARD:</u> Operator obtains a copy of OP-417.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>NOTE: The "Reactor Bldg Purge Air Flow Low" alarm is expected to come in when AHF-7A or AHF-7B is started. As long as step 4.7.16 (flow requirement) is met, no actions are required.</p> <p><u>STEP 2A:</u> Start Reactor Bldg Purge Exhaust Fan. Notify Chemistry prior to start of purge.</p> <p><u>STANDARD:</u> Operator contacts Chemistry to inform them of the purge start.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 2B:</u> Start Reactor Bldg Purge Exhaust Fan. Start AHF-7A OR AHF-7B.</p> <p><u>STANDARD:</u> Operator rotates either the control handle for either AHF-7A OR AHF-7B to the start position and hold until white permissive lights are ON and then verifies the red light ON and the green light OFF. (Annunciator F-4-7)</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 2C:</u> Notify HP that RB purge has started.</p> <p><u>STANDARD:</u> Operator contacts Health Physics to inform them of the purge start.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 3:</u> Verify total purge flow Channel "D" on AH-32-FIR is above the minimum required for fan operation. (> 20,000 SCFM).</p> <p><u>STANDARD:</u> Operator observes the Channel "D" flow on AH-32-FIR is approximately 27.2×10^3 SCFM.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>NOTE:</u> LR-60-FI1/FI2 will not indicate until RB pressure > 0 psig.</p> <p><u>STEP 4:</u> IF monitoring RB vent flow with LR-60-FI1/FI2, THEN multiply reading by 1.2273</p> <p><u>STANDARD:</u> Operator locates LR-60-FI1/FI2.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>

<p><u>STEP 5:</u> In modes 1-4, Perform RM-A1 gas Channel Checks every 8 hours. N/A if not required.</p> <p>EXAMINER'S CUE: Another operator will perform this step.</p> <p><u>STANDARD:</u> N/A</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 6A:</u> Perform RB Vent mini-purge, and/or Equalization. Open LRV-70 and LRV-71 OR Open LRV-72 and LRV-73</p> <p><u>STANDARD:</u> Operator rotates control switch for either LRV-70 and LRV-71 OR LRV-72 and LRV-73 in the OPEN position until the red light is ON and the green light is OFF.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 6B:</u> Perform RB Vent mini-purge, and/or Equalization. IF LRV-70 and LRV-71 are Open THEN Throttle Open LRV-121 to maintain LR-60-FI1 or LR-60-FI2 on scale OR Throttle Open LRV-123 to maintain LR-60-FI1 or LR-60-FI2 on scale</p> <p><u>STANDARD:</u> N/A; Flow is on scale.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 6C:</u> Notify Chemistry when flow is established, so they can obtain the required samples.</p> <p><u>STANDARD:</u> Operator notifies Chemistry that the RB Mini-Purge has commenced.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>

<p><u>STEP 6D:</u> IF RB Mini-Purge is to be ESTABLISHED, THEN concurrently Perform Section 4.6 of OP-417 to supply air to the RB.</p> <p>EXAMINER'S CUE: Section 4.6 is being performed by other operators.</p> <p><u>STANDARD:</u> Operator has completed the start of the Mini-Purge.</p> <p><u>COMMENTS:</u></p> <p>END of TASK</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
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STOP TIME: _____

JPM QUESTION #1

Question: Is the average Reactor Building (RB) temperature acceptable, given the following list of RB temperatures from SP-300?

COMPUTER POINT	TEMPERATURE °F
S358	107
S359	121
S382	132
S383	138
S387	OOS

Answer: The average RB temperature is 124.5°F, which meets SP-300 maximum tolerance.

CANDIDATE'S RESPONSE

Time:

K/A Rating:

029K3.01//2.9/3.1

References:

SP-300

JPM QUESTION #2

Question: In Mode 1, while securing the RB equalization two (2) of the isolation valves (LRV-70 and LRV-71) will not close, what are the Technical Specification actions, if any?

Answer: Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange in one hour. (Candidate may include 1 hour requirement in TS 3.6.1, Containment.) And, verify the affected penetration flow path is isolated once per 31 days for isolation devices outside containment and prior to entering Mode 4 from Mode 5 if not performed within the previous 92 days for isolation devices inside containment.

CANDIDATE'S RESPONSE

Time:

K/A Rating:

029K4.03//3.2/3.5

References:

TS 3.6.3

Flow diagram

**JPM QUESTION #2
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)**

Question:

While securing the RB equalization two (2) of the isolation valves (LRV-70 and LRV-71) do not close, what are the Technical Specification actions, if any?

JPM QUESTION #1
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)

Question:

Is the average Reactor Building (RB) temperature acceptable, given the following list of RB temperatures from SP-300?

COMPUTER POINT	TEMPERATURE °F
S358	107
S359	121
S382	132
S383	138
S387	OOS

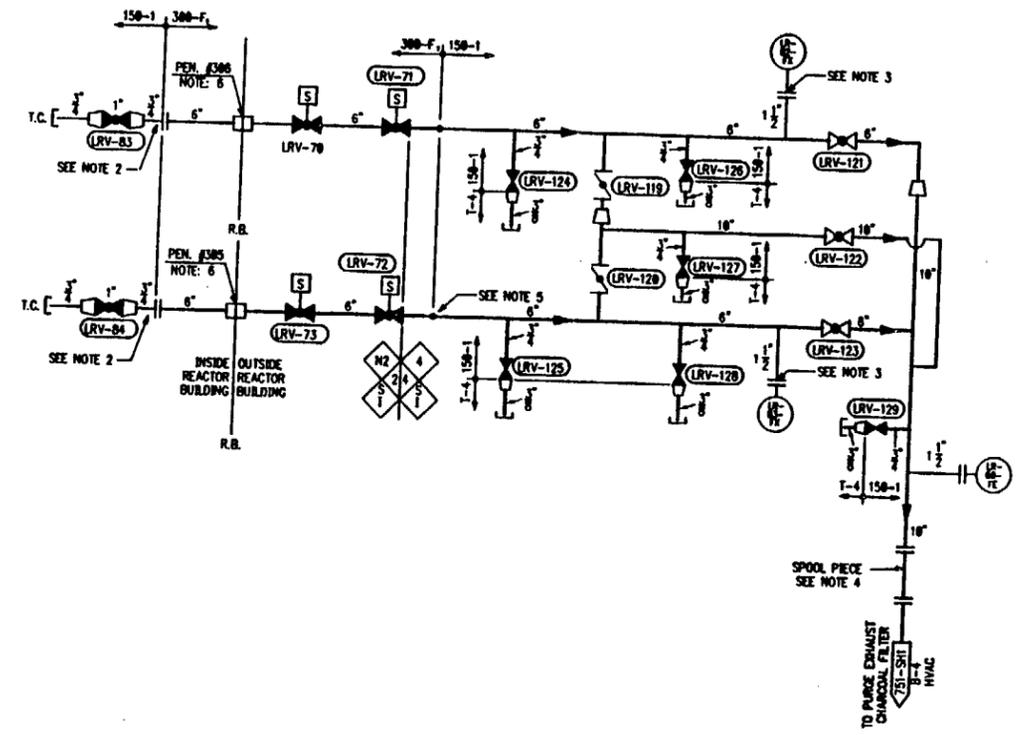
**CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)**

INITIAL CONDITIONS:

You are the Reactor Operator.
Chemistry has asked that a mini-purge be started in the Reactor Building (RB).
The previous shift has completed OP-417 up to and including step 4.7.14.

INITIATING CUES:

You are requested to finish the start of the RB mini-purge.



- NOTES:
1. ALL PIPING ON THIS DWG. IS SEISMIC CLASS I & BUILDES EXCEPT WHERE NOTED OTHERWISE.
 2. INSTALL DURING HYDRO TEST ONLY.
 3. FLOW INSTRUMENTATION FE/FT-82/83 ARE TO BE INSTALLED DURING THE HYDROGEN PURGE PROCESS. DURING NORMAL OPERATION, BLIND FLANGES ARE INSTALLED.
 4. SPOOL PIECE TO BE REMOVED AND BLIND FLANGES INSTALLED TO ISOLATE PURGE EXHAUST CHARCOAL FILTER DURING HYDROTESTING.
 5. A TRANSITION SPOOL PIECE HAS BEEN PROVIDED TO ACCOMMODATE SCHEDULE 80 END CONDITION ON VALVE TO MATCH SCHEDULE 40 PIPE.
 6. FOR PENETRATION CONTAINMENT ISOLATION CONFIGURATION SEE REF. DWG'S 315-305, 315-306

CAUTION:
302 DRAWINGS MAY NOT REFLECT ACTUAL VALVE POSITIONS IN THE PLANT. VALVE POSITIONS ARE CONTROLLED THROUGH OPERATING PROCEDURES. NOCS (62846)

12	REVISED PER DCN 98-201M	MAD	TMLD	CS	12/20
11	REVISED PER DCN 98-178M	TDF	KLM	CSS	8-12-98
10	REVISED PER DCN 97-842A,B,C,D	MAD	BEC	CSS	8-13-97
9	REVISED PER DCN 97-842A,B,C,D	MAD	BEC	CSS	8-13-97

FLORIDA POWER CORPORATION
 BY PENINSULA, FLORIDA
CRYSTAL RIVER PLANT
 UNIT NO. 3 855,000 KW
NUCLEAR PLANT PIPING L.R. SYSTEM FLOW DIA.
POST-ACCIDENT VENTING SYSTEM

REDRAWN ON CAD SYSTEM
 DRAWN BY: J.E.S. DATE: 07-20-91
 CHECKED BY: B.E.H. DATE: 07-20-91
 DESIGNED BY: J.P.H. DATE: 07-20-91

RAYMONT ENGINEERING COMPANY
FD-302-723
 SHEET 01 OF 01
 SCALE: _____ DRAWING NUMBER: _____ REV: _____
 D-9-B

**REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE**

JPM 4S/SIMULATOR

Ensure Building Spray Actuation

CANDIDATE _____

EXAMINER _____

PREPARED/
REVISED BY: Melissa Sullivan Date/ 12-17-98

VALIDATED BY: * [Signature] Date/ 12-17-98

APPROVED BY: [Signature] Date/ 12-18-98
(Operations Training Manager)

CONCURRED: ** [Signature] Date/ 12-18-98
(Operations Representative)

* Validation not required for minor enhancements, procedure Rev changes that do not affect the JPM, or individual step changes that do not affect the flow of the JPM.

** Operations Concurrence required for new JPMs and changes that affect the flow of the JPM (if not driven by a procedure revision).

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:
Ensure Building Spray Actuation.

Alternate Path:
With high Reactor Building Pressure, Building Spray does not automatically actuate and the "A" Building Spray Pump (BSP-1A) fails to start in manual.

Facility JPM #:
New

K/A Rating(s)/Task Number/AO, RO, SRO:
026A3.01//4.3/4.5//0260502003//RO, SRO

Task Standard:
Building Spray has failed to actuate on high Reactor Building Pressure, manually start Building Spray using EOP-07, Inadequate Core Cooling.

Preferred Evaluation Method:
Simulator X In-Plant

References:
EOP-07

Validation Time: 5 min. Time Critical: NO

Candidate: _____ Time Start: _____
NAME

Performance Rating: SAT ____ UNSAT ____ Performance Time _____

Examiner: _____ / _____
NAME SIGNATURE DATE

COMMENTS

SIMULATOR OPERATOR INSTRUCTIONS:

1. A LOCA is in progress.
2. Reactor Building Pressure is 43 psig.
3. Building Spray (BS) fails to automatically actuate.
4. BSP-1A will not start in manual.
5. The BWST level is > 20 ft.
6. IC #67

Tools/Equipment/Procedures Needed:

EOP-07

READ TO OPERATORDIRECTIONS TO TRAINEE:

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INITIAL CONDITIONS:

Your are the Reactor Operator.
The Shift Supervisor has entered EOP-07.
Reactor Building Pressure is 43 psig.

INITIATING CUES:

You are requested to ensure proper Building Spray actuation using step 3.14 of EOP-07.

START TIME: _____ Shaded Block Indicates Critical Step

<p><u>STEP 1:</u> Obtain a copy of appropriate procedure.</p> <p><u>STANDARD:</u> Operator obtains a copy of EOP-7.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 2A:</u> IF at any time, RB Pressure \geq 30 psig, THEN ensure proper BS actuation. Ensure BS pumps and required cooling pumps are operating: BSP-1A, RWP-3A, DCP-1A, BSP-1B, RWP-3B, DCP-1B.</p> <p>EXAMINER'S NOTE: BSP-1A will not start; BSP-1B is not running. All other pumps are running.</p> <p><u>STANDARD:</u> Operator rotates control handle of each non-running pump (BSP-1A and BSP-1B) to START and verifies red light comes ON and green light goes OFF.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 2B:</u> Ensure applicable BS suction valves are open: DHV-34, DHV-35, DHV-42, DHV-43.</p> <p>EXAMINER'S NOTE: DHV-34 and DHV-35 are open; DHV-42 and DHV-43 are closed.</p> <p><u>STANDARD:</u> Operator verifies DHV-34 and DHV-35 are open and red lights are ON. Operator verifies DHV-42 and DHV-43 are closed and green lights are ON.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 2C:</u> IF BS suction is from BWST, THEN ensure BS controlled at 1500 gpm (1450 to 1550).</p> <p><u>STANDARD:</u> Operator adjusts thumb-wheel on BSV-4 controller to 1500 gpm (1450 to 1550).</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 2D:</u></p>	<p>IF BS suction is from RB sump, THEN ensure BS discharge valves are selected to 1200 gpm and LOCAL.</p>	<p>_____ SAT</p>
<p><u>STANDARD:</u></p>	<p>N/A (suction aligned to BWST)</p>	<p>_____ UNSAT</p>
<p><u>COMMENTS:</u></p>	<p>END of TASK</p>	

STOP TIME: _____

JPM QUESTION #1

Question: What Technical Specification action(s), if any, is(are) required for the loss of AHF-1A and BSV-4? Reactor Building Fan ES selection is as follows:

AHF-1A is NOT ES selected
AHF-1B is ES selected
AHF-1C is ES selected

Answer: Restore reactor building spray train to Operable status within 72 hours.

CANDIDATE'S RESPONSE

Time:

K/A Rating:

026K3.01//3.9/4.1

References:

TS 3.6.6

JPM QUESTION #2

Question: What is the required flow for the control valve for the operating Building Spray pump given the following plant conditions?

Reactor Building pressure is 31 psig.
Reactor Coolant temperature is 500°F.
Reactor Coolant pressure is 900 psig.
Pressurizer level is 30 inches.
The Borated Water Storage Tank level is 8 feet.

Answer: 1200 gpm

CANDIDATE'S RESPONSE

Time:

K/A Rating:

026K4.07//3.8/4.1

References:

EOP-7 (other EOPs)

JPM QUESTION #2
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)

Question:

What is the required flow for the control valve for the operating Building Spray pump given the following plant conditions?

Reactor Building pressure is 31 psig.

Reactor Coolant temperature is 500°F.

Reactor Coolant pressure is 900 psig.

Pressurizer level is 30 inches.

The Borated Water Storage Tank level is 8 feet.

**JPM QUESTION #1
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)**

Question: What Technical Specification action(s), if any, is(are) required for the loss of AHF-1A and BSV-4? Reactor Building Fan ES selection is as follows:

AHF-1A is NOT ES selected

AHF-1B is ES selected

AHF-1C is ES selected

**CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)**

INITIAL CONDITIONS:

INITIAL CONDITIONS:

Your are the Reactor Operator.
The Shift Supervisor has entered EOP-07.
Reactor Building Pressure is 43 psig.

INITIATING CUES:

You are requested to ensure proper Building Spray actuation using
step 3.14 of EOP-07.

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

JPM 1CR/CONTROL ROOM

Re-energize "X" Non-Nuclear Instrumentation
(NNI-X)

CANDIDATE _____

EXAMINER _____

PREPARED/
REVISED BY: Melissa Gillian Date/ 12-17-98

VALIDATED BY: * D. Jones Date/ 12-17-98

APPROVED BY: F. W. Jones Date/ 12-18-98
(Operations Training Manager)

CONCURRED: ** R. Ford Date/ 12-18-98
(Operations Representative)

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** Operations Concurrence required for new JPMs and changes that affect the flow of the JPM (if not driven by a procedure revision).

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:

Re-energize NNI-X.

Alternate Path:

N/A

Facility JPM #:

New

K/ARating(s)/Task Number/AO, RO, SRO:

062A4.01//3.3/3.1//0160102001//RO, SRO

Task Standard:

Re-energize NNI-X using OP-501, following a power failure.

Preferred Evaluation Method:

Simulator _____ In-Plant X

References:

OP-501

Validation Time: 7 min.

Time Critical: NO

Candidate: _____
NAME

Time Start: _____

Performance Rating: SAT _____ UNSAT _____ Performance Time _____

Examiner: _____ / _____
NAME SIGNATURE DATE

COMMENTS

SIMULATOR OPERATOR INSTRUCTIONS:

N/A

Tools/Equipment/Procedures Needed:

OP-501

READ TO OPERATOR

DIRECTIONS TO TRAINEE:

I will explain the initial conditions, and state the task to be performed. All in-plant steps, including any required communications, shall be simulated for this JPM. Under no circumstances are you to operate any plant equipment. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

Your are the Reactor Operator.
The plant is at 100% full power.
A power failure occurred, de-energizing NNI-X (both AC and DC).
All SASS modules transferred correctly.
AP-581 directs restoration in accordance with OP-501.
Steps 4.3.1 through 4.3.4 of OP-501 are complete.

INITIATING CUES:

You are requested to re-energize NNI-X starting with step 4.3.5.

START TIME: _____ Shaded Block Indicates Critical Step

<p><u>STEP 1:</u> Obtain a copy of appropriate procedure.</p> <p><u>STANDARD:</u> Operator obtains a copy of OP-501, Section 4.3.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 2:</u> IF NNI-X DC power is de-energized, THEN Ensure switches S1 and S2 on the NNI-X Power Auctioneer Panel are OFF. Located at the top front of NNI Cab. #2.</p> <p><u>STANDARD:</u> Operator selects both S1 and S2 switches to OFF.</p> <p>EXAMINER'S CUE: Both switches are OFF.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 3:</u> Ensure the NNI-X power supply Bkrs and the backup power supply Bkr are closed: VBDP-1 Bkr. #8; VBDP-1 Bkr. #11; VBDP-5 Bkr. #7; VBDP-5 Bkr. #25; VBDP-3 Bkr. #38</p> <p><u>STANDARD:</u> Operator verifies at each VBDP status panel that the breaker light is ON.</p> <p> EXAMINER'S CUE: All power supply breakers are closed.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 4:</u> Ensure the NNI-X cabinet fan breaker is closed and the fans are running. Breaker is located at the top rear of NNI Cab. #3.</p> <p><u>STANDARD:</u> Operator verifies fan breaker is ON and fan flow.</p> <p> EXAMINER'S CUE: The fan is running.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 5:</u> Ensure the 4 Lambda power supply switches located inside the front door of NNI Cabinet 3 PS1/PS2 top, and PS1/PS2 bottom are ON</p> <p><u>STANDARD:</u> Operator verifies that power light is ON for all 4 Lambda power supplies.</p> <p>EXAMINER'S CUE: The Power supplies are ON.</p> <p><u>COMMENTS:</u></p>	<p>SAT</p> <p>UNSAT</p>
<p><u>STEP 6:</u> Simultaneously Select switches S1 and S2 on the NNI-X Power Auctioneer Panel to ON. Located at the top front of NNI Cab #2.</p> <p><u>STANDARD:</u> Operator selects both S1 and S2 to ON at the same time.</p> <p>EXAMINER'S CUE: Both switches are ON.</p> <p><u>COMMENTS:</u></p>	<p>SAT</p> <p>UNSAT</p>

<p><u>STEP 7:</u> Verify all 4 NNI power supply monitor lights are lit. Located inside the front door of NNI CAB. #3, Row 6, Slot 15. IF any one of the lights are not lit, THEN Determine the cause of the failure and rectify before proceeding.</p> <p><u>STANDARD:</u> Operator verifies all power supply monitor white lights are ON.</p> <p> EXAMINER'S CUE: All 4 power supply monitor lights are ON.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 8:</u> Inspect all NNI-X fuses. Located in NNI Cabinets 1 (front and rear), 2 (rear), 4 (rear), and 5 (rear). Light is lit if fuse is blown. Replace blown fuses in accordance with CP-113A.</p> <p> EXAMINER'S CUE: No fuse lights are ON.</p> <p><u>STANDARD:</u> N/A</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 9:</u> Ensure NNI-X powered SASS Power Supplies are ON (located inside the front door of NNI CAB. #6 front). 6-3-1, NNI-X Supply to SASS; 6-6-1, NNI-X Supply to SASS.</p> <p><u>STANDARD:</u> Operator verifies that power supply lights are ON for SASS power in Cab. #6, 6-3-1 and 6-6-1.</p> <p>EXAMINER'S CUE: SASS Power Supplies are ON.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 10:</u> Verify the ICS NNI TROUBLE annunciator is cleared. K-02-02.</p> <p><u>STANDARD:</u> Operator verifies annunciator K-02-02, ICS NNI TROUBLE is not lit.</p> <p>EXAMINER'S CUE: The alarm has cleared.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<u>STEP 11:</u>	Ensure NNI-X is energized and stable for a minimum of 30 minutes prior to realignment to normal.	_____ SAT
<u>STANDARD:</u>	Operator has recovered power.	_____ UNSAT
<u>COMMENTS:</u>		
END OF TASK		

STOP TIME: _____

JPM QUESTION #1

Question: While at full power; Nuclear Instrument, NI-6, fails midscale given the readings from the other Nuclear Instruments and that the neutron flux selector switch is selected to NI-5/6; what are the results of this failure?

NI-5 reads 99%.

NI-7 reads 98%.

NI-8 reads 99%.

Answer: NI-5 will be supplying the neutron power signal.

CANDIDATE'S RESPONSE

Time:

K/A Rating:

015K6.01//2.9/3.2

References:

OP-501

JPM QUESTION #2

Question: "A" Loop Turbine header pressure is selected to PT-2; MS-10 is selected to the "A" side for Turbine control; if power is suddenly lost to SP-10-PT2, what will happen to the "A" side Turbine Bypass Valves and Turbine control?

Answer: No change will occur in either Turbine Bypass Valve position or Turbine control.

CANDIDATE'S RESPONSE

Time:

K/A Rating:

016K4.03//2.8/2.9

References:

OP-501

**JPM QUESTION #2
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)**

Question:

“A” Loop Turbine header pressure is selected to PT-2; MS-10 is selected to the “A” side for Turbine control; if power is suddenly lost to SP-10-PT2, what will happen to the “A” side Turbine Bypass Valves and Turbine control?

**JPM QUESTION #1
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)**

Question: While at full power; Nuclear Instrument, NI-6, fails midscale given the readings from the other Nuclear Instruments and that the neutron flux selector switch is selected to NI-5/6; what are the results of this failure?

NI-5 reads 99%.

NI-7 reads 98%.

NI-8 reads 99%.

CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

Your are the Reactor Operator.
The plant is at 100% full power.
A power failure occurred, de-energizing NNI-X (both AC and DC).
All SASS modules transferred correctly.
AP-581 directs restoration in accordance with OP-501.
Steps 4.3.1 through 4.3.4 of OP-501 are complete.

INITIATING CUES:

You are requested to re-energize NNI-X starting with step 4.3.5.

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

JPM 2 CR/CONTROL ROOM

Reset a Reactor Protection System Channel

CANDIDATE _____

EXAMINER _____

PREPARED/
REVISED BY: Melissa Bellin Date/ 12-17-98

VALIDATED BY: * D. J. [Signature] Date/ 12-17-98

APPROVED BY: F. [Signature] Date/ 12-18-98
(Operations Training Manager)

CONCURRED: ** _____ Date/ _____
(Operations Representative)

* Validation not required for minor enhancements, procedure Rev changes that do not affect the JPM, or individual step changes that do not affect the flow of the JPM.

** Operations Concurrence required for new JPMs and changes that affect the flow of the JPM (if not driven by a procedure revision).

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:
Reset a Reactor Protection System channel.

Alternate Path:
N/A

Facility JPM #:
076

K/ARating(s)/Task Number/AO, RO, SRO:
012A4.04//3.3/3.3//0120102007//RO, SRO

Task Standard:
Reset Reactor Protection System (RPS) channel "B" using OP-507.

Preferred Evaluation Method:
Simulator _____ In-Plant X

References:
OP-507

Validation Time: 5 min. Time Critical: NO

Candidate: _____ Time Start: _____
NAME

Performance Rating: SAT _____ UNSAT _____ Performance Time _____

Examiner: _____ / _____
NAME SIGNATURE DATE

COMMENTS

SIMULATOR OPERATOR INSTRUCTIONS:

N/A

Tools/Equipment/Procedures Needed:

OP-507
RPS cabinet key

READ TO OPERATOR

DIRECTIONS TO TRAINEE:

I will explain the initial conditions, and state the task to be performed. All in-plant steps, including any required communications, shall be simulated for this JPM. Under no circumstances are you to operate any plant equipment. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

Your are the Reactor Operator.
The plant is at 100% full power.
The "B" RPS has been tripped using the Primary Method.

INITIATING CUES:

You are requested to reset the "B" RPS channel.

START TIME: _____ Shaded Block Indicates Critical Step

<p><u>STEP 1:</u> Obtain a copy of appropriate procedure.</p> <p><u>STANDARD:</u> Operator obtains a copy of OP-507, Section 4.10.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 2:</u> IF Primary Method was used to trip RPS channel, THEN RESET the Reactor Bldg. High Pressure Contact Monitor. Depress reset toggle on the REACTOR BUILDING HIGH PRESS contact monitor. Verify both REACTOR BUILDING HIGH PRESS contact monitor lights are extinguished. GO TO Step 4.10.4.</p> <p><u>STANDARD:</u> Operator depresses and then releases the toggle for the REACTOR BUILDING HIGH PRESS contact monitor and verifies that both red lights go OUT.</p> <p>EXAMINER'S CUE: The REACTOR BUILDING HIGH PRESS contact monitor is reset.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 3:</u> Reset the reactor trip module. Depress subsystem reset toggle on the reactor trip module and Verify the protective subsystem amber indicating lamps on top of each channel cabinet are dim for the "B" channel.</p> <p><u>STANDARD:</u> Operator depresses and then releases the subsystem reset toggle on the reactor trip module and verifies that the amber light for the "B" channel on each RPS cabinet dims.</p> <p>EXAMINER'S CUE: As seen; second light from left is dim on all 4 RPS cabinets.</p> <p><u>COMMENTS:</u></p> <p>END of TASK</p>	<p>SAT</p> <p>UNSAT</p>
--	-------------------------

STOP TIME: _____

JPM QUESTION #1

Question: Given the following set of plant parameters , what should be the condition of the Reactor Protection System (RPS)?
(Based on Technical Specification allowable values)

Reactor Coolant (RCS) pressure is 1845 psig.
Reactor power is 89% full power.
RCS outlet temperature is 605°F.
Reactor Building pressure is 2.8 psig.
Main Turbine control oil pressure is 55 psig.
The "A" Main Feedwater Pump control oil pressure is 56 psig.
The "B" Main Feedwater Pump control oil pressure is 60 psig.
3 Reactor Coolant Pumps are operating.

Answer: The Reactor should be tripped on RCS variable low pressure.

CANDIDATE'S RESPONSE

Time:

K/A Rating:
012K4.02//3.9/4.3

References:
TS 3.3.1, Table 3.3.1-1

JPM QUESTION #2

Question: At 60% power, with the "A" Reactor Coolant Pump Power Monitor in bypass and the following set of the Reactor Coolant Pumps' kilowatt usage, what is the condition of the RPS system?

REACTOR COOLANT PUMP	KW
A	1,234
B	13,200
C	8,900
D	14,100

Answer: RPS is normal (no trips are present).

CANDIDATE'S RESPONSE

Time:

K/A Rating:

003K3.04//3.9/4.2

References:

TS 3.3.1, Table 3.3.1-1

**JPM QUESTION #2
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)**

Question: At 60% power, with the "A" Reactor Coolant Pump Power Monitor in bypass and the following set of the Reactor Coolant Pumps' kilowatt usage, what is the condition of the RPS system?

REACTOR COOLANT PUMP	KW
A	1,234
B	13,200
C	8,900
D	14,100

**JPM QUESTION #1
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)**

Question:

Given the following set of plant parameters , what should be the condition of the Reactor Protection System (RPS)?
(Based on Technical Specification allowable values)

Reactor Coolant (RCS) pressure is 1845 psig.

Reactor power is 89% full power.

RCS outlet temperature is 605°F.

Reactor Building pressure is 2.8 psig.

Main Turbine control oil pressure is 55 psig.

The "A" Main Feedwater Pump control oil pressure is 56 psig.

The "B" Main Feedwater Pump control oil pressure is 60 psig.

3 Reactor Coolant Pumps are operating.

**CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)**

INITIAL CONDITIONS:

Your are the Reactor Operator.
The plant is at 100% full power.
The "B" RPS has been tripped using the Primary Method.

INITIATING CUES:

You are requested to reset the "B" RPS channel.

**REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE**

JPM 3 CR/CONTROL ROOM

**Enable Turbine Lockout Functions prior to
Generator Synchronization Startup**

CANDIDATE _____

EXAMINER _____

PREPARED/
REVISED BY: *Michelle Belbin* Date/ 12-17-98

VALIDATED BY: * *D. Jones* Date/ 12-17-98

APPROVED BY: *F. W. Gray* Date/ 12-18-98
(Operations Training Manager)

CONCURRED: ** *Qu. Full* Date/ 12-18-98
(Operations Representative)

* Validation not required for minor enhancements, procedure Rev changes that do not affect the JPM, or individual step changes that do not affect the flow of the JPM.

** Operations Concurrence required for new JPMs and changes that affect the flow of the JPM (if not driven by a procedure revision).

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:

Enable turbine lockout functions prior to Generator synchronization startup.

Alternate Path:

N/A

Facility JPM #:

New

K/ARating(s)/Task Number/AO, RO, SRO:

045A3.04//3.4/3.6//0620102005//RO, SRO

Task Standard:

Enable the turbine lockouts and perform final conditions prior to synchronizing the Generator.

Preferred Evaluation Method:

Simulator _____ In-Plant X

References:

OP-203

Validation Time: 10 min.

Time Critical: NO

Candidate: _____

NAME

Time Start: _____

Performance Rating: SAT _____ UNSAT _____ Performance Time _____

Examiner: _____ / _____

NAME

SIGNATURE

DATE

COMMENTS

SIMULATOR OPERATOR INSTRUCTIONS:

N/A

Tools/Equipment/Procedures Needed:

OP-203
RPS Cabinet key

READ TO OPERATORDIRECTIONS TO TRAINEE:

I will explain the initial conditions, and state the task to be performed. All in-plant steps, including any required communications, shall be simulated for this JPM. Under no circumstances are you to operate any plant equipment. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

Your are the Reactor Operator.
A Turbine Generator startup is in progress.
The Turbine is at 1800 rpm.
Steps 4.3.1 through 4.3.20 are complete.

INITIATING CUES:

You are requested to perform the final conditions prior to synchronizing the Generator to the grid.

START TIME: _____ Shaded Block Indicates Critical Step

<p><u>STEP 1:</u> Obtain a copy of appropriate procedure.</p> <p><u>STANDARD:</u> Operator obtains a copy of OP-203, Section 4.3.21.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 2A:</u> WHEN Turbine is at 1800 RPM, THEN Perform final conditions prior to synchronizing Generator to grid. STOP TBP-2.</p> <p><u>STANDARD:</u> Operator rotates control handle for TBP-2 to STOP and verify green light ON, red light OFF.</p> <p>EXAMINER'S CUE: TBP-2 is stopped.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 2B:</u> STOP TBP-8.</p> <p><u>STANDARD:</u> Operator rotates control handle for TBP-8 to STOP and verify green light ON, red light OFF.</p> <p>EXAMINER'S CUE: TBP-8 is stopped.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 2C:</u> Observe Turbine Supervisory Instrument readings are normal.</p> <p>EXAMINER'S CUE: Turbine Supervisory Instrument readings are as is.</p> <p><u>STANDARD:</u> Operator verifies that the Instrument readings for the Turbine are normal. (TB-455-SI1/2 through TB-463-SI1/2; TB-469-ZI; TB-467-ZI; TB-465-ZI; TB-466-ZI; TB-359-SI; TB-123-SY-1) (Operator may check more instruments)</p> <p>EXAMINER'S NOTE: Cue if needed: There are no alarms or excessive readings.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 2D:</u> Select TURB 3 Stop Vlvs Lockouts selector switch to ON.</p> <p><u>STANDARD:</u> Operator rotates control switch for TURB 3 Stop Vlvs Lockouts to ON and verifies that white indicating light ON</p> <p>EXAMINER'S CUE: TURB 3 Stop Vlvs Lockouts are functional.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 2E:</u> Reset Turbine trip contact monitors with lower test toggle switch on Contact Buffer, in RPS Channels A, B, C, and D.</p> <p><u>STANDARD:</u> In each RPS cabinet operator depresses lower toggle switch for Turbine Trip contact monitor and verifies each light dims.</p> <p>EXAMINER'S CUE: The Turbine Trip contact monitor is reset.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 2F:</u> Ensure GEN #3 Field Failure Lockouts selector switch is selected to ON.</p> <p><u>STANDARD:</u> Operator verifies GEN #3 Field Failure Lockouts selector switch is ON and white indicating light is ON.</p> <p>EXAMINER'S CUE: GEN #3 Field Failure Lockouts are functional.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 2G:</u> Adjust Turbine LOADING RATE to maximum setting of 15.</p> <p><u>STANDARD:</u> Operator adjusts LOADING RATE thumb-wheel to \leq 15.</p> <p>EXAMINER'S CUE: The LOADING RATE is set to \leq 15.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 2H:</u> Perform Enclosure 2, Close the following valves: EXV-63; EXV-65; EXV-64; EXV-66; EXV-73; EXV-71; EXV-74; EXV-69; EXV-67; EXV-68; EXV-72; EXV-70; MSV-109; MSV-110; MSV-111; MSV-112.</p> <p>EXAMINER'S CUE: Simulate that all these valves are open.</p> <p><u>STANDARD:</u> Operator rotates control switch for each valve to CLOSE and verify green light ON and red light OFF.</p> <p>EXAMINER'S CUE: TGF valve alignment is complete. The Task is complete.</p> <p><u>COMMENTS:</u></p> <p style="text-align: center;">END of TASK</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

STOP TIME: _____

JPM QUESTION #1

Question: After the completion of step 4.3.21, in OP-203, Plant Startup, with the following Condensate Heater (CDHE) levels, what is the condition of the Turbine Stop Valve Lockout (86/TURB-1)?

CDHE-1A has a level at the 127' 1" elevation.
CDHE-1B has a level at the 126' 11" elevation.
CDHE-2A has a level at the 126' 9" elevation.
CDHE-2B has a level at the 126' 7" elevation.

Answer: The Turbine Stop Valve Lockout should be tripped.

CANDIDATE'S RESPONSE

Time:

K/A Rating:

045K4.11//3.6/3.9

References:

AR-602

208 drawings

JPM QUESTION #2

Question: With 423 Megawatts (electric) and Feedwater flow at 8.2×10^5 lbm/hr, what is the condition of the Turbine Stop Valve Lockout (86/TURB-1)?

Answer: The Turbine Stop Valve Lockout should be tripped (AMSAC)

CANDIDATE'S RESPONSE

Time:

K/A Rating:

045K1.18//3.6/3.7

References:

AR-603

OP-103A

**JPM QUESTION #2
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)**

Question:

With 423 Megawatts (electric) and Feedwater flow at 8.2×10^5 lbm/hr, what is the condition of the Turbine Stop Valve Lockout (86/TURB-1)?

**JPM QUESTION #1
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)**

Question:

After the completion of step 4.3.21, in OP-203, Plant Startup, with the following Condensate Heater (CDHE) levels, what is the condition of the Turbine Stop Valve Lockout (86/TURB-1)?

CDHE-1A has a level at the 127' 1" elevation.
CDHE-1B has a level at the 126' 11" elevation.
CDHE-2A has a level at the 126' 9" elevation.
CDHE-2B has a level at the 126' 7" elevation.

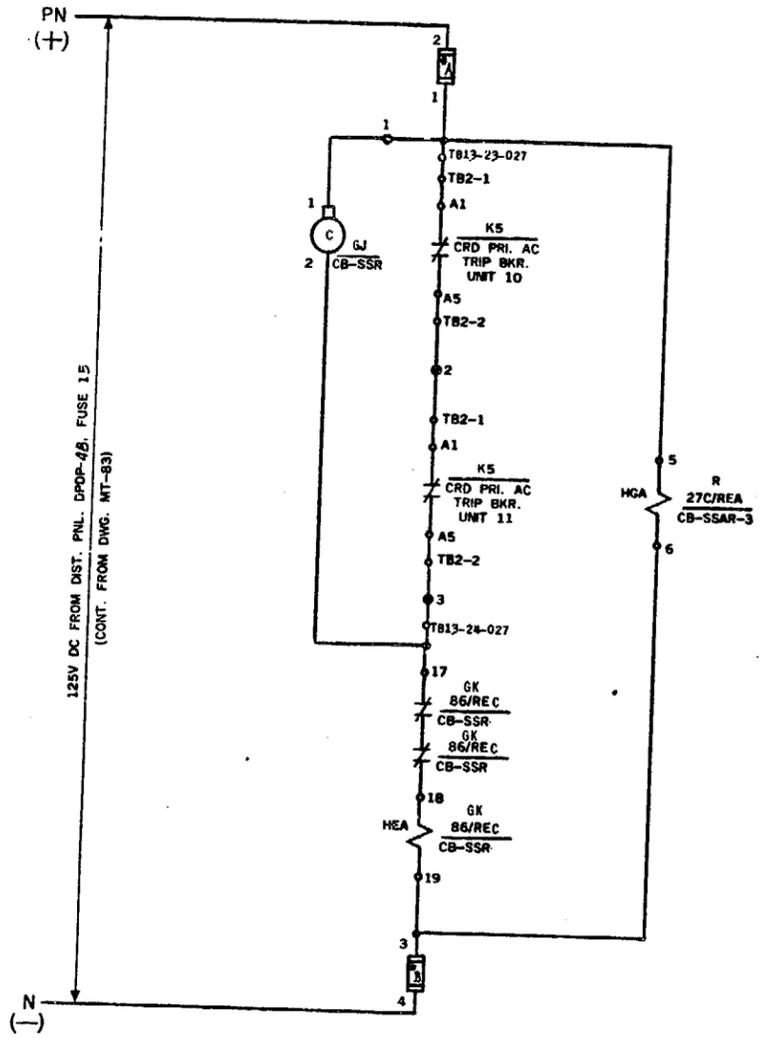
**CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)**

INITIAL CONDITIONS:

Your are the Reactor Operator.
A Turbine Generator startup is in progress.
The Turbine is at 1800 rpm.
Steps 4.3.1 through 4.3.20 are complete.

INITIATING CUES:

You are requested to perform the final conditions prior to
synchronizing the Generator to the grid.



NOTES:

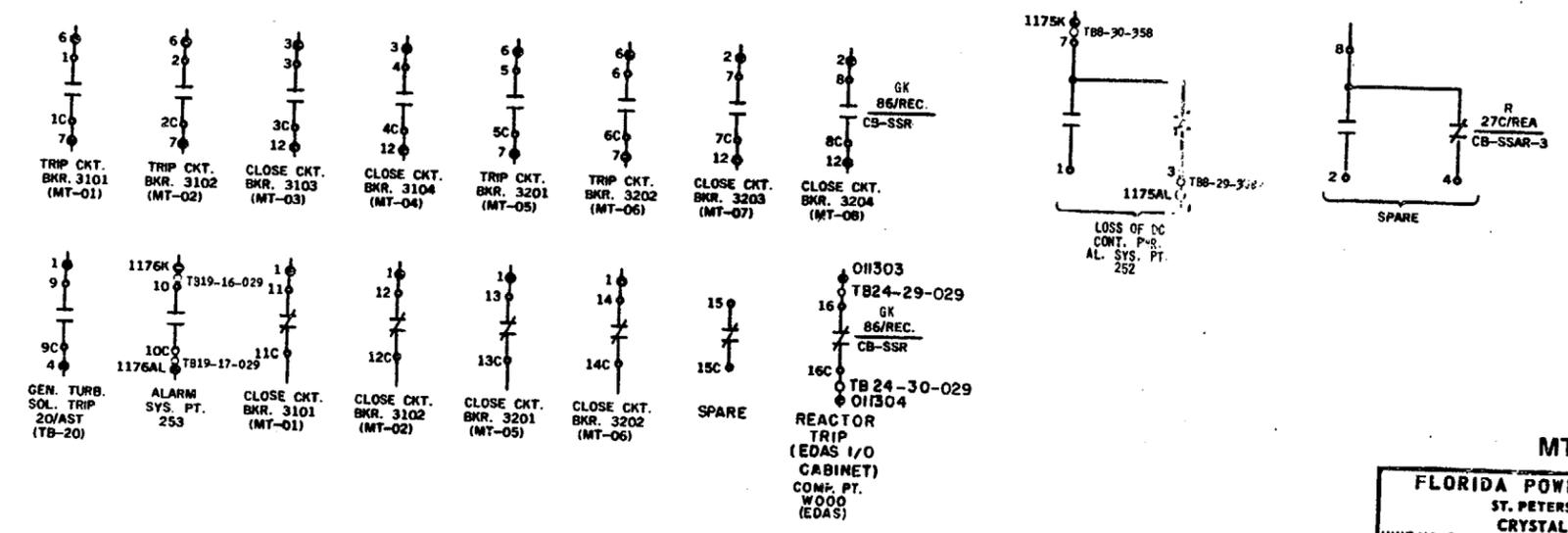
- FOR LOGIC DIAGRAM, SEE DWG. S-203-040, MT-112
- LAST USED WIRE NO. 3
- WIRE MARKS ARE I/O ADDRESS TERMINATION

EG. CO 14 18

TERMINAL NUMBER
TERMINAL BLOCK
RMUX NUMBER

FUSE IDENT	FUSE TAG NO.	LOCATION
# A	SSR-GL-FU-01	CB-SSR
# B	SSR-GL-FU-02	CB-SSR

FOR FUSE SIZE REFER TO (MIS)



CONSTRUCTION BIDDING PURPOSES ONLY
RELEASED FOR ENGR.

MT-98

FLORIDA POWER CORPORATION
ST. PETERSBURG, FLORIDA
CRYSTAL RIVER PLANT
UNIT NO. 3 855,000 KW

ELEMENTARY DIAGRAM
REACTOR TRIPPED LOCKOUT RELAY

5	REVISED PER DCN 93-381B	SC	3/20/94
4	AS BUILT PER MAR 90-02-03-01	WLS	11-23-92
3	AS BUILT PER MAR 88-10-20-01	WLS	10/10/87
2	REVISED PER DCN 87-185	GK	9/24/88
1	AS BUILT PER MAR 81-02-72-01	GK	12-1-85
10-9-72 APPROVED FOR CONCEPT ALG			
4203	B-208-040	5	
WORK ORDER SIZE DRAWING REV		PFC DRAWING NO.	
GILBERT ASSOCIATES, INC. ENGINEERS AND CONSULTANTS READING, PENNA.		APPROVED FOR CONSTRUCTION BY FLORIDA POWER CORPORATION	
DRAWING ENGINEER APPL		APPROVED FOR CONSTRUCTION BY FLORIDA POWER CORPORATION	
MADE	CH	APP	DATE
REV	CH	APP	DATE

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

JPM 1P/PLANT

Reactor Coolant System Depressurization using
High Pressure Auxiliary Spray

CANDIDATE _____

EXAMINER _____

PREPARED/
REVISED BY: *Michelle Salhin* Date/ 12-17-98

VALIDATED BY: * *D. Jones* Date/ 12-17-98

APPROVED BY: *R. Dasgupta* Date/ 12-18-98
(Operations Training Manager)

CONCURRED: ** _____ Date/ _____
(Operations Representative)

* Validation not required for minor enhancements, procedure Rev changes that do not affect the JPM, or individual step changes that do not affect the flow of the JPM.

** Operations Concurrence required for new JPMs and changes that affect the flow of the JPM (if not driven by a procedure revision).

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:

Reactor Coolant System (RCS) depressurization using High Pressure
Auxiliary Spray

Alternate Path:

N/A

Facility JPM #:

Licensed Operator Requalification JPM

K/ARating(s)/Task Number/AO, RO, SRO:

010A2.02//3.9/3.9//0040403006//AO, RO, SRO

Task Standard:

During Emergency Operation, depressurize the RCS using High
Pressure Auxiliary Spray, EOP-14, Enclosure 13.

Preferred Evaluation Method:

Simulator _____ In-Plant X

References:

EOP-14

Validation Time: 10 min.

Time Critical: NO

Candidate: _____

NAME

Time Start: _____

Performance Rating: SAT _____ UNSAT _____ Performance Time _____

Examiner: _____ / _____

NAME

SIGNATURE

DATE

COMMENTS

SIMULATOR OPERATOR INSTRUCTIONS:

N/A

Tools/Equipment/Procedures Needed:

EOP-14, Enclosure 13
Simulate ladder usage

READ TO OPERATOR

DIRECTIONS TO TRAINEE:

I will explain the initial conditions, and state the task to be performed. All in-plant steps, including any required communications, shall be simulated for this JPM. Under no circumstances are you to operate any plant equipment. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

Your are the Primary Plant Operator.
The Plant has tripped.
High Pressure Auxiliary Spray is required to lower the RCS pressure.
DHV-91 is closed.
Another Primary Plant Operator has verified that DHV-92 is open.
RCV-53 and RCV-13 are closed.

INITIATING CUES:

You are requested to perform the actions of the Primary Plant Operator (PPO) to establish High Pressure Auxiliary Spray, EOP-14, Enclosure 13.

START TIME: _____ Shaded Block Indicates Critical Step

<u>STEP 1:</u> <u>STANDARD:</u> <u>COMMENTS:</u>	Obtain a copy of appropriate procedure. Operator obtains a copy of EOP-14, Enclosure 13.	_____ SAT _____ UNSAT
<u>STEP 2:</u> <u>STANDARD:</u> <u>COMMENTS:</u>	Isolate Auxiliary spray line Decay Heat (DH) piping. This step complete per initial conditions.	_____ SAT _____ UNSAT
<u>STEP 3A:</u> <u>STANDARD:</u> <u>COMMENTS:</u>	Align Makeup (MU) system to supply Auxiliary spray. Close RCV-53. This sub-step completed per initial conditions.	_____ SAT _____ UNSAT
<u>STEP 3B:</u> <u>STANDARD:</u> <u>COMMENTS:</u>	Close RCV-13. This sub-step completed per initial conditions.	_____ SAT _____ UNSAT

<p><u>STEP 3C:</u> Notify PPO to perform the following (119 ft. Auxiliary Building, AB, penetration area): Ensure MUV-520 "MU to DH High PRESS. Aux. Spray Drain" is closed.</p> <p>EXAMINER'S CUE: Simulate the use of the ladder.</p> <p><u>STANDARD:</u> Operator verifies MUV-520 is closed .</p> <p>EXAMINER'S CUE: MUV-520 is closed.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 3D:</u> Open MUV-273.</p> <p><u>STANDARD:</u> Operator rotates hand-wheel of MUV-273 in the counter-clockwise (CCW) direction until the valve is open.</p> <p>EXAMINER'S CUE: MUV-273 is open</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 3E:</u> Open DHV-95.</p> <p><u>STANDARD:</u> Operator rotates hand-wheel of DHV-95 in the counter-clockwise (CCW) direction until the valve is open.</p> <p>EXAMINER'S CUE: DHV-95 is open</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>

<p><u>STEP 3F:</u></p> <p><u>STANDARD:</u></p> <p><u>EXAMINER'S CUE:</u></p> <p><u>COMMENTS:</u></p>	<p>Throttle DHV-126 approximately 2 turns open.</p> <p>Operator rotates hand-wheel of DHV-126 in the counter-clockwise (CCW) direction until the valve is 2 turns open.</p> <p>DHV-126 is throttled 2 turns open.</p>	<p>SAT</p> <p>UNSAT</p>
<p><u>STEP 4:</u></p> <p><u>EXAMINER'S CUE:</u></p> <p><u>STANDARD:</u></p> <p><u>COMMENTS:</u></p>	<p>Manually control seal injection flow rate. Select MUV-16 to HAND.</p> <p>This step has been performed by the Control Room.</p> <p>N/A</p>	<p>SAT</p> <p>UNSAT</p>

<p>NOTE: Aux. Spray flow is determined by subtracting individual seal flow from total seal flow.</p> <p>STEP 5: WHEN directed by the controlling procedure, THEN throttle flows as desired. Throttle RCV-53 to maintain continuous high PRESS Aux. spray flow to limit Pressurizer (PZR) thermal cycles.</p> <p>EXAMINER'S CUE: This step has been performed by the Control Room.</p> <p>STANDARD: N/A</p> <p>COMMENTS:</p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p>STEP 6: Throttle MUV-16 to maintain desired individual seal injection flows.</p> <p>EXAMINER'S CUE: This step has been performed by the Control Room.</p> <p>STANDARD: N/A</p> <p>COMMENTS:</p>	<p>____ SAT</p> <p>____ UNSAT</p>

<p><u>STEP 7:</u> If necessary to obtain additional Aux. Spray flow, THEN notify PPO to throttle DHV-126.</p> <p>EXAMINER'S CUE: The Control Room Directs you to throttle open approximately one-half turn more.</p> <p><u>STANDARD:</u> Operator rotates hand-wheel of DHV-126 in the counter-clockwise (CCW) direction until the valve is 1/2 turn more open.</p> <p>EXAMINER'S CUE: Auxiliary spray flow is as desired.</p> <p><u>COMMENTS:</u></p> <p style="text-align: center;">END OF TASK</p>	<p style="text-align: center;">_____ SAT</p> <p style="text-align: center;">_____ UNSAT</p>
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STOP TIME: _____

JPM QUESTION #1

Question: During a cooldown directed in an Emergency Operating Procedure, High Pressure Auxiliary Spray is used to reduce pressure. At 350°F T_{incore} , what is the lowest pressure that can be achieved per the EOP prior to loss of adequate subcooling margin?

Answer: 287 psig (low range) \pm 10 psig.

CANDIDATE'S RESPONSE

Time:

K/A Rating:

010K5.01//3.5/4.0

References:

EOP-14, Figure 2

JPM QUESTION #2

Question: What are the Low Temperature Over Pressure (LTOP) Technical Specification actions, if any, given the following?

RCS pressure is 150 psig.
RCS temperature is 190°F.
All vessel head bolts are fully tensioned.
HPI is deactivated but one Makeup (MU) pump is capable of injecting into the Reactor Coolant System (RCS).
The PORV cannot be selected to low range.
Both Core Flood Tanks are isolated.
Pressurizer level is 138 inches.
Makeup Tank (MUT) level is 75 inches.

Answer: L.C.O. 3.4.11 is not met, the required actions for condition "I" must be performed.

Either restore LTOP System to OPERABLE status in 1 hour; or, depressurize RCS and establish RCS vent of \geq 0.75 square inches in 12 hours.

CANDIDATE'S RESPONSE

Time:

K/A Rating:

010K4.03//3.8/4.1

References:

Technical Specifications

**JPM QUESTION #2
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)**

Question: What are the Low Temperature Over Pressure (LTOP) Technical Specification actions, if any, given the following?

RCS pressure is 150 psig.
RCS temperature is 190°F.
All vessel head bolts are fully tensioned.
HPI is deactivated but one Makeup (MU) pump is capable of injecting into the Reactor Coolant System (RCS).
The PORV cannot be selected to low range.
Both Core Flood Tanks are isolated.
Pressurizer level is 138 inches.
Makeup Tank (MUT) level is 75 inches.

**JPM QUESTION #1
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)**

Question:

During a cooldown directed in an Emergency Operating Procedure, High Pressure Auxiliary Spray is used to reduce pressure. At 350°F T_{incore} , what is the lowest pressure that can be achieved per the EOP prior to loss of adequate subcooling margin?

CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

Your are the Primary Plant Operator.
The Plant has tripped.
High Pressure Auxiliary Spray is required to lower the RCS pressure.
DHV-91 is closed.
Another Primary Plant Operator has verified that DHV-92 is open.
RCV-53 and RCV-13 are closed.

INITIATING CUES:

You are requested to perform the actions of the Primary Plant Operator (PPO) to establish High Pressure Auxiliary Spray, EOP-14, Enclosure 13.

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

JPM 2P/PLANT

Cross-tie Emergency Feedwater Pumps using EFV-
12 and EFV-13

CANDIDATE _____

EXAMINER _____

PREPARED/
REVISED BY: Melissa Bellini Date/ 12-17-98

VALIDATED BY: * D. Jones Date/ 12-17-98

APPROVED BY: F. Was Young Date/ 12-18-98
(Operations Training Manager)

CONCURRED: ** [Signature] Date/ 12-18-98
(Operations Representative)

* Validation not required for minor enhancements, procedure Rev changes that do not affect the JPM, or individual step changes that do not affect the flow of the JPM.

** Operations Concurrence required for new JPMs and changes that affect the flow of the JPM (if not driven by a procedure revision).

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:

Cross-tie Emergency Feedwater (EF) Pumps using EFV-12 and EFV-13.

Alternate Path:

N/A

Facility JPM #:

New

K/A Rating(s)/Task Number/AO, RO, SRO:

061A2.04//3.4/3.8//0190103011//AO, RO, SRO

Task Standard:

During Emergency Operation, cross-tie Emergency Feedwater Pump using EFV-12 and EFV-13, EOP-14, Enclosure 11.

Preferred Evaluation Method:

Simulator _____ In-Plant X

References:

EOP-14

Validation Time: 9 min.

Time Critical: NO

Candidate: _____

NAME

Time Start: _____

Performance Rating: SAT _____ UNSAT _____ Performance Time _____

Examiner: _____ / _____

NAME

SIGNATURE

DATE

COMMENTS

SIMULATOR OPERATOR INSTRUCTIONS:

N/A

Tools/Equipment/Procedures Needed:

EOP-14, Enclosure 11
Key

READ TO OPERATOR

DIRECTIONS TO TRAINEE:

I will explain the initial conditions, and state the task to be performed. All in-plant steps, including any required communications, shall be simulated for this JPM. Under no circumstances are you to operate any plant equipment. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

Your are the Primary Plant Operator.
The Plant has experienced a loss of off-site power.
The "A" Diesel is supplying the "A" ES 4160V Bus.
The "B" ES 4160V B is not energized.
Both Emergency Feedwater (EF) pumps are running with discharge block valves open.

INITIATING CUES:

You are requested to perform the actions of the Primary Plant Operator (PPO) to load manage the "A" Emergency Diesel Generator, by cross-connecting the EFPs, using EOP-14, Enclosure 11.

START TIME: _____ Shaded Block Indicates Critical Step

<p><u>STEP 1:</u> Obtain a copy of appropriate procedure.</p> <p><u>STANDARD:</u> Operator obtains a copy of EOP-14, Enclosure 11.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 2:</u> Verify EFP-1 and EFP-2 are running.</p> <p><u>STANDARD:</u> N/A, per initial conditions.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 3A:</u> Ensure EFP-2 normal discharge path is isolated. Depress MANUAL PERMISSIVE push buttons on Emergency Feedwater Initiation and Control (EFIC) channels A and B.</p> <p>EXAMINER'S CUE: The control room has taken MANUAL PERMISSIVE of the EFIC system.</p> <p><u>STANDARD:</u> N/A</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 3B:</u> Close EFP-2 discharge block valves: EFV-11 and EFV-32.</p> <p>EXAMINER'S CUE: The control room has closed both EFV-11 and EFV-32.</p> <p><u>STANDARD:</u> N/A</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 3C:</u> Notify PPO to open EFP-2 discharge block valve switches ("A" ES 480V Switchgear Room): DPDP 8C-1 and DPDP-8C-3</p> <p><u>STANDARD:</u> Operator positions each switch, DPDP 8C-1 and DPDP-8C-3 to OFF.</p> <p>EXAMINER'S CUE: Motor power for EFV-11 and EFV-32 has been removed.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 4:</u> Ensure level in available steam generators is at or trending toward required level with EFP-1</p> <p>EXAMINER'S CUE: This step has been performed by the Control Room.</p> <p><u>STANDARD:</u> N/A</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 5A:</u> Notify PPO to cross connect EFW trains. Unlock and close EFW-12 switches ("A" ES 480V Switchgear Room): DPDP 8C-5 and DPDP-8C-6</p> <p><u>STANDARD:</u> Operator unlocks and positions each switch, DPDP 8C-5 and DPDP-8C-6 to ON.</p> <p>EXAMINER'S CUE: Motor and control power for EFV-12 has been established.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 5B:</u> Depress the open push button for EFV-12-MST ("A" ES 480V Switchgear Room).</p> <p><u>STANDARD:</u> Operator depresses EFV-12 open push button until green light is OFF and red light is ON.</p> <p>EXAMINER'S CUE: EFV-12 is open.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>

<p><u>STEP 5C:</u> When EFV-12 is open, THEN open and lock EFV-12 switches ("A" ES 480V Switchgear Room): DPDP 8C-5 and DPDP-8C-6</p> <p><u>STANDARD:</u> Operator positions each switch, DPDP 8C-5 and DPDP-8C-6 to OFF and then locks the switches in position.</p> <p>EXAMINER'S CUE: Motor and control power for EFV-12 has been removed.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 6:</u> Notify Control Room that EFV-12 is open.</p> <p><u>STANDARD:</u> Operator uses nearest phone (just outside of the ES 480V Switchgear rooms) to inform the Control Room that EFV-12 is open.</p> <p>EXAMINER'S CUE: The "A" and "B" trains of EFW have been cross connected.</p> <p><u>COMMENTS:</u></p> <p style="text-align: center;">END OF TASK</p>	<p>____ SAT</p> <p>____ UNSAT</p>

STOP TIME: _____

JPM QUESTION #1

Question: With CDV-103 open, what is the total volume usable to the Emergency Feedwater Pumps if the level in the Condensate Storage Tank is 8.5 feet at CD-67-L12 and the level in the Emergency Feedwater Tank is 7.5 feet on EF-98-LI?

Answer: 56,538.9 gallons (22,145 gallons + 34,393.9 gallons = 56,538.9 gallons)

CANDIDATE'S RESPONSE

Time:

K/A Rating:

061K4.01//4.1/4.2

References:

OP-103F, Figures 3 and 16

JPM QUESTION #2

Question: Given the following plant conditions:

Reactor Coolant temperature is 440F.
Reactor Coolant pressure is 450 psig.
Both Steam Generator (OTSGs) levels are at 50% and slowly decreasing.

If the Emergency Feedwater flow control valves are in manual, what is the required Emergency Feedwater flow rate?

Answer: > 280 gpm in 1 line to each OTSG.

CANDIDATE'S RESPONSE

Time:

K/A Rating:

061A2.08//2.7/2.9

References:

EOP-13, Rule 3
Steam Tables or EOP-14 Figure 2

**JPM QUESTION #2
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)**

Question:

Given the following plant conditions:

Reactor Coolant temperature is 440F.

Reactor Coolant pressure is 450 psig.

Both Steam Generator (OTSGs) levels are at 50% and slowly decreasing.

If the Emergency Feedwater flow control valves are in manual, what is the required Emergency Feedwater flow rate?

**JPM QUESTION #1
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)**

Question:

With CDV-103 open, what is the total volume usable to the Emergency Feedwater Pumps if the level in the Condensate Storage Tank is 8.5 feet at CD-67-L12 and the level in the Emergency Feedwater Tank is 7.5 feet on EF-98-LI?

**CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)**

INITIAL CONDITIONS:

Your are the Primary Plant Operator.
The Plant has experienced a loss of off-site power.
The "A" Diesel is supplying the "A" ES 4160V Bus.
The "B" ES 4160V B is not energized.
Both Emergency Feedwater (EF) pumps are running with discharge
block valves open.

INITIATING CUES:

You are requested to perform the actions of the Primary Plant
Operator (PPO) to load manage the "A" Emergency Diesel Generator,
by cross-connecting the EFPs, using EOP-14, Enclosure 11.

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

JPM 3P/PLANT

Start an Evaporator Condensate Storage Tank
(ECST) Release

CANDIDATE _____

EXAMINER _____

PREPARED/
REVISED BY: *Prebase Nallian* Date/ 12-17-98

VALIDATED BY: * *D. Jones* Date/ 12-17-98

APPROVED BY: *R. Wes Gray* Date/ 12-18-98
(Operations Training Manager)

CONCURRED: ** *Q. H. H.* Date/ 12-18-98
(Operations Representative)

* Validation not required for minor enhancements, procedure Rev changes that do not affect the JPM, or individual step changes that do not affect the flow of the JPM.

** Operations Concurrence required for new JPMs and changes that affect the flow of the JPM (if not driven by a procedure revision).

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:

Start an Evaporator Condensate Storage Tank (ECST) release.

Alternate Path:

N/A

Facility JPM #:

New

K/A Rating(s)/Task Number/AO, RO, SRO:

068A4.02//3.2/3.1//0680103002//AO, RO, SRO

Task Standard:

Using OP-407A, Operation of the Evaporator Condensate Storage Tanks (ECSTs), startup a release.

Preferred Evaluation Method:

Simulator _____ In-Plant X

References:

OP-407A

Validation Time: 21 min.

Time Critical: NO

Candidate: _____
NAME

Time Start: _____

Performance Rating: SAT _____ UNSAT _____ Performance Time _____

Examiner: _____ / _____
NAME SIGNATURE DATE

COMMENTS

SIMULATOR OPERATOR INSTRUCTIONS:

N/A

Tools/Equipment/Procedures Needed:

OP-407A
Key
Calculator

READ TO OPERATOR

DIRECTIONS TO TRAINEE:

I will explain the initial conditions, and state the task to be performed. All in-plant steps, including any required communications, shall be simulated for this JPM. Under no circumstances are you to operate any plant equipment. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

Your are the Primary Plant Operator.
The previous shift has recirculated the "A" ECST (WDT-10A) in preparation for release.
Raw Water (RW) dilution flow rate is < 9,700 gpm
RWV-150 is in service.
The previous shift has signed the procedure up to and including step 4.3.8.

INITIATING CUES:

You are requested to start the release for the "A" ECST.

START TIME: _____ Shaded Block Indicates Critical Step

<p><u>STEP 1:</u> Obtain a copy of appropriate procedure.</p> <p><u>STANDARD:</u> Operator obtains a copy of OP-407A, Section 4.3.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 2A:</u> Complete the Release valve alignment. Close WDV-893, Outlet Isolation to SW-RW.</p> <p><u>STANDARD:</u> Operator rotates hand-wheel of WDV-893 in the clockwise (CW) direction until the valve is closed.</p> <p>EXAMINER'S CUE: WDV-893 is closed.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 2B:</u> Unlock and open SDV-130, RM-L7 Outlet Crosstie.</p> <p><u>STANDARD:</u> Operator unlocks and rotates hand-wheel of SDV-130 in the counter-clockwise (CCW) direction until the valve is open.</p> <p>EXAMINER'S CUE: SDV-130 is open.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 2C:</u> Unlock and open RWV-110, Release Isolation to the "A" DC-RW Train.</p> <p><u>STANDARD:</u> Operator unlocks and rotates chained hand-wheel of RWV-110 in the counter-clockwise (CCW) direction until the valve is open.</p> <p> EXAMINER'S CUE: RWV-110 is open.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 2D:</u> Signatures.</p> <p><u>STANDARD:</u> Operator signs "Performed By" space.</p> <p> EXAMINER'S CUE: The examiner signs the "Verified By" space.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p>CAUTION: WD-101-FIT will not count the Release volume if the "Total Inhibit" function is selected.</p> <p>STEP 3A: Make preparations for the Release. Record the Maximum Waste flow rate from the Liquid Release Permit.</p> <p>EXAMINER'S CUE: (No permit will be supplied, examiner must furnish the information.) The Liquid Release Permit Maximum Waste flow rate is 60 gpm.</p> <p>STANDARD: Operator records 60 gpm in the procedure.</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>STEP 3B: Record the tank level on the Liquid Release Permit.</p> <p>EXAMINER'S CUE: I will record 95% on the Liquid Release Permit.</p> <p>STANDARD: N/A</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 3Cd:</u> Record the Totalizer value on the liquid release Permit INTEGRATOR READING.</p> <p>EXAMINER'S CUE: I will record the Totalizer value on the Liquid Release Permit.</p> <p><u>STANDARD:</u> N/A</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 3Ce:</u> Depress Key #8 to display the flow rate.</p> <p><u>STANDARD:</u> Operator depresses key #8.</p> <p>EXAMINER'S CUE: The flow rate is displayed.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>

<p>NOTE: Flow rate is limited to 65 gpm (per WD-101-FR) when WDT-10A is to be released using WDP-14B or WDT-10B is to be released using WDP-10A.</p> <p>NOTE: Flow rate is limited to 80 gpm (per WD-101-FR) when WDT-10A or WDT-10B is to be released using its associated pump and the suction cross tie valves are closed.</p> <p>EXAMINER'S CUE: WDT-10A is being released with its associated pump.</p> <p>STEP 4A: Start the Release to "A" DC-RW. Perform the following at the Radwaste Panel: Open WDV-892, Outlet to the RW System.</p> <p>STANDARD: Operator rotates control switch to WDV-892 to OPEN.</p> <p>EXAMINER'S CUE: WDV-892 is open.</p> <p>COMMENTS:</p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p>STEP 4B: Rotate WDV-891 pneumatic loader counterclockwise until loose.</p> <p>STANDARD: Operator rotates pneumatic loader counterclockwise until loose.</p> <p>EXAMINER'S CUE: Pneumatic loader is loose.</p> <p>COMMENTS:</p>	<p>____ SAT</p> <p>____ UNSAT</p>

<p><u>STEP 4C:</u> Select WDV-891 Control Switch to the OPEN position.</p> <p><u>STANDARD:</u> Operator rotates control switch to WDV-891 to OPEN.</p> <p>EXAMINER'S CUE: WDV-891's control switch is selected to open.</p> <p><u>COMMENTS:</u></p>	<p>SAT</p> <p>UNSAT</p>
<p><u>STEP 4D:</u> Throttle open WDV-891 to achieve $\leq 90\%$ of the Maximum Waste flow rate allowed per the Liquid Release Permit, as indicated on WD-101-FIT.</p> <p>EXAMINER'S CUE: The suction cross connect is CLOSED.</p> <p><u>STANDARD:</u> Operator rotates pneumatic loader clockwise until a flow of ≤ 54 gpm.</p> <p>EXAMINER'S CUE: Release flow rate is 50 gpm.</p> <p><u>COMMENTS:</u></p>	<p>SAT</p> <p>UNSAT</p>

<p><u>STEP 4E:</u> Record release start time.</p>	<p>_____ SAT</p>
<p><u>STANDARD:</u> Operator records the release start time in the space.</p>	
<p>EXAMINER'S CUE: The release has been started.</p>	<p>_____ UNSAT</p>
<p><u>COMMENTS:</u></p>	
<p>END OF TASK</p>	

STOP TIME: _____

JPM QUESTION #1

Question: During a release of ECST-1A, WD-101-FIT becomes inoperable. What are the ODCM requirements, if any, regarding the release?

Answer: The release may continue if the flow rate is estimated at least once per 4 hours during the actual release.

CANDIDATE'S RESPONSE

Time:

K/A Rating:

068K4.01//3.4/4.1

References:

OP-407A
ODCM

JPM QUESTION #2

Question: Complete Enclosure 1, from OP-407A; what are the release rates for the associated time periods?

Answer: See Attached.

CANDIDATE'S RESPONSE

Time:

K/A Rating:

068A4.02//3.2/3.1

References:

OP-407A, Enclosures 1 & 4

**JPM QUESTION #2
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)**

Question: Complete Enclosure 1, from OP-407A; what are the release rates for the associated time periods?

**JPM QUESTION #1
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)**

Question: During a release of ECST-1A, WD-101-FIT becomes inoperable. What are the ODCM requirements, if any, regarding the release?

CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

Your are the Primary Plant Operator.
The previous shift has recirculated the "A" ECST (WDT-10A) in preparation for release.
Raw Water (RW) dilution flow rate is < 9,700 gpm
RWV-150 is in service.
The previous shift has signed the procedure up to and including step 4.3.8.

INITIATING CUES:

You are requested to start the release for the "A" ECST.

MANUAL RELEASE RATE DATA SHEET

(1)	(2)	(3)	(4)	(5)
TIME*	TANK LEVEL WD-97-LI WD-98-LI (ft)	TANK VOLUME (gal)	$\frac{\Delta \text{ VOLUME (gallons)}}{\Delta \text{ TIME (minutes)}}$	RELEASE RATE (gpm)
1400	95.0			
1600	67.5		_____	
1800	35.0		_____	
2000	2.5		_____	

*Perform every 2 hours or per NSM, and final reading when release is secured.

Performed by _____ Time _____ Date _____
 Reviewed by _____ Time _____ Date _____

MANUAL RELEASE RATE DATA SHEET

(1)	(2)	(3)	(4)	(5)
TIME*	TANK LEVEL WD-97-LI WD-98-LI (ft)	TANK VOLUME (gal)	$\frac{\Delta \text{ VOLUME (gallons)}}{\Delta \text{ TIME (minutes)}}$	RELEASE RATE (gpm)
1400	95.0	7,607		
1600	67.5	5,121	$\frac{2486}{15}$	165.7
1800	35.0	2,216	$\frac{2905}{120}$	24.2
2000	2.5	144	$\frac{5072}{120}$	42.3

*Perform every 2 hours or per NSM, and final reading when release is secured.

Performed by Signature Time Current Date Current Date
 Reviewed by _____ Time _____ Date _____

Individual Walk-through Test Outline

Facility: <u>Crystal River Unit 3</u> Exam Level: <u>RO/SRO</u>		Date of Examination: <u>2-8-99</u> Operating Test No. : 2
System / JPM Title / Type Codes*	Safety Function	Planned Follow-up Questions: K/A/G // Importance // Description
Control Rod Drive (CRD)//Recover a Misaligned Rod //001A2.03//3.5/4.2// S, N	1	A. 001K5.07//3.3/4.0//What are the Technical Specification requirements, if any, when given the position of each rod in group 7 (2 rods will not be within the 6.5% group average)? B. 001K5.04//4.3/4.7//What are the Technical Specification requirements, if any, when given the Rod Index and % power (Rod Index will be in the restricted region)?
Makeup (MU)//Restart a MU pump following an Reactor Coolant System leak isolation //004A4.08//3.8/3.4//S, N	2	A. 009EA2.02//3.5/3.8//Prior to leak isolation the Auxiliary Building sump, where all leakage had been directed, had increased from 2.8 to 3.4 feet in 7 minutes, what was the leak rate? B. 002K4.05//3.8/4.2//From leak rate data provided, what are the Technical Specification actions, if any?
Reactor Coolant System (RCS)//Depressurize the RCS using High Pressure Auxiliary Spray //010A2.02//3.9/3.9//S, M, L	3	A. 010K6.03//3.2/3.6//If all the Pressurizer heaters are selected to "AUTO", and Pressurizer temperature is 646°F, what heater banks are on? B. 010K4.03//3.8/4.1//What are the Low Temperature Over Pressure (LTOP) Technical Specification actions, if any, given a list of plant conditions (PORV inoperable for greater than one hour)?

<p>Emergency Diesel Generator (EDG)// Synchronize in Off-Site Power and unload /shutdown EDG-1A //062A4.07//3.1/3.1//S; D</p>	<p>6</p>	<p>A. 064K1.03//3.6/4.0//While performing SP-300, Operating Daily Surveillance Log, on the "A" Emergency Diesel Generator, fuel oil level in the Day Tank is 22.5 inches on the dip stick, what is the usable volume and are any fuel oil transfer pumps operating?</p> <p>B. B. 064A3.01//4.1/4.0//Given a set of plant data (Reactor Coolant pressure, temperature, bus voltage etc.), are the Emergency Diesel Generators running?</p>
<p>Radiation Monitor (RM)//Perform a Functional Test of RM-G29 //072A4.01 //3.0/3.3//CR, A, M</p>	<p>7</p>	<p>A. 072A4.01//3.0/3.3//Following completion of SP-335A, Radiation Monitoring Instrumentation Functional Test RMGs, RM-G29 is declared inoperable, what are the Technical Specification actions, if any?</p> <p>B. B. 072A4.01//3.0/3.3//What indications are present in the Control Room if RM-G29 is reading 3×10^8 mR/Hr?</p>
<p>Steam Generator System//Perform Steam Generator Isolation for TRACC Limits// 035A4.06//4.5/4.6//CR, N</p>	<p>4</p>	<p>A. 035A1.01//3.6/3.8//What is the maximum allowable Steam Generator level if Main Steam pressure is 835 psig and temperature is 550°F?</p> <p>B. 059K1.05//3.1/3.2//What is the expected Feedwater temperature at 45% thermal power?</p>
<p>Nuclear Services Closed Cycle Cooling (SW)//Isolate Loads following a Loss of SW//008A4.01//3.3/3.1// CR, D</p>	<p>8</p>	<p>A. 008K4.01//3.1/3.3//Given a set of plant conditions, what is the status of SWP-1A, 1B and 1C?</p> <p>B. 008A1.02//2.9/3.1//Given a UHS temperature and maximum % blockage of the SWHEs determine the action to be taken, if any?</p>

Emergency Feedwater (EFW)//Transfer suction flow path to the EFW pumps//061A1.04 //3.9/3.9// P, D, R	4	<p>A. 061A1.04//3.9/3.9//How many usable gallons are in Emergency Feedwater Tank (EFT-2) when a level of 5.75 feet is reached?</p> <p>B. 061K1.07//3.6/3.8//The Emergency Feedwater Pumps are taking suction from the Hotwell; what is the maximum flow rate if the Hotwell temperature is 102°F?</p>
DC Distribution// Transfer Battery Chargers//063A4.01// 2.8/3.1//P, D	6	<p>A. 063K1.02//2.7/3.2//What is the cause for these indications, given the indicating light status of the "A" Inverter and the status of the "A" Inverter Trouble Annunciator?</p> <p>B. 063K1.03//2.9/3.5//Given the voltage and amperage readings of the "A" side battery chargers, what is the status of each battery charger?</p>
Waste Gas (WG)// Perform a Waste Gas Decay Tank Release to the Containment //071A4.05//2.6/2.6//P, D, R	9	<p>A. 071K1.06//3.1/3.1//The Waste Gas Compressors have been placed in pull-to-lock; Radiation Monitors, RM-A3, RM-A8 and RM-A2, are in alarm; given the pressures of the Waste Gas Decay Tanks, what is the cause of the Radiation Monitor alarms?</p> <p>B. 071A3.02//2.8/2.8//All Waste Gas Decay Tanks (WDT) are full (approximately 80 psig); both Waste Gas Compressors are in pull-to-lock; the Waste Gas Header is at 2.4 psig; WDT-1B's sequencer switch is OFF; the other tanks are ON; what will happen if the "A" Waste Gas Compressor (in lag) control handle is taken to start?</p>

* - Type codes: (D)irect from bank, (M)odified from bank, (N)ew, (A)lternate path, (C)ontrol room, (S)imulator, (L)ow Power, (P)lant, (R)CA, (T)ime critical

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

JPM 5S/SIMULATOR

Recover a Misaligned Rod

CANDIDATE _____

EXAMINER _____

PREPARED/
REVISED BY: Melina Allen Date/ 12-17-98

VALIDATED BY: * D. Jones Date/ 12-17-98

APPROVED BY: R. Wasley Date/ 12-18-98
(Operations Training Manager)

CONCURRED: ** [Signature] Date/ 12-18-98
(Operations Representative)

* Validation not required for minor enhancements, procedure
Rev changes that do not affect the JPM, or individual step
changes that do not affect the flow of the JPM.

** Operations Concurrence required for new JPMs and changes
that affect the flow of the JPM (if not driven by a procedure
revision).

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:

Recover a misaligned rod.

Alternate Path:

N/A

Facility JPM #:

New

K/A Rating(s)/Task Number/AO, RO, SRO:

001A2.03//3.5/4.2//0010402004//RO, SRO

Task Standard:

Recover a misaligned control rod using OP-502, Control Rod Drive System, Section 4.7, Recovery of Misaligned Rod(s).

Preferred Evaluation Method:

Simulator X In-Plant

References:

OP-502

Validation Time: 17 min.

Time Critical: NO

Candidate: _____
NAME

Time Start: _____

Performance Rating: SAT _____ UNSAT _____ Performance Time _____

Examiner: _____ / _____
NAME SIGNATURE DATE

COMMENTS

SIMULATOR OPERATOR INSTRUCTIONS:

1. Reactor power is approximately 45%.
2. Control Rod 7-1 is on the bottom.
3. Group 7 is NOT at its out-limit.
4. OP-502, Steps 4.7.1 through 4.7.30 are complete.
5. IC #68

Tools/Equipment/Procedures Needed:

OP-502

READ TO OPERATORDIRECTIONS TO TRAINEE:

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

You are the Reactor Operator.
Control rod 7-1 has dropped into the core.
The plant is stable at 45% power.
The pre-job briefing has been completed.
The previous shift has completed steps 4.7.1 through 4.7.30.

INITIATING CUES:

You are requested by the Shift Manager to recover the misaligned rod starting with step 4.7.31.

START TIME: _____ Shaded Block Indicates Critical Step

<p><u>STEP 1:</u> Obtain a copy of appropriate procedure.</p> <p><u>STANDARD:</u> Operator obtains a copy of OP-502, starting with step 4.7.31.</p> <p>EXAMINER'S CUE: For purposes of this JPM assume SRO concurs with each rod manipulation.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 2A:</u> Perform PI Alignment of CRD with misaligned rod. Depress and Hold IN LIMIT (LATCH) BYPASS pushbutton and insert rod for approximately 15 sec.</p> <p><u>STANDARD:</u> Operator depresses IN LIMIT BYPASS pushbutton and holds it depressed while holding rod control handle in the insert direction for approximately 15 sec.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 2B:</u> Compare Absolute and Relative readings on PI Panel.</p> <p><u>STANDARD:</u> Operator observes that the API and RPI do not match.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 2C:</u> Adjust RPI to equal API with PI RESET RAISE/LOWER switch.</p> <p><u>STANDARD:</u> Operator manipulates PI RESET RAISE/LOWER until RPI and API match.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 2D:</u> Select RUN.</p> <p><u>STANDARD:</u> Operator rotates RUN/JOG switch to RUN.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>CAUTION: Power must be maintained less than or equal to 60% RTP while withdrawing rod(s).</p> <p><u>STEP 3A:</u> Withdraw affected rod to its Group average height. IF power increases to greater than or equal to 60% RTP or; IF Flux Imbalance/Quadrant Power Tilt approaches limits, THEN stop rod withdrawal and continue to next Step.</p> <p><u>STANDARD:</u> Operator withdraws rod to group average height. (No Limit or 60% RTP will be exceeded.) (Annunciator J-7-5 clears.)</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 3B:</u> IF power remains constant AND limits for Flux Imbalance/Quadrant Power Tilt are NOT affected THEN GO TO Step 4.7.37.</p> <p><u>STANDARD:</u> Operator will GO TO Step 4.7.37.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 4A:</u> Compare API and RPI for the affected rod with the rest of its group. Depress FAULT RESET pushbutton.</p> <p><u>STANDARD:</u> Operator depresses the FAULT RESET pushbutton and verifies light goes out.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 4B:</u> Compare using POSITION SELECT switch on PI Panel.</p> <p><u>STANDARD:</u> Operator compares rod position with group position using the POSITION SELECT switch.</p> <p>EXAMINER'S NOTE: Position should match.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>

<p><u>STEP 4C:</u> Adjust rod position, as required.</p> <p><u>STANDARD:</u> N/A (no adjustment should be required)</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 4D:</u> Select POSITION SELECT switch to ABSOL position.</p> <p><u>STANDARD:</u> Operator selects POSITION SELECT switch to ABSOL position.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 5:</u> Transfer affected rod from Auxiliary Power Supply to Normal Power Supply. Refer to Section 4.17 of this procedure.</p> <p><u>STANDARD:</u> Operator will GO TO step 4.17.1.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>CAUTION: Tave control could go to Feedwater regulation.</p> <p><u>STEP 6:</u> Place Reactor Demand control station in HAND if not in Mini Track.</p> <p><u>STANDARD:</u> Operator verifies that Reactor Demand is in Mini Track by observing red and white lights on.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 7:</u> Place Reactor Diamond in MANUAL.</p> <p><u>STANDARD:</u> Operator verifies Reactor Diamond is in MANUAL by observing MANUAL light ON and AUTO light OFF .</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 8:</u> Select GROUP SELECT Switch to desired group.</p> <p><u>STANDARD:</u> Operator verifies that GROUP SELECT Switch is selected to Group 7.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 9:</u> Select ALL or desired rod. Use SINGLE SELECT Switch.</p> <p><u>STANDARD:</u> Operator verifies that SINGLE SELECT Switch is selected to 1.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 10:</u> Select SEQ OR. Verify SEQ OR light on, SEQ light ON.</p> <p><u>STANDARD:</u> Operator depresses the SEQ/SEQ OR pushbutton and verifies both lights ON.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 11:</u> Select AUXIL.</p> <p><u>STANDARD:</u> Operator depresses the AUXIL/GROUP pushbutton and verify AUXIL light ON and GROUP light OFF.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 12:</u> Place SPEED SELECTOR switch in JOG.</p> <p><u>STANDARD:</u> Operator rotates RUN/JOG switch to JOG and verifies SY light ON.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 13:</u> Select CLAMP.</p> <p><u>STANDARD:</u> Operator depresses CLAMP/CLAMP RELEASE pushbutton and verifies CLAMP light ON and CLAMP REL light OFF.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p>CAUTION: If ANY Amber control on lights for any rod(s) or group(s) is on, STOP, and notify SSOD. (If needed cue candidate: The SROs have discussed the misplacement of this caution and direct you to continue on with the procedure.)</p> <p>STEP 14: Depress MAN TRANS.</p> <p>STANDARD: Operator depresses MAN TRANS pushbutton and verifies TR CF light OFF. The operator will also verify the amber CONTROL ON light for rod 7-1 is OFF.</p> <p>COMMENTS:</p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p>STEP 15: Select CLAMP REL.</p> <p>STANDARD: Operator depresses CLAMP/CLAMP RELEASE pushbutton and verifies CLAMP REL light ON and CLAMP light OFF.</p> <p>COMMENTS:</p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p>STEP 16: Select GROUP.</p> <p>STANDARD: Operator depresses GROUP/AUXIL pushbutton and verifies GROUP light ON and AUXIL light OFF. The operator will also verify the SY light OFF.</p> <p>COMMENTS:</p>	<p>____ SAT</p> <p>____ UNSAT</p>

<p>EXAMINER'S NOTE: If the annunciator for Pressurizer high level alarms or any other annunciator alarms related to an increase in Reactor Coolant pressure or the spray valve opens, cue the Operator that another operator is responding to these indications.</p> <p>STEP 17: Select TRANS RESET. Verify TRANS RESET light ON.</p> <p>STANDARD: Operator depresses TRANS RESET pushbutton and verifies light ON.</p> <p>COMMENTS:</p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p>STEP 18: Place SPEED SELECTOR switch in RUN.</p> <p>STANDARD: Operator rotates RUN/JOG switch to RUN.</p> <p>COMMENTS:</p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p>STEP 19: IF another Group/Rod is to be placed on the Auxiliary Power Supply, THEN GO TO Step 4.16.1 of this procedure.</p> <p>STANDARD: N/A</p> <p>COMMENTS:</p>	<p>____ SAT</p> <p>____ UNSAT</p>

<p><u>STEP 20:</u> Restore SINGLE SELECT Switch. Place SINGLE SELECT Switch to OFF.</p> <p><u>STANDARD:</u> Operator rotates SINGLE SELECT Switch to OFF.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 21:</u> Restore GROUP SELECT Switch. Place GROUP SELECT Switch to OFF.</p> <p><u>STANDARD:</u> Operator rotates GROUP SELECT switch to OFF.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 22:</u> Select SEQ. Verify SEQ light ON and SEQ OR light OFF.</p> <p><u>STANDARD:</u> Operator depresses SEQ/SEQ OR pushbutton and verifies SEQ light ON and SEQ OR light OFF.</p> <p>EXAMINER'S CUE: You have recovered the misaligned rod; the JPM is complete.</p> <p><u>COMMENTS:</u></p> <p>END OF TASK</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

STOP TIME: _____

JPM QUESTION #1

Question: What are the Technical Specification requirements, if any, when given the following positions of each rod in group 7?

ROD	POSITION (% Withdrawn)
7-1	98
7-2	99
7-3	73
7-4	97
7-5	98
7-6	42
7-7	99
7-8	98

Answer: Verify SDM is $\geq 1\% \Delta k/k$ OR initiate boration to restore SDM within limit in one hour. And, be in Mode 3 within 6 hours.

CANDIDATE'S RESPONSE

Time:

K/A Rating:

001K5.07//3.3/4.0

References:

TS 3.1.4

JPM QUESTION #2

Question: What are the Technical Specification requirements, if any, when the Rod Index is 150 and the plant is at 80% and 320 EFPD?

Answer: Initiate boration to restore SDM to $\geq 1\% \Delta k/k$ in 15 minutes AND within 2 hours either restore regulating rod groups to within restricted operating region OR reduce thermal power to less than or equal to the thermal power allowed by the regulating rod group insertion limits.

CANDIDATE'S RESPONSE

Time:

K/A Rating:

001K5.04//4.3/4.7

References:

COLR

TS 3.2.1

**JPM QUESTION #2
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)**

Question:

What are the Technical Specification requirements, if any, when the Rod Index is 150 and the plant is at 80% and 320 EFPD?

**JPM QUESTION #1
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)**

Question: What are the Technical Specification requirements, if any, when given the following positions of each rod in group 7?

ROD	POSITION (% Withdrawn)
7-1	98
7-2	99
7-3	73
7-4	97
7-5	98
7-6	42
7-7	99
7-8	98

CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

You are the Reactor Operator.
Control rod 7-1 has dropped into the core.
The plant is stable at 45% power.
The pre-job briefing has been completed.
The previous shift has completed steps 4.7.1 through 4.7.30.

INITIATING CUES:

You are requested by the Shift Manager to recover the misaligned rod starting with step 4.7.31.

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

JPM 6S/SIMULATOR

Restart a Makeup Pump following a Reactor
Coolant System Leak Isolation

CANDIDATE _____

EXAMINER _____

PREPARED/
REVISED BY: Melissa Gallean Date/ 12-17-98

VALIDATED BY: * D. Jones Date/ 12-17-98

APPROVED BY: F. W. Jones Date/ 12-18-98
(Operations Training Manager)

CONCURRED: ** Quinn Date/ 12-18-98
(Operations Representative)

* Validation not required for minor enhancements, procedure Rev changes that do not affect the JPM, or individual step changes that do not affect the flow of the JPM.

** Operations Concurrence required for new JPMs and changes that affect the flow of the JPM (if not driven by a procedure revision).

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:

Restart a Makeup Pump (MUP) following a Reactor Coolant System leak Isolation.

Alternate Path:

N/A

Facility JPM #:

New

K/A Rating(s)/Task Number/AO, RO, SRO:

004A4.08//3.8/3.4//0020402013//RO, SRO

Task Standard:

Restart the "A" Makeup Pump (MUP-1A) following a Reactor Coolant System leak Isolation using AP-520, Loss of Coolant or Pressure.

Preferred Evaluation Method:

Simulator X In-Plant

References:

AP-520

Validation Time: 6 min.

Time Critical: NO

Candidate: _____

NAME

Time Start: _____

Performance Rating: SAT UNSAT Performance Time

Examiner: _____ / _____

NAME

SIGNATURE

DATE

COMMENTS

SIMULATOR OPERATOR INSTRUCTIONS:

1. AP-520 was entered when a small leak was found in the MU system.
2. The reactor was tripped.
3. The plant is now in stable Mode 3 conditions.
4. All MUPs had to be stopped to repair the leak.
5. The leak has now been repaired.
6. SWP-1C and RWP-1 are running.
7. MUV-53, MUV-257. MUV-58 and MUV-69 are open; MUV-73 and MUV-62 are closed.
8. MUP-2A and MUP-4A are running.
9. MUP-1B is ES selected.
10. IC #69.

Tools/Equipment/Procedures Needed:

AP-520
calculator

READ TO OPERATOR

DIRECTIONS TO TRAINEE:

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

You are the Reactor Operator.
AP-520 was entered when a small leak was found in the MU system.
The reactor was tripped.
The plant is now in stable Mode 3 conditions.
All MUPs had to be stopped to repair the leak.
The leak has now been repaired.

INITIATING CUES:

You are requested to restart MUP-1B starting with step 3.54 in AP-520.

START TIME: _____ Shaded Block Indicates Critical Step

<p><u>STEP 1:</u></p> <p><u>STANDARD:</u></p> <p><u>COMMENTS:</u></p>	<p>Obtain a copy of appropriate procedure.</p> <p>Operator obtains a copy of OP-520, starting with step 3.54.</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 2A:</u></p> <p><u>STANDARD:</u></p> <p><u>COMMENTS:</u></p>	<p>WHEN affected component is isolated OR repaired, THEN prepare MUP for restart. IF EDG is supplying power to ES 4160V bus, THEN ensure adequate EDG margin exists for MUP and required cooling water pumps.</p> <p>Operator observes that the EDG is not supplying the bus.</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 2B:</u></p> <p><u>STANDARD:</u></p> <p><u>COMMENTS:</u></p>	<p>Ensure MU control valves are closed: MUV-16 and MUV-31.</p> <p>Operator selects control station for MUV-31 to HAND by depressing pushbutton and verifying HAND white light ON and AUTO white light OFF; OR, Operator may use toggle to lower demand to 0 ensuring valve is closed. (MUV-31 may be left in AUTO and dial rotated to 0). Operator verifies MUV-16 in HAND by HAND light ON and AUTO light OFF.</p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 2C:</u></p> <p><u>STANDARD:</u></p> <p><u>COMMENTS:</u></p>	<p>Establish MUP cooling water supply.</p> <p>Operator verifies red light ON and green light OFF for SWP-1C and RWP-1.</p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 2D:</u></p> <p><u>STANDARD:</u></p> <p><u>COMMENTS:</u></p>	<p>Ensure MUP recirc. to MUT valves are open: MUV-53 and MUV-257.</p> <p>For each valve operator verifies red light ON and green light OFF.</p>	<p>____ SAT</p> <p>____ UNSAT</p>

<p><u>STEP 2E:</u></p> <p><u>STANDARD:</u></p> <p><u>COMMENTS:</u></p>	<p>Ensure MUP main lube oil pump is running: MUP-2B</p> <p>Operator verifies MUP-2B red light ON and green light OFF.</p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 2F:</u></p> <p><u>STANDARD:</u></p> <p><u>COMMENTS:</u></p>	<p>Ensure MUP main gear oil pump is running: MUP-4B</p> <p>Operator rotates control handle for MUP-4B to start and verifies red light ON and green light OFF.</p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 3A:</u></p> <p><u>STANDARD:</u></p> <p><u>COMMENTS:</u></p>	<p>IF "A" Train MUP will be started, THEN ensure suction alignment to MUT. IF MUP-1C is NOT ES selected, THEN notify PPO to select PUMP 3C on 4160V ES BUS 3B-5</p> <p>Operator verifies ES select light for MUP-1C is ON.</p>	<p>____ SAT</p> <p>____ UNSAT</p>

<p><u>STEP 3B:</u> Ensure the following are closed: MUV-73 and MUV-62.</p> <p><u>STANDARD:</u> For both valves, operator verifies green light ON and red light OFF.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 3C:</u> Ensure the following are open: MUV-58 and MUV-69.</p> <p><u>STANDARD:</u> For both valves, operator verifies red light ON and green light OFF.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 4:</u> IF "B" Train MUP will be started, THEN ensure suction alignment to MUT.</p> <p><u>STANDARD:</u> N/A, "A" Train pump being started.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 5:</u> Start selected MUP.</p> <p><u>STANDARD:</u> Operator rotates MUP-1A to start and verifies red light ON and green light OFF. Operator should also verify amps increase.</p> <p>EXAMINER'S CUE: MUP-1A is running; the task is complete.</p> <p><u>COMMENTS:</u></p> <p>END of TASK</p>	<p>____ SAT</p> <p>____ UNSAT</p>
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STOP TIME: _____

JPM QUESTION #1

Question: Prior to the leak isolation in the JPM the Auxiliary Building sump, where all leakage had been directed, had increased from 2.8 to 3.4 feet in 7 minutes, what was the leak rate in gpm?

Answer: 44.85 gpm.

CANDIDATE'S RESPONSE

Time:

K/A Rating:

009EA2.02//3.5/3.8

References:

AP-520

JPM QUESTION #2

Question: From the provided leak rate data, what are the Technical Specification actions, if any?

Combined component identified leakage and RCP seal leakage into the RCDT is 10.0 gpm.
OTSG tube leakage is 145 gpd.
Unidentified leakage is 0.2 gpm.
There is NO pressure boundary leakage.

Answer: Identified Leakage has been exceeded; reduce leakage to within limits in 4 hours.

CANDIDATE'S RESPONSE

Time:

K/A Rating:

002K4.05//3.8/4.2

References:

TS 3.4.12

**JPM QUESTION #2
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)**

Question: From the provided leak rate data, what are the Technical Specification actions, if any?

Combined component identified leakage and RCP seal leakage into the RCDT is 10.0 gpm.

OTSG tube leakage is 145 gpd.

Unidentified leakage is 0.2 gpm.

There is NO pressure boundary leakage.

JPM QUESTION #1
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)

Question:

Prior to the leak isolation in the JPM the Auxiliary Building sump, where all leakage had been directed, had increased from 2.8 to 3.4 feet in 7 minutes, what was the leak rate in gpm?

CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

You are the Reactor Operator.
AP-520 was entered when a small leak was found in the MU system.
The reactor was tripped.
The plant is now in stable Mode 3 conditions.
All MUPs had to be stopped to repair the leak.
The leak has now been repaired.

INITIATING CUES:

You are requested to restart MUP-1B starting with step 3.54 in AP-520.

**REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE**

JPM 7S/SIMULATOR

**Depressurize the Reactor Coolant System using
High Pressure Auxiliary Spray**

CANDIDATE _____

EXAMINER _____

PREPARED/
REVISED BY: *Michelle Dellean* Date/ 12-17-98

VALIDATED BY: * *D. Jones* Date/ 12-17-98

APPROVED BY: *F. W. Gray* Date/ 12-18-98
(Operations Training Manager)

CONCURRED: ** _____ Date/ _____
(Operations Representative)

* Validation not required for minor enhancements, procedure Rev changes that do not affect the JPM, or individual step changes that do not affect the flow of the JPM.

** Operations Concurrence required for new JPMs and changes that affect the flow of the JPM (if not driven by a procedure revision).

COMMENTS

SIMULATOR OPERATOR INSTRUCTIONS:

1. A Loss of Off-Site Power has occurred.
2. The plant is in Mode 3 following a reactor trip.
3. Procedure requires RCS pressure to be lowered to 1900 psig.
4. The normal pressurizer spray is not operable.
5. IC #70; (this IC will support ventilation startup, EOP-14, Enclosure 17)

Tools/Equipment/Procedures Needed:

EOP-14, Enclosure 13
Steam Table

READ TO OPERATORDIRECTIONS TO TRAINEE:

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

You are the Reactor Operator.
The Plant has tripped following a LOOP.
Stable natural circulation has been established.
The Shift Manager has directed to start a cooldown.

INITIATING CUES:

You are requested to establish High Pressure Auxiliary Spray using Enclosure 13 of EOP-14.

START TIME: _____ Shaded Block Indicates Critical Step

<u>STEP 1:</u> <u>STANDARD:</u> <u>COMMENTS:</u>	Obtain a copy of appropriate procedure. Operator obtains a copy of EOP-14, Enclosure 13.	_____ SAT _____ UNSAT
<u>STEP 2A:</u> <u>STANDARD:</u> <u>COMMENTS:</u>	Isolate Auxiliary spray line Decay Heat (DH) piping. Ensure DHV-91 closed. Operator verifies green light ON and red light OFF.	_____ SAT _____ UNSAT
<u>STEP 2B:</u> <u>STANDARD:</u> <u>COMMENTS:</u>	Notify PPO to ensure DHV-92 is open. Operator calls PPO to ensure DHV-92 us open.	_____ SAT _____ UNSAT

<p><u>STEP 3A:</u></p> <p><u>STANDARD:</u></p> <p><u>COMMENTS:</u></p>	<p>Align Makeup (MU) system to supply Auxiliary spray. Close RCV-53.</p> <p>Operator verifies green light ON and red light OFF.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 3B:</u></p> <p><u>STANDARD:</u></p> <p><u>COMMENTS:</u></p>	<p>Close RCV-13.</p> <p>Operator rotates control switch for RCV-13 to close and verifies green light ON and red light OFF.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 3C:</u></p> <p><u>STANDARD:</u></p> <p><u>COMMENTS:</u></p>	<p>Notify PPO to perform the following (119 ft. Auxiliary Building, AB, penetration area): Ensure MUV-520 is closed; MUV-273 and DHV-95 are open; and DHV-126 is throttled approximately 2 turns open.</p> <p>Operator calls PPO to complete step 13.2 detail 3.</p>	<p>___ SAT</p> <p>___ UNSAT</p>

<u>STEP 4:</u>	Manually control seal injection flow rate. Select MUV-16 to HAND.	____ SAT
<u>STANDARD:</u>	Operator depresses HAND pushbutton on MUV-16 control station and verifies HAND light ON and AUTO light OFF	____ UNSAT
<u>COMMENTS:</u>		
NOTE: Aux. Spray flow is determined by subtracting individual seal flow from total seal flow.		
<u>STEP 5A:</u>	WHEN directed by the controlling procedure, THEN throttle flows as desired. Throttle RCV-53 to maintain continuous high PRESS Aux. spray flow to limit Pressurizer (PZR) thermal cycles. (C-3-11)	____ SAT
EXAMINER'S CUE: Initiate High Pressure Auxiliary Spray at 4-6 gpm.		
<u>STANDARD:</u>	Operator rotates control switch for RCV- 53 in the open direction until 10 gpm High Pressure Auxiliary Spray is established. (H-5-7 may alarm)	____ UNSAT
<u>COMMENTS:</u>		

<u>STEP 5B:</u>	Throttle MUV-16 to maintain desired individual seal injection flows.	_____ SAT
<u>STANDARD:</u>	Operator uses toggle to adjust individual seal injection flows so there is no annunciator alarms.	_____ UNSAT
	EXAMINER'S CUE: High Pressure Auxiliary Spray has been established.	
<u>COMMENTS:</u>		
	END of TASK	

STOP TIME: _____

JPM QUESTION #1

Question: Following a pressure decrease to 2125 psig all the Pressurizer heaters were verified to be in "AUTO". Pressurizer temperature is now 646°F, what heater banks are on, if any?

Answer: Pressurizer Banks "A", "B" and "C" are ON.

CANDIDATE'S RESPONSE

Time:

K/A Rating:

010K6.03//3.2/3.6

References:

OP-204

Steam Tables

JPM QUESTION #2

Question: What are the Low Temperature Over Pressure (LTOP) Technical Specification actions, if any, given the following list of plant conditions which have been stable (the same) for 70 minutes?

Reactor Coolant temperature is 210°F.
The Core Flood Tanks are isolated.
The Makeup and Purification System is in its OP-209 configuration.
Pressurizer level is 125 inches.
RCV-11 is open.
RCV-10 is set at 500 psig (lift setpoint).
The Makeup Tank level is 90 inches.

Answer: The PORV is inoperable, and has been so, for greater than 1 hour. The required actions are to reduce the Makeup Tank level to ≤ 88 inches AND deactivate the low low makeup tank level interlock to the Borated Water Storage Tank (BWST) suction valves within 12 hours.

CANDIDATE'S RESPONSE

Time:

K/A Rating:

010K4.03//3.8/4.1

References:

TS 3.4.11

**JPM QUESTION #2
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)**

Question:

What are the Low Temperature Over Pressure (LTOP) Technical Specification actions, if any, given the following list of plant conditions which have been stable (the same) for 70 minutes?

Reactor Coolant temperature is 210°F.

The Core Flood Tanks are isolated.

The Makeup and Purification System is in its OP-209 configuration.

Pressurizer level is 125 inches.

RCV-11 is open.

RCV-10 is set at 500 psig (lift setpoint).

The Makeup Tank level is 90 inches.

**JPM QUESTION #1
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)**

Question:

Following a pressure decrease to 2125 psig all the Pressurizer heaters were verified to be in "AUTO". Pressurizer temperature is now 646°F, what heater banks are on, if any?

CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

You are the Reactor Operator.
The Plant has tripped following a LOOP.
Stable natural circulation has been established.
The Shift Manager has directed to start a cooldown.

INITIATING CUES:

You are requested to establish High Pressure Auxiliary Spray using
Enclosure 13 of EOP-14.

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

JPM 8S/SIMULATOR

Synchronize in Off-Site Power and
Unload/Shutdown EDG-1A

CANDIDATE _____

EXAMINER _____

PREPARED/
REVISED BY: Melissa Gallie Date/ 12-17-98

VALIDATED BY: * D. Jan Date/ 12-17-98

APPROVED BY: R. Wong Date/ 12-18-98
(Operations Training Manager)

CONCURRED: ** _____ Date/ _____
(Operations Representative)

* Validation not required for minor enhancements, procedure Rev changes that do not affect the JPM, or individual step changes that do not affect the flow of the JPM.

** Operations Concurrence required for new JPMs and changes that affect the flow of the JPM (if not driven by a procedure revision).

SIMULATOR OPERATOR INSTRUCTIONS:

1. The plant is in Mode 3 following a loss of Off-Site Power.
2. Both Diesels are running and tied to their respective ES bus.
3. Off-Site power is available to the "A" ES bus.
4. IC #62

Tools/Equipment/Procedures Needed:

AP-770, Steps 3.43 and 3.44

READ TO OPERATORDIRECTIONS TO TRAINEE:

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

You are the Reactor Operator.
The plant is stable in Mode 3 following a loss of Off-Site Power.
Both Diesels are running and tied to their respective ES bus.
AP-770 is complete up to Off-Site power availability.

INITIATING CUES:

"A" Off-Site power is now available, you are requested to sync in Off-Site power to the "A" ES 4160V bus and then unload and shutdown EDG-1A.

START TIME: _____ Shaded Block Indicates Critical Step

<p><u>STEP 1:</u> Obtain a copy of appropriate procedure.</p> <p><u>STANDARD:</u> Operator obtains a copy of AP-770 step 3.43.</p> <p>EXAMINER'S CUE: All preceding steps are complete.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 2A:</u> IF "A" ES 4160V BUS is supplied from EDG-1A, THEN sync in Off-Site power supply. Ensure plant conditions are stable.</p> <p><u>STANDARD:</u> N/A, the initial cue indicated stability. (Operator may verify.)</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 2B:</u> Ensure HPI is bypassed or reset.</p> <p><u>STANDARD:</u> Operator verifies both "A" and "B" ES status panel that the Channel Function Enabled green light is ON and the Bypass Reset green light is ON.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 2C:</u></p> <p><u>STANDARD:</u></p> <p><u>COMMENTS:</u></p>	<p>Depress 4160V ES "A" UV RESET pushbutton.</p> <p>Operator depresses pushbutton for 4160V UV RESET and verifies that both reset/normal lights are ON.</p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 2D:</u></p> <p><u>STANDARD:</u></p> <p><u>COMMENTS:</u></p>	<p>Notify PPO to obtain key 94 from Control Room.</p> <p>Operator notifies PPO to obtain key 94.</p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 2E:</u></p> <p><u>STANDARD:</u></p> <p><u>COMMENTS:</u></p>	<p>While maintaining frequency, notify PPO to select EDG-1A SPEED DROOP to 60 in increments of 10.</p> <p>Operator notifies PPO to adjust SPEED DROOP to 60 in increments of 10. Operator will raise EDG "A" speed to maintain frequency.</p>	<p>____ SAT</p> <p>____ UNSAT</p>

<p><u>STEP 2F:</u> Select EDG "A" EXC VOLT ADJ SELECT to CONT RM.</p> <p><u>STANDARD:</u> Operator rotates EDG "A" EXC VOLT ADJ SELECT switch to CONT RM. (Q-2-5)</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 2G:</u> Notify PPO to select "A" EDG Unit-Parallel Switch to PAR.</p> <p><u>STANDARD:</u> Operator notifies PPO to select PAR on the "A" EDG Unit-Parallel Switch.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 2H:</u> Adjust EDG "A" EXC VOLT ADJUST to maintain EDG "A" voltage 4150 to 4250 volts.</p> <p><u>STANDARD:</u> Operator rotates EDG "A" EXC VOLT ADJUST knob to keep the voltage between 4150 and 4250 volts.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>

<p><u>STEP 2I:</u></p> <p><u>STANDARD:</u></p> <p><u>COMMENTS:</u></p>	<p>Select synchroscope for Bkr to be paralleled to ON.</p> <p>Operator rotates synchroscope for Breaker 3211 to ON and verifies sync lights ON.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 2J:</u></p> <p><u>STANDARD:</u></p> <p><u>COMMENTS:</u></p>	<p>Adjust EDG "A" EXC VOLT ADJUST to match incoming and running voltages.</p> <p>Operator rotates EDG "A" EXC VOLT ADJUST knob so that the incoming voltage and running voltage are approximately the same.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 2K:</u></p> <p><u>STANDARD:</u></p> <p><u>COMMENTS:</u></p>	<p>Adjust EDG "A" SPEED to establish synchroscope moving slow in the FAST direction.</p> <p>Operator rotates EDG "A" SPEED control handle until the needle on the synchroscope is rotating slowly in the FAST direction.</p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 2L:</u> Close oncoming Bkr at approximately 11 o'clock.</p> <p><u>STANDARD:</u> Operator rotates breaker 3211 to close when the synchroscope is at approximately the 11 o'clock position. (Q-5-4 and Q-1-10)</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 2M:</u> Select synchroscope to OFF.</p> <p><u>STANDARD:</u> Operator rotates the synchroscope control handle for breaker 3211 to OFF and verifies sync lights OFF.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 3A:</u> IF EDG-1A is running in parallel with Off-Site power, THEN unload and shutdown EDG-1A. Maintain -1.5 to +1.5 MVAR by adjusting EDG "A" EXC VOLT ADJUST</p> <p><u>STANDARD:</u> Operator rotates EDG "A" EXC VOLT ADJUST knob to maintain MVARs between -1.5 and +1.5 if needed.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 3B:</u> IF EDG-1A load is > 1200 KW, THEN adjust EDG "A" SPEED to reduce load to approximately 1200 KW.</p> <p><u>STANDARD:</u> Operator rotates EDG "A" SPEED control handle and reduces load to approximately 1200 KW.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 3C:</u> WHEN load has been reduced to approximately KW for 3 to 5 minutes, THEN adjust EDG "A" SPEED to reduce EDG-1A load to approximately 200 KW.</p> <p>EXAMINER'S CUE: 4 minutes have passed.</p> <p><u>STANDARD:</u> Operator rotates EDG "A" SPEED knob and reduces load to approximately 200 KW.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 3D:</u> Open Bkr 3209</p> <p><u>STANDARD:</u> Operator rotates Breaker 3209 control handle to open and verifies green light ON and red light OFF. (Q-5-4 and Q-1-10 clear)</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>

<u>STEP 3E:</u>	Depress EDG-1A STOP pushbutton.	____ SAT
<u>STANDARD:</u>	Operator EDG-1A STOP pushbutton and verifies generator meters decrease to 0.	____ UNSAT
<u>COMMENTS:</u>	END of TASK	

STOP TIME: _____

JPM QUESTION #1

Question: While performing SP-300, Operating Daily Surveillance Log, on the "A" Emergency Diesel Generator, fuel oil level in the Day Tank is 22.5 inches on the dip stick, what is the usable volume and should any fuel oil transfer pumps operating?

Answer: 321.0 gallons; the DC fuel oil transfer pump should be running.

CANDIDATE'S RESPONSE

Time:

K/A Rating:

064K1.03//3.6/4.0

References:

OP-103F

JPM QUESTION #2

Question: Given a set of plant data (Reactor Coolant pressure, temperature, bus voltage etc.), should the Emergency Diesel Generators be running? (Explain)

Reactor Coolant temperature is 560°F.
Reactor Coolant pressure is 1450 psig.
Reactor Building pressure is 4.2 psig.
"A" 4160V ES Bus voltage is 3980.
"B" 4160V ES Bus voltage is 4100.

Answer: The High Pressure Injection (HPI) signal will start both Emergency Diesel Generators.

CANDIDATE'S RESPONSE

Time:

K/A Rating:

064A3.01//4.1/4.0

References:

TS 3.3.8

**JPM QUESTION #2
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)**

Question: Given a set of plant data (Reactor Coolant pressure, temperature, bus voltage etc.), should the Emergency Diesel Generators be running? (Explain)

Reactor Coolant temperature is 560°F.
Reactor Coolant pressure is 1450 psig.
Reactor Building pressure is 4.2 psig.
"A" 4160V ES Bus voltage is 3980.
"B" 4160V ES Bus voltage is 4100.

**JPM QUESTION #1
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)**

Question:

While performing SP-300, Operating Daily Surveillance Log, on the "A" Emergency Diesel Generator, fuel oil level in the Day Tank is 22.5 inches on the dip stick, what is the usable volume and should any fuel oil transfer pumps operating?

CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

You are the Reactor Operator.
The plant is stable in Mode 3 following a loss of Off-Site Power.
Both Diesels are running and tied to their respective ES bus.
AP-770 is complete up to Off-Site power availability.

INITIATING CUES:

“A” Off-Site power is now available, you are requested to sync in Off-Site power to the “A” ES 4160V bus and then unload and shutdown EDG-1A.

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

JPM 4CR/CONTROL ROOM

Perform a Functional Test of RM-G29

CANDIDATE _____

EXAMINER _____

PREPARED/
REVISED BY: Melissa Galbin Date/ 12-17-98

VALIDATED BY: * D. Jones Date/ 12-17-98

APPROVED BY: F. W. Jones Date/ 12-18-98
(Operations Training Manager)

CONCURRED: ** _____ Date/ _____
(Operations Representative)

* Validation not required for minor enhancements, procedure
Rev changes that do not affect the JPM, or individual step
changes that do not affect the flow of the JPM.

** Operations Concurrence required for new JPMs and changes
that affect the flow of the JPM (if not driven by a procedure
revision).

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:
Perform a Functional Test of RM-G29

Alternate Path:
An indicating light will fail to illuminate.

Facility JPM #:
Modified 118

K/ARating(s)/Task Number/AO, RO, SRO:
072A4.01//3.0/3.3//0720202001//RO, SRO

Task Standard:
Perform a Functional Test of RM-G29 using SP-335A.

Preferred Evaluation Method:
Simulator _____ In-Plant X

References:
SP-335A

Validation Time: 5 min. Time Critical: NO

Candidate: _____ Time Start: _____
NAME

Performance Rating: SAT ____ UNSAT ____ Performance Time _____

Examiner: _____ / _____
NAME SIGNATURE DATE

COMMENTS

SIMULATOR OPERATOR INSTRUCTIONS:

N/A

Tools/Equipment/Procedures Needed:

SP-335A

READ TO OPERATORDIRECTIONS TO TRAINEE:

I will explain the initial conditions, and state the task to be performed. All in-plant steps, including any required communications, shall be simulated for this JPM. Under no circumstances are you to operate any plant equipment. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

You are the Reactor Operator.
The plant is at 100% full power.
SP-335A is successfully completed except for RM-G29.

INITIATING CUES:

You are requested to perform a functional test of RM-G29.

START TIME: _____ Shaded Block Indicates Critical Step

<p><u>STEP 1:</u> Obtain a copy of appropriate procedure.</p> <p><u>STANDARD:</u> Operator obtains a copy of SP-335A, Section 4.23.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 2:</u> Record the RM-G29 background reading below.</p> <p>EXAMINER'S CUE: RM-G29 is reading as is.</p> <p><u>STANDARD:</u> Operator observes RM-G29 meter and records background reading.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 3:</u> Turn the "Check-Operate-Trip Adj. Selector switch on RM-G29 to the CHECK position and hold for 1 minute or until the meter indication increase ceases. Record the local meter indication and the reading on RM-G29-RIR below.</p> <p><u>STANDARD:</u> Operator rotates Check-Operate-Trip Adj. Selector switch to the CHECK position and holds in that position for 1 minute. Operator records meter and chart recorder readings.</p> <p>EXAMINER'S CUE: Indicate that the meter and the chart recorder are reading 2×10^5 R/hr.</p> <p>Operator records readings.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 4:</u> Return the selector switch to the Operate position and observe the meter and recorder indication. Record in procedure if the indications decrease to approximately the background reading recorded in Step 4.23.1</p> <p>EXAMINER'S CUE: RM-G29 is reading as is.</p> <p><u>STANDARD:</u> Operator observes RM-G29 meter and recorder have decreased to background reading.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>

<p><u>STEP 5:</u> Observe that the Trip 1 (Low Alarm) and Trip 2 (High Alarm) indicator lamps illuminated (at panel) and that their respective annunciator alarms have been actuated. Record in procedure.</p> <p>EXAMINER'S CUE: Trip 1 is illuminated; Trip 2 is NOT illuminated. Annunciator H-01-01 and H-01-02 are in alarm.</p> <p><u>STANDARD:</u> Operator records results in procedure.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 6A:</u> Depress the Trip 1 and Trip 2 pushbuttons (lights). Verify Trip1, Trip 2, and annunciator alarms have cleared. Record in procedure.</p> <p>EXAMINER'S CUE: All lights and annunciators clear.</p> <p><u>STANDARD:</u> Operator records results in procedure.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>

<u>STEP 6B:</u>	Operator signs Completed By and Date portion of procedure.	____ SAT
<u>STANDARD:</u>	Operator signs and dates procedure. Operator enters the Follow-up Actions (5.0).	____ UNSAT
EXAMINER'S NOTE: Operator should indicate that at a minimum a work request should be written and SRO notification for Trip 2 not illuminating.		
<u>COMMENTS:</u>		
END of TASK		

STOP TIME: _____

JPM QUESTION #1

Question: With the plant in Mode 1, RM-G29 fails its Channel Check, what are the Technical Specification actions, if any?

Answer: Restore required channel to Operable status within 30 days.

CANDIDATE'S RESPONSE

Time:

K/A Rating:

072A4.01//3.0/3.3

References:

TS 3.3.17

JPM QUESTION #2

Question: What indications associated with RM-G29 and/or alarms, if any, are present in the Control Room if RM-G29 is reading 3×10^8 mR/Hr?

Answer: Both GAMMA MONITOR WARNING and GAMMA RADIATION HIGH annunciators will be in alarm. The indicator lamps: trip (Trip 2) and warning (Trip 1) on RM-G29 will be in alarm also.

CANDIDATE'S RESPONSE

Time:

K/A Rating:

072A4.01//3.0/3.3

References:

AR-403

SP-335A

JPM QUESTION #2
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)

Question:

What indications associated with RM-G29 and/or alarms, if any, are present in the Control Room if RM-G29 is reading 3×10^8 mR/Hr?

**JPM QUESTION #1
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)**

Question: With the plant in Mode 1, RM-G29 fails its Channel Check, what are the Technical Specification actions, if any?

CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

You are the Reactor Operator.
The plant is at 100% full power.
SP-335A is successfully completed except for RM-G29.

INITIATING CUES:

You are requested to perform a functional test of RM-G29.

**REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE**

JPM 5CR/CONTROL ROOM

**Perform Steam Generator Isolation for TRACC
Limits**

CANDIDATE _____

EXAMINER _____

PREPARED/
REVISED BY: Melissa Hallin Date/ 12-17-98

VALIDATED BY: * D. Jones Date/ 12-17-98

APPROVED BY: R. W. Jones Date/ 12-18-98
(Operations Training Manager)

CONCURRED: ** Q. P. H. Date/ 12-18-98
(Operations Representative)

* Validation not required for minor enhancements, procedure Rev changes that do not affect the JPM, or individual step changes that do not affect the flow of the JPM.

** Operations Concurrence required for new JPMs and changes that affect the flow of the JPM (if not driven by a procedure revision).

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:

Perform Steam Generator Isolation for TRACC limits.

Alternate Path:

N/A

Facility JPM #:

New

K/ARating(s)/Task Number/AO, RO, SRO:

035A4.06//4.5/4.6//1150502012//RO, SRO

Task Standard:

Perform Steam Generator Isolation for TRACC limits using EOP-14,
Enclosure 12.

Preferred Evaluation Method:

Simulator _____ In-Plant X

References:

EOP-14, Enclosure 12

Validation Time: 23 min.

Time Critical: NO

Candidate: _____
NAME

Time Start: _____

Performance Rating: SAT ____ UNSAT ____ Performance Time _____

Examiner: _____ / _____
NAME SIGNATURE DATE

COMMENTS

SIMULATOR OPERATOR INSTRUCTIONS:

N/A

Tools/Equipment/Procedures Needed:

EOP-14, Enclosure 12

READ TO OPERATOR**DIRECTIONS TO TRAINEE:**

I will explain the initial conditions, and state the task to be performed. All in-plant steps, including any required communications, shall be simulated for this JPM. Under no circumstances are you to operate any plant equipment. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

EOP-6 has been entered for a large tube leak in the "A" Steam Generator (OTSG).

The "A" OTSG level is 91% and increasing.

"A" OTSG blowdown is 500 gpm (The blowdown valves are full open).

"A" OTSG pressure is 900 psi.

Adequate Subcooling Margin exists and HPI has already been bypassed.

Reactor Coolant (RCS) temperature is 430°F.

RCS pressure is 800 psig.

EFIC was actuated.

MSDT-22 and MSDT-23 have been isolated.

INITIATING CUES:

You are directed by the Procedure Director to isolate the "A" OTSG.

START TIME: _____ Shaded Block Indicates Critical Step

<p><u>STEP 1:</u> Obtain a copy of appropriate procedure.</p> <p><u>STANDARD:</u> Operator obtains a copy of EOP-14, Enclosure 12.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>NOTE: The following criteria is to be used during isolation determination: High OTSG level (Isolate any OTSG that can not be maintained $\leq 90\%$ due to tube rupture.); Low BWST level (Isolate any OTSG with tube rupture.); Atmospheric steaming time limit (Isolate the OTSG with the largest primary to secondary leak rate.)</p> <p><u>STEP 2:</u> IF blowdown is available, THEN maintain OTSG level $\leq 90\%$ using OTSG blowdown lines.</p> <p><u>STANDARD:</u> N/A, blowdown at maximum – see cue.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 3:</u> IF either OTSG PRESS < 725 psig, THEN bypass EFIC isolation actuations.</p> <p><u>STANDARD:</u> N/A, “A” OTSG > 725 psig – see cue.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 4:</u> IF adequate SCM exists, AND HPI bypass permits exist, THEN bypass HPI.</p> <p><u>STANDARD:</u> N/A, HPI bypassed – see cue.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p>NOTE: Emergency cooldown limits apply when RCS TEMP is > 500°F.</p> <p><u>STEP 5:</u> IF RCS TEMP is > 480°F, THEN establish RCS cooldown.</p> <p><u>STANDARD:</u> N/A, RCS Temp < 480°F – see cue.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 6:</u> Isolate MSDTs on affected OTSGs.</p> <p><u>STANDARD:</u> N/A, MSDT-22 and MSDT-23 have already been isolated – see cue.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>

<p><u>STEP 7:</u> WHEN RCS TEMP \leq 480°F, THEN ensure RCS PRESS \leq 950 psig.</p> <p><u>STANDARD:</u> N/A, these conditions already exist – see cue</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 8:</u> IF EFIC is actuated, THEN depress MANUAL PERMISSIVE pushbuttons on EFIC channels “A” and “B”.</p> <p><u>STANDARD:</u> Operator depresses MANUAL PERMISSIVE pushbuttons on both “A” and “B” channels and verifies MANUAL PERMISSIVE lights ON.</p> <p>EXAMINER’S CUE: The EFIC channels are in MANUAL PERMISSIVE.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p>EXAMINER'S NOTE: Steps 9A, 9B, and 9C may be done in any order.</p> <p>STEP 9A: Isolate all sources to affected OTSG. Close the following valves on affected OTSG: FWV-216, EFV-14, EFV-11, FWV-35, FWV-31, FWV-30, FWV-36</p> <p>STANDARD: Operator verifies FWV-216 closed by 0 flow indication and/or green light ON and red light OFF.</p> <p>EXAMINER'S CUE: FWV-216 is closed.</p> <p>COMMENTS:</p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p>STEP 9B: Isolate all sources to affected OTSG. Close the following valves on affected OTSG: FWV-216, EFV-14, EFV-11, FWV-35, FWV-31, FWV-30, FWV-36</p> <p>STANDARD: Operator rotates EFV-14 and EFV-11 control switches to closed positions and for each valve verifies green light ON and red light OFF and/or 0 flow indication.</p> <p>EXAMINER'S CUE: EFV-14 and EFV-11 are closed.</p> <p>COMMENTS:</p>	<p>____ SAT</p> <p>____ UNSAT</p>

<p><u>STEP 9C:</u> Isolate all sources to affected OTSG. Close the following valves on affected OTSG: FWV-216, EFV-14, EFV-11, FWV-35, FWV-31, FWV-30, FWV-36</p> <p><u>STANDARD:</u> Operator rotates control switches for FWV-35, FWV-31, FWV-30 and FWV-36 to closed positions and verifies for each valve green light ON and red light OFF. (Operator may select FWV-30 to MAN.)</p> <p>EXAMINER'S CUE: FWV-35, FWV-31, FWV-30 and FWV-36 are closed.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 10:</u> Close MS supply valve to EFP-2 affected OTSG: MSV-55.</p> <p><u>STANDARD:</u> Operator rotates MSV-55 control switch to closed position and verifies green light ON and red light OFF.</p> <p>EXAMINER'S CUE: MSV-55 is closed.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 11A:</u> WHEN RCS PRESS controlled \leq 950 psig, THEN complete isolating affected OTSG. Close MSIVs on affected OTSG: MSV-412 and MSV-411.</p> <p><u>STANDARD:</u> Operator rotates control switch for MSV-412 and MSV-411 to closed and verifies green light ON and red light OFF.</p> <p>EXAMINER'S CUE: MSV-412 and MSV-411 are closed.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 11B:</u> Select ADV to HAND and closed on affected OTSG: MSV-25.</p> <p><u>STANDARD:</u> Operator depresses HAND pushbutton for MSV-25 and verifies HAND light ON and AUTO light OFF. Operator depresses closed arrow pushbutton until meter reads 0.</p> <p>EXAMINER'S CUE: MSV-25 is in HAND and closed.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>

<p><u>STEP 12:</u> Close blowdown line isolation on affected OTSG: MSV-130.</p> <p><u>STANDARD:</u> Operator rotates control switch for MSV-130 to close and verifies green light ON and red light OFF.</p> <p>EXAMINER'S CUE: MSV-130 is closed.</p> <p><u>COMMENTS:</u></p> <p>END of TASK</p>	<p>SAT</p> <p>UNSAT</p>
--	-------------------------

STOP TIME: _____

JPM QUESTION #1

Question: What is the maximum allowable Steam Generator level if Main Steam pressure is 835 psig and temperature is 550°F?

Answer: 78% \pm 2% on the operating level.

CANDIDATE'S RESPONSE

Time:

K/A Rating:

035A1.01//3.6/3.8

References:

OP-103A Curve 15

JPM QUESTION #2

Question: What is the expected Feedwater temperature at 45% thermal power?

Answer: $370^{\circ}\text{F} \pm 10^{\circ}\text{F}$

CANDIDATE'S RESPONSE

Time:

K/A Rating:

059K1.05//3.1/3.2

References:

OP-103A Curve 17

**JPM QUESTION #2
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)**

Question: What is the expected Feedwater temperature at 45% thermal power?

**JPM QUESTION #1
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)**

Question:

What is the maximum allowable Steam Generator level if Main Steam pressure is 835 psig and temperature is 550°F?

**CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)**

INITIAL CONDITIONS:

EOP-6 has been entered for a large tube leak in the "A" Steam Generator (OTSG).

The "A" OTSG level is 91% and increasing.

"A" OTSG blowdown is 500 gpm (The blowdown valves are full open).

"A" OTSG pressure is 900 psi.

Adequate Subcooling Margin exists and HPI has already been bypassed.

Reactor Coolant (RCS) temperature is 430°F.

RCS pressure is 800 psig.

EFIC was actuated.

MSDT-22 and MSDT-23 have been isolated.

INITIATING CUES:

You are directed by the Procedure Director to isolate the "A" OTSG.

**REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE**

JPM 6CR/CONTROL ROOM

**Isolate Loads following a Loss of Nuclear Services
Closed Cycle Cooling (SW)**

CANDIDATE _____

EXAMINER _____

PREPARED/
REVISED BY: *Melissa Galbraith* Date/ 12-17-98

VALIDATED BY: * *D. Jones* Date/ 12-17-98

APPROVED BY: *R. W. Jones* Date/ 12-18-98
(Operations Training Manager)

CONCURRED: ** _____ Date/ _____
(Operations Representative)

* Validation not required for minor enhancements, procedure Rev changes that do not affect the JPM, or individual step changes that do not affect the flow of the JPM.

** Operations Concurrence required for new JPMs and changes that affect the flow of the JPM (if not driven by a procedure revision).

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:

Isolate Loads following a Loss of Nuclear Services Closed Cycle Cooling (SW).

Alternate Path:

N/A

Facility JPM #:

Requal JPM

K/ARating(s)/Task Number/AO, RO, SRO:

008A4.01//3.3/3.1//0080402012//RO, SRO

Task Standard:

Isolate Loads following a Loss of Nuclear Services Closed Cycle Cooling (SW) using AP-330, Loss of SW, Enclosure 3.

Preferred Evaluation Method:

Simulator _____ In-Plant X

References:

AP-330 Enclosure 3

Validation Time: 14 min.

Time Critical: NO

Candidate: _____
NAME

Time Start: _____

Performance Rating: SAT _____ UNSAT _____ Performance Time _____

Examiner: _____ / _____
NAME SIGNATURE DATE

COMMENTS

SIMULATOR OPERATOR INSTRUCTIONS:

N/A

Tools/Equipment/Procedures Needed:

AP-330

READ TO OPERATORDIRECTIONS TO TRAINEE:

I will explain the initial conditions, and state the task to be performed. All in-plant steps, including any required communications, shall be simulated for this JPM. Under no circumstances are you to operate any plant equipment. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

The plant was at 100% full power when entry was required into AP-330.

The reactor has not been tripped.

Power has been reduced to 75%.

Control Rod Drive temperatures are high and slowly rising but not greater than 180°F.

All component temperatures cooled by SW are high and slowly rising.

SW Heat Exchangers have adequate cooling (the most fouled SWHE has been removed from service and the spare SWHE placed in service).

SWP-1A is running.

SWP-2-PI reads 135 psig.

No SWP has its discharge valve closed.

The Reactor Building (RB) Fans are on SW cooling.

INITIATING CUES:

You are requested to perform Enclosure 3 of AP-330.

START TIME: _____ Shaded Block Indicates Critical Step

<p><u>STEP 1:</u> Obtain a copy of appropriate procedure.</p> <p><u>STANDARD:</u> Operator obtains a copy of AP-330, Enclosure 3.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 2A:</u> Stop EFP-1. Ensure one of the following feedwater sources are in service.</p> <p><u>STANDARD:</u> Operator checks MFWP and MFWBP (cue plant at 75%)</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 2B:</u> Select EFP-1 to PULL TO LOCK.</p> <p><u>STANDARD:</u> Operator rotates EFP-1 control handle and pull out to place in PULL TO LOCK.</p> <p>EXAMINER'S CUE: EFP-1 is in PULL TO LOCK.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 3A:</u> Isolate letdown. Close MUV-49.</p> <p><u>STANDARD:</u> Operator rotates MUV-49 control switch to close and verifies green light ON and red light OFF.</p> <p>EXAMINER'S CUE: MUV-49 is closed.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 3B:</u> Adjust MUV-16 to establish 3 to 5 gpm seal injection flow to each RCP.</p> <p><u>STANDARD:</u> Operator depresses HAND pushbutton on MUV-16 controller and uses toggle to adjust 3 to 5 gpm on gage. Or, Operator may rotate knob on MUV-16 controller to control seal injection.</p> <p>EXAMINER'S CUE: Seal injection flow to each RCP is 4 gpm.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 3C:</u> Adjust MUV-31 to control PZR level.</p> <p><u>STANDARD:</u> Operator rotates knob on MUV-31 controller to control PZR level. Or, Operator may depresses HAND pushbutton on MUV-31 controller and uses toggle to adjust pressurizer level.</p> <p>EXAMINER'S CUE: Pressurizer level is 220 inches.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 4:</u> Consider plant cooldown to control PZR level.</p> <p>EXAMINER'S CUE: Continue on in procedure.</p> <p><u>STANDARD:</u> N/A</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>NOTE: SW leakage may have partially drained the cooling line to the RB fans.</p> <p><u>STEP 5A:</u> Ensure RB cooling unit aligned to the CI system. SW valves to RB cooling units closed: SWV-353 and SWV-354.</p> <p><u>STANDARD:</u> For each valve, operator rotates valve control switch to CLOSE and verifies green light ON and red light OFF.</p> <p>EXAMINER'S CUE: SWV-353 and SWV-354 are closed.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 5B:</u> CI valves to RB cooling unit open: SWV-151, SWV-152, SWV-355.</p> <p><u>STANDARD:</u> For each valve, operator rotates valve control switch to OPEN and verifies red light ON and green light OFF.</p> <p>EXAMINER'S CUE: SWV-151, SWV-152, and SWV-355 are open.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 6:</u> Close all sample isolation valves. CAV-4, CAV-5, CAV-1, CAV-3, CAV-126, CAV-431, CAV-432, CAV-6, CAV-7 and CAV-2.</p> <p>EXAMINER'S CUE: Indicate each Chemical Addition Valve is closed as they are observed.</p> <p><u>STANDARD:</u> N/A</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 7:</u> Stop the running CC Chiller.</p> <p>EXAMINER'S CUE: The running chiller is as is.</p> <p><u>STANDARD:</u> Operator selects running CCHE control switch to STOP/RESET and verifies green light ON and red light OFF. Or, Operator may call the PPO to turn off chiller locally.</p> <p>EXAMINER'S CUE: The running chiller is shutdown.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 8:</u> Stop penetration cooling fans.</p> <p><u>STANDARD:</u> Operator rotates control handle for AHF-9A or AHF-9B to stop and verifies green light ON and red light OFF.</p> <p>EXAMINER'S CUE: Both penetration cooling fans are shutdown.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>

<p><u>STEP 9:</u> IF SW system is supplying secondary plant loads, THEN stop secondary plant equipment.</p> <p>EXAMINER'S CUE: SC is supplying secondary loads.</p> <p><u>STANDARD:</u> N/A</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 10:</u> Perform the appropriate actions for the remainder of the SW system loads.</p> <p>EXAMINER'S CUE: Another operator is performing this step.</p> <p><u>STANDARD:</u> N/A</p> <p><u>COMMENTS:</u></p> <p style="text-align: center;">END of TASK</p>	<p>____ SAT</p> <p>____ UNSAT</p>

STOP TIME: _____

JPM QUESTION #1, NO PROCEDURE ALLOWED

Question: With the following set of plant conditions, what is the status of SWP-1A, 1B and 1C?

Reactor Coolant pressure is 1800 psig.
Reactor Coolant temperature is 570°F.
Reactor Building pressure is 4.3 psig.
Nuclear Services Closed Cycle Cooling (SW) pressure is 120 psig.

Answer: SWP-1A and SWP-1B are running; SWP-1C is NOT running.

CANDIDATE'S RESPONSE

Time:

K/A Rating:

008K4.01//3.1/3.3

References:

None

JPM QUESTION #2

Question: The UHS temperature is 90°F and the maximum % tube blockage of the SWHE being cleaned is 50%. Determine the action to be taken, if any.

Answer: Within 72 hours: immediately pick and clean affected heat exchanger and return it to service; contact NPTS to start their evaluation: inspect and pick clean the next dirtiest SW Heat Exchanger as determined by NPTS; and obtain acceptable results from Engineering Evaluation, indicating the design basis heat removal is met and that no common cause exists to tube sheet blockage that could adversely affect in-service heat exchangers.

CANDIDATE'S RESPONSE

Time:

K/A Rating:

008A1.02//2.9/3.1

References:

OP-103B Curve 15

**JPM QUESTION #2
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)**

Question:

The UHS temperature is 90°F and the maximum % tube blockage of the SWHE being cleaned is 50%. Determine the action to be taken, if any.

**JPM QUESTION #1, NO PROCEDURE ALLOWED
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)**

Question:

With the following set of plant conditions, what is the status of SWP-1A, 1B and 1C?

Reactor Coolant pressure is 1800 psig.

Reactor Coolant temperature is 570°F.

Reactor Building pressure is 4.3 psig.

Nuclear Services Closed Cycle Cooling (SW) pressure is 120 psig.

CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

The plant was at 100% full power when entry was required into AP-330.

The reactor has not been tripped.

Power has been reduced to 75%.

Control Rod Drive temperatures are high and slowly rising but not greater than 180°F.

All component temperatures cooled by SW are high and slowly rising.

SW Heat Exchangers have adequate cooling (the most fouled SWHE has been removed from service and the spare SWHE placed in service).

SWP-1A is running.

SWP-2-PI reads 135 psig.

No SWP has its discharge valve closed.

The Reactor Building (RB) Fans are on SW cooling.

INITIATING CUES:

You are requested to perform Enclosure 3 of AP-330.

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

JPM 4P/PLANT

Transfer Suction Flow Path to the Emergency
Feedwater Pumps

CANDIDATE _____

EXAMINER _____

PREPARED/
REVISED BY: Frederic Dalbec Date/ 12-17-98

VALIDATED BY: * [Signature] Date/ 12-17-98

APPROVED BY: [Signature] Date/ 12-18-98
(Operations Training Manager)

CONCURRED: ** _____ Date/ _____
(Operations Representative)

* Validation not required for minor enhancements, procedure
Rev changes that do not affect the JPM, or individual step
changes that do not affect the flow of the JPM.

** Operations Concurrence required for new JPMs and changes
that affect the flow of the JPM (if not driven by a procedure
revision).

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:

Transfer suction flow path to the Emergency Feedwater (EF) pumps.

Alternate Path:

N/A

Facility JPM #:

010

K/A Rating(s)/Task Number/AO, RO, SRO:

061A1.04//3.9/3.9//0190503001//AO, RO, SRO

Task Standard:

Using EOP-14, Enclosure 22, transfer the suction flow path from the Emergency Feedwater Tank to the Hotwell.

Preferred Evaluation Method:

Simulator _____ In-Plant X

References:

EOP-14, Enclosure 22

Validation Time: 15 min.

Time Critical: NO

Candidate: _____
NAME

Time Start: _____

Performance Rating: SAT _____ UNSAT _____ Performance Time _____

Examiner: _____ / _____
NAME SIGNATURE DATE

COMMENTS

SIMULATOR OPERATOR INSTRUCTIONS:

N/A

Tools/Equipment/Procedures Needed:

EOP-14, Enclosure 22
Key
Calculator

READ TO OPERATOR

DIRECTIONS TO TRAINEE:

I will explain the initial conditions, and state the task to be performed. All in-plant steps, including any required communications, shall be simulated for this JPM. Under no circumstances are you to operate any plant equipment. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

Your are the Primary Plant Operator.
The Reactor is tripped.
A lengthy cooldown is in progress.
The Emergency Feedwater Tank, EFT-2, is at 6 ft.
The Condensate Storage Tank, CDT-1, is at 9 ft.
The Hotwell is at atmospheric pressure.
The Hotwell temperature is 100°F.
Hotwell level is 6 ft.

INITIATING CUES:

You are requested to transfer the suctions of the Emergency Feedwater Pumps from EFT-2 to the Hotwell using EOP-14, Enclosure 22 starting with step 22.6.

START TIME: _____ Shaded Block Indicates Critical Step

<p><u>STEP 1:</u> Obtain a copy of appropriate procedure.</p> <p><u>STANDARD:</u> Operator obtains a copy of EOP-14, Enclosure 22.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 2A:</u> IF at any time, EFT-2 level \leq 6 ft., THEN align the Emergency Feedwater pump suction from hotwell. Verify hotwell at atmospheric pressure.</p> <p><u>STANDARD:</u> This step complete per initial conditions.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 2B:</u> Notify SPO to ensure EFV-36 is open (95 ft. Turbine Building between "C" & "D" inlet waterboxes.</p> <p><u>STANDARD:</u> Operator rotates hand-wheel of EFV-36 in the counter-clockwise (CCW) direction until the valve is open.</p> <p>EXAMINER'S CUE: EFV-36 is open.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 2Da:</u> WHEN EFP-1 suction is aligned, THEN notify PPO to align EFP-2 suction from hotwell in the following order: Open EFV-1 (95 ft. Intermediate Building by EFP-2).</p> <p><u>STANDARD:</u> Operator unlocks hand-wheel. Operator then disengages motor and rotates hand-wheel of EFV-1 in the counter-clockwise (CCW) direction until the valve is open.</p> <p>EXAMINER'S CUE: EFV-1 is open.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 2Db:</u> Close EFV-4 (95 ft. Intermediate Building by EFP-2)</p> <p><u>STANDARD:</u> Operator unlocks hand-wheel. Operator then disengages motor and rotates hand-wheel of EFV-4 in the clockwise (CW) direction until the valve is closed.</p> <p>EXAMINER'S CUE: EFV-4 is closed.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>

<p><u>STEP 2E:</u> IF either EFWP is running, THEN maintain total EFW flowrate \leq maximum flow rate based on hotwell TEMP., See Figure 3.</p> <p>EXAMINER'S CUE: This will be completed by the control room.</p> <p><u>STANDARD:</u> N/A</p> <p><u>COMMENTS:</u></p> <p>END of TASK</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
--	-------------------------------------

STOP TIME: _____

JPM QUESTION #1

Question: How many usable gallons are in the Emergency Feedwater Tank (EFT-2) when a level of 5.75 feet on EF-98-LI is reached?

Answer: 26,365.4 gallons

CANDIDATE'S RESPONSE

Time:

K/A Rating:

061A1.04//3.9/3.9

References:

OP-103F, Figure 16

JPM QUESTION #2

Question: The Emergency Feedwater Pumps are taking suction from the Hotwell. What is the maximum total Feedwater flow rate if the Hotwell temperature is 102°F?

Answer: 578 gpm \pm 5 gpm

CANDIDATE'S RESPONSE

Time:

K/A Rating:

061K1.07//3.6/3.8

References:

EOP-14, Figure 3

**JPM QUESTION #2
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)**

Question: The Emergency Feedwater Pumps are taking suction from the Hotwell. What is the maximum total Feedwater flow rate if the Hotwell temperature is 102°F?

**JPM QUESTION #1
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)**

Question: How many usable gallons are in the Emergency Feedwater Tank (EFT-2) when a level of 5.75 feet on EF-98-LI is reached?

CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

Your are the Primary Plant Operator.
The Reactor is tripped.
A lengthy cooldown is in progress.
The Emergency Feedwater Tank, EFT-2, is at 6 ft.
The Condensate Storage Tank, CDT-1, is at 9 ft.
The Hotwell is at atmospheric pressure.
The Hotwell temperature is 100°F.
Hotwell level is 6 ft.

INITIATING CUES:

You are requested to transfer the suctions of the Emergency Feedwater Pumps from EFT-2 to the Hotwell using EOP-14, Enclosure 22 starting with step 22.6.

REGION II INITIAL LICENSE EXAMINATION JOB PERFORMANCE MEASURE

JPM 5P/PLANT

Transfer Battery Chargers

CANDIDATE _____

EXAMINER _____

PREPARED/
REVISED BY: Michelle Larkin Date/ 12-17-98

~~APPROVED~~
~~VALIDATED~~ BY: ¹²⁻¹⁸⁻⁹⁸ [Signature] Date/ 12-18-98

~~VALIDATED~~
~~APPROVED~~ BY: * [Signature] Date/ 12-17-98
~~(Operations Training Manager)~~ ¹²⁻¹⁸⁻⁹⁸

CONCURRED: ** _____ Date/ _____
(Operations Representative)

* Validation not required for minor enhancements, procedure Rev changes that do not affect the JPM, or individual step changes that do not affect the flow of the JPM.

** Operations Concurrence required for new JPMs and changes that affect the flow of the JPM (if not driven by a procedure revision).

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:
Transfer Battery Chargers.

Alternate Path:
N/A

Facility JPM #:
094

K/A Rating(s)/Task Number/AO, RO, SRO:
063A4.01//2.8/3.1//0630103001//AO, RO, SRO

Task Standard:
Using OP-705 place the "F" Battery Charger in service for the "B" Battery Charger.

Preferred Evaluation Method:
Simulator _____ In-Plant X

References:
OP-705

Validation Time: 14 min. Time Critical: NO

Candidate: _____ Time Start: _____
NAME

Performance Rating: SAT _____ UNSAT _____ Performance Time _____

Examiner: _____ / _____
NAME SIGNATURE DATE

COMMENTS

SIMULATOR OPERATOR INSTRUCTIONS:

N/A

Tools/Equipment/Procedures Needed:

OP-705

READ TO OPERATORDIRECTIONS TO TRAINEE:

I will explain the initial conditions, and state the task to be performed. All in-plant steps, including any required communications, shall be simulated for this JPM. Under no circumstances are you to operate any plant equipment. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

Your are the Primary Plant Operator.
The Electricians need to work on the "B" Battery Charger.

INITIATING CUES:

You are requested to place the "F" Battery Charger in service for the "B" Battery Charger.

START TIME: _____ Shaded Block Indicates Critical Step

<p><u>STEP 1:</u> Obtain a copy of appropriate procedure.</p> <p><u>STANDARD:</u> Operator obtains a copy of OP-705, Section 4.2.3.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 2:</u> Ensure AC Supply to Battery Charger "F" CLOSED.</p> <p>EXAMINER'S CUE: ES MCC 3B2 Unit 3BL is closed.</p> <p><u>STANDARD:</u> N/A</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>NOTE: Only one switch for Battery Charger "F" can be in the ON position at any time due to a mechanical interlock.</p> <p><u>STEP 3:</u> Ensure P, PN Feeder from "F" Battery Charger OFF, DPDP-1B switch #9.</p> <p><u>STANDARD:</u> Operator verifies DPDP-1B switch #9 is OFF.</p> <p>EXAMINER'S CUE: DPDP-1B switch #9 is OFF.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 4:</u> Close PN, N Feeder from “F” Battery Charger, DPDP-1B switch #10.</p> <p><u>STANDARD:</u> Operator rotates DPDP-1B switch #10 to ON.</p> <p>EXAMINER’S CUE: DPDP-1B switch #10 is ON.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 5:</u> Ensure DC switch for Battery Charger “F” ON, located on Battery Charger “F” upper panel.</p> <p><u>STANDARD:</u> Operator verifies DC switch on “F” Battery Charger is ON</p> <p>EXAMINER’S CUE: DC switch on “F Battery Charger is ON.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 6:</u> Ensure AC switch for Battery Charger “F” ON, located on Battery Charger “F” upper panel.</p> <p><u>STANDARD:</u> Operator verifies AC switch on “F” Battery Charger is ON</p> <p>EXAMINER’S CUE: AC switch on “F Battery Charger is ON.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 7:</u> Verify Battery Charger “F” indications are normal. 125 – 137 VDC/ < 200 amps (normally < 50 amps); power indicating lamp ON (amber)</p> <p><u>STANDARD:</u> Operator verifies Battery Charger “F” voltage is between 125-137 volts, amperage is < 200 amps, and the power indicating lamp is ON.</p> <p>EXAMINER’S CUE: Indicate Battery Charger “F” voltage is 131 volts, amperage is 2 amps, and the power indicating lamp is ON.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 8:</u> Verify Battery Charger “D” indications are normal. DPDP-1B switch #11 is ON; 125 – 137 VDC/ < 200 amps (normally < 50 amps); power indicating lamp ON (amber)</p> <p><u>STANDARD:</u> Operator verifies Battery Charger “D” DPDP-1B switch #11 is ON; voltage is between 125-137 volts, amperage is < 200 amps, and the power indicating lamp is ON.</p> <p>EXAMINER’S CUE: Indicate Battery Charger “D” DPDP-1B switch #11 is ON; voltage is 129 volts, amperage is 8 amps, and the power indicating lamp is ON.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 9:</u> Verify voltmeters and ammeters for Battery Chargers "F" and "B" are indicating within the normal range, 125 – 137 VDC/ < 200 amps (normally < 50 amps).</p> <p><u>STANDARD:</u> Operator verifies both Battery Chargers "F" and "B" have voltage between 125-137 volts and amperage < 200 amps.</p> <p>EXAMINER'S CUE: Indicate Battery Charger "F" voltage is 131 volts and amperage is 2 amps. Battery Charger "B" indicates 132 volts and 9 amps.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 10:</u> OPEN Feeder from "B" Battery Charger AND verify ammeter lowers to zero; DPDP-1B switch #17 OFF.</p> <p><u>STANDARD:</u> Operator rotates DPDP-1B switch #17 to OFF and verifies ammeter lowers to zero</p> <p>EXAMINER'S CUE: DPDP-1B switch #17 is OFF; "B" Battery Charger amperage is 0.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 11:</u> Verify Battery Charger "F" is supplying load by observing an increase in amps. 125-137 VDC; amps increase; < 200 amps (normally < 50 amps).</p> <p><u>STANDARD:</u> Operator verifies Battery Charger "F" voltage is between 125-137 volts and amperage increased but is < 200 amps.</p> <p>EXAMINER'S CUE: Indicate Battery Charger "F" voltage is 131 volts and amperage is 10 amps.</p> <p><u>COMMENTS:</u></p> <p>END of TASK</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
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STOP TIME: _____

JPM QUESTION #1

Question: While taking SP-300 readings on the "A" Inverter, VBIT-1A, the following indications were noted:

Amber precharge light is ON.
Green in sync light is ON.
Red battery supplying load light is ON.
All other lights are OFF.

The Control Room reports that the "A" Inverter Trouble Annunciator is in alarm. What is the cause of these indications?

Answer: The battery source is available to the inverter and the normal AC source voltage is low.

CANDIDATE'S RESPONSE

Time:

K/A Rating:

063K1.02//2.7/3.2

References:

AR-701

JPM QUESTION #2

Question: The following readings are taken on the "A" train Battery Chargers:

- "A" Battery Charger voltage is 146 volts.
- "A" Battery Charger amperage 10 amps.
- "C" Battery Charger voltage is 130 volts.
- "C" Battery Charger amperage is 7amps.
- "E" Battery Charger voltage is 129 volts.
- "E" Battery Charger amperage is 0 amps.

What is the status of each battery charger?

Answer: The "A" Battery Charger should have shutdown on high voltage, but is in service.
The "C" Battery Charger is in service.
The "E" Battery Charger is NOT in service.

CANDIDATE'S RESPONSE

Time:

K/A Rating:

063K1.03//2.9/3.5

References:

AR-701
SP-300

JPM QUESTION #2
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)

Question:

The following readings are taken on the "A" train Battery Chargers:

"A" Battery Charger voltage is 146 volts.

"A" Battery Charger amperage 10 amps.

"C" Battery Charger voltage is 130 volts.

"C" Battery Charger amperage is 7amps.

"E" Battery Charger voltage is 129 volts.

"E" Battery Charger amperage is 0 amps.

What is the status of each battery charger?

JPM QUESTION #1
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)

Question: While taking SP-300 readings on the "A" Inverter, VBIT-1A, the following indications were noted:

Amber precharge light is ON.
Green in sync light is ON.
Red battery supplying load light is ON.
All other lights are OFF.

The Control Room reports that the "A" Inverter Trouble Annunciator is in alarm. What is the cause of these indications?

CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

You are the Primary Plant Operator.
The Electricians need to work on the "B" Battery Charger.

INITIATING CUES:

You are requested to place the "F" Battery Charger in service for the
"B" Battery Charger.

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:

Perform a Waste Gas Decay Tank release to the Containment.

Alternate Path:

N/A

Facility JPM #:

098

K/A Rating(s)/Task Number/AO, RO, SRO:

071A4.05//2.6/2.6//0710403012//AO, RO, SRO

Task Standard:

Using OP-412A, Waste Gas Disposal System, release the "A" Waste Gas Decay Tank, WDT-1A, to containment.

Preferred Evaluation Method:

Simulator _____ In-Plant X

References:

OP-412A

Validation Time: 15 min.

Time Critical: NO

Candidate: _____
NAME

Time Start: _____

Performance Rating: SAT _____ UNSAT _____ Performance Time _____

Examiner: _____ / _____
NAME SIGNATURE DATE

COMMENTS

SIMULATOR OPERATOR INSTRUCTIONS:

N/A

Tools/Equipment/Procedures Needed:

OP-412A
Key

READ TO OPERATOR

DIRECTIONS TO TRAINEE:

I will explain the initial conditions, and state the task to be performed. All in-plant steps, including any required communications, shall be simulated for this JPM. Under no circumstances are you to operate any plant equipment. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

You are the Primary Plant Operator.
Space is needed in the "A" Waste Gas Decay Tank, following an accident.
Containment integrity exists.

INITIATING CUES:

You are requested to release the "A" Waste Gas Decay Tank, WDT-1A, to the Containment Building by the Technical Support Center. Vent until 10 psig is in the tank.

START TIME: _____ Shaded Block Indicates Critical Step

<p><u>STEP 1:</u> Obtain a copy of appropriate procedure.</p> <p><u>STANDARD:</u> Operator obtains a copy of OP-412A, Section 4.4.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>NOTE: This section will be performed following an accident, as directed by the TSC.</p> <p>NOTE: Addition of a full (80 psig) WGDT to the Containment Building should result in a building pressure increase of less than 0.1 psig.</p> <p><u>STEP 2:</u> Contact the SSOD to ensure that containment integrity exists</p> <p><u>STANDARD:</u> This step complete per initial conditions.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 3:</u> Verify a WGDT is to be discharged to Containment Building.</p> <p>EXAMINER'S CUE: The Shift Supervisor confirms that WDT-1A is to be released.</p> <p><u>STANDARD:</u> Procedure has already been signed off.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 4:</u> Verify Containment Building pressure is less than 10 psig/ record WGDT pressure; record WGDT to be vented; Record containment pressure.</p> <p>EXAMINER'S CUE: Containment pressure is 1 psig.</p> <p><u>STANDARD:</u> Operator records "as is" pressure of WDT-1A, tank to be vented ("A") and containment pressure.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 5:</u> Ensure Waste Gas Header isolated inside Containment Building. Close the following: WDV-60, WDV-61, CFV-15, CFV-16, CFV-29.</p> <p>EXAMINER'S CUE: The Control Room has closed WDV-60, WDV-61, CFV-15, CFV-16, CFV-29.</p> <p><u>STANDARD:</u> N/A</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>

<p><u>STEP 6A:</u> Ensure WGDТ to be discharged is isolated. Trip RM-A11. Reset RM-A11. Close WDV-405 and WDV-406.</p> <p>EXAMINER'S CUE: The Control Room has tripped and reset RM-A11 and closed WDV-405 and WDV-406.</p> <p><u>STANDARD:</u> N/A</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 6Ba:</u> Close the following valves (at the Remote Waste Gas Panel): WDV-393</p> <p><u>STANDARD:</u> Operator verifies control switch for WDV-393 is selected to NORMAL AFTER CLOSE and the green light is ON.</p> <p>EXAMINER'S CUE: WDV-393 is CLOSED.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 6Bb:</u> Close the following valves (at the Remote Waste Gas Panel): WDV-394</p> <p><u>STANDARD:</u> Operator verifies control switch for WDV-394 is selected to NORMAL AFTER CLOSE and the green light is ON.</p> <p>EXAMINER'S CUE: WDV-394 is CLOSED.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 6Bc:</u> Close the following valves (at the Remote Waste Gas Panel): WDV-395</p> <p><u>STANDARD:</u> Operator verifies control switch for WDV-395 is selected to NORMAL AFTER CLOSE and the green light is ON.</p> <p>EXAMINER'S CUE: WDV-395 is CLOSED.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>

<p><u>STEP 6Bd:</u> Close the following valves (at the Remote Waste Gas Panel): WDV-436</p> <p><u>STANDARD:</u> Operator verifies control switch for WDV-436 is selected to NORMAL AFTER CLOSE and the green light is ON.</p> <p>EXAMINER'S CUE: WDV-436 is CLOSED.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 6Be:</u> Close the following valves (at the Remote Waste Gas Panel): WDV-437</p> <p><u>STANDARD:</u> Operator verifies control switch for WDV-437 is selected to NORMAL AFTER CLOSE and the green light is ON.</p> <p>EXAMINER'S CUE: WDV-437 is CLOSED.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>

<p><u>STEP 6Bf:</u> Close the following valves (at the Remote Waste Gas Panel): WDV-438</p> <p><u>STANDARD:</u> Operator verifies control switch for WDV-438 is selected to NORMAL AFTER CLOSE and the green light is ON.</p> <p>EXAMINER'S CUE: WDV-438 is CLOSED.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 6Bg:</u> Close the following valves (at the Remote Waste Gas Panel): WDV-1018</p> <p><u>STANDARD:</u> Operator rotates control switch for WDV-1018 to CLOSE and verifies red light OFF, green light ON.</p> <p>EXAMINER'S CUE: WDV-1018 is CLOSED.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 6Bh:</u> Close the following valves (at the Remote Waste Gas Panel): WDV-1022.</p> <p><u>STANDARD:</u> Operator verifies control switch for WDV-1022 is selected to CLOSE and the green light is ON.</p> <p>EXAMINER'S CUE: WDV-1022 is CLOSED.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 6Bi:</u> Close the following valves (at the Remote Waste Gas Panel): WDV-1017</p> <p><u>STANDARD:</u> Operator rotates control switch for WDV-1017 to CLOSE and verifies red light OFF, green light ON.</p> <p>EXAMINER'S CUE: WDV-1017 is CLOSED.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>

<p><u>STEP 7A:</u> Align Waste Gas System to Containment Building. Open the following valves (at the Remote Waste Gas Panel): WDV-1019.</p> <p><u>STANDARD:</u> Operator rotates control switch for WDV-1019 to OPEN and verifies green light OFF, red light ON.</p> <p> EXAMINER'S CUE: WDV-1019 is OPEN.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 7B:</u> Align Waste Gas System to Containment Building. Open the following valves (at the Remote Waste Gas Panel): WDV-1022.</p> <p><u>STANDARD:</u> Operator rotates control switch for WDV-1022 to OPEN and verifies green light OFF, red light ON.</p> <p> EXAMINER'S CUE: WDV-1022 is OPEN.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 8:</u> Open Waste Gas outlet to header, depending on WGDT to be discharged.</p> <p><u>STANDARD:</u> Operator rotates control switch for WDV-393 to OPEN and verifies green light OFF, red light ON.</p> <p>EXAMINER'S CUE: WDV-393 is OPEN.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 9:</u> Vent selected WGDT to Containment Building. Open the following valves on the Main Control Board, WDV-405 and WDV-406. Record Date and time of vent start.</p> <p>EXAMINER'S CUE: The Control Room has opened WDV-405 and WDV-406. Record present time and date.</p> <p><u>STANDARD:</u> Operator records present time and date.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>

<p><u>STEP 10:</u> When desired pressure in WGDT is reached, THEN stop venting process; Close WDV-1022 and record WGDT final pressure.</p> <p>EXAMINER'S CUE: WDT-1A is at 10 psig.</p> <p><u>STANDARD:</u> Operator rotates control switch for WDV-1022 to CLOSED and verifies red light OFF, green light ON. Operator records 10 psig.</p> <p>EXAMINER'S CUE: WDV-1022 is CLOSED.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 11Aa:</u> Restore Waste Gas System to Stand-By operation. Close the following valves at the Remote Waste Gas Panel: WDV-393.</p> <p><u>STANDARD:</u> Operator selects control switch for WDV-393 is selected to CLOSE and verifies red light OFF, green light ON.</p> <p>EXAMINER'S CUE: WDV-393 is CLOSED.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 11Ab:</u> Close the following valves at the Remote Waste Gas Panel: WDV-394.</p> <p><u>STANDARD:</u> Operator verifies control switch for WDV-394 is selected to CLOSE and the green light is ON.</p> <p>EXAMINER'S CUE: WDV-394 is CLOSED.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 11Ac:</u> Close the following valves at the Remote Waste Gas Panel: WDV-395.</p> <p><u>STANDARD:</u> Operator verifies control switch for WDV-395 is selected to CLOSE and the green light is ON.</p> <p>EXAMINER'S CUE: WDV-395 is CLOSED.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>

<p><u>STEP 11B:</u> Open WDV-1018.</p> <p><u>STANDARD:</u> Operator selects control switch for WDV-1018 is selected to OPEN and verifies green light OFF, red light ON.</p> <p> EXAMINER'S CUE: WDV-1018 is OPEN.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 11C:</u> Close WDV-1019.</p> <p><u>STANDARD:</u> Operator selects control switch for WDV-1019 is selected to CLOSE and verifies red light OFF, green light ON.</p> <p> EXAMINER'S CUE: WDV-1019 is CLOSED.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 11D:</u> Open or Close, as required by Plant Conditions, WDV-405 and WDV-406.</p> <p>EXAMINER'S CUE: The Control Room has closed WDV-405 and WDV-406</p> <p><u>STANDARD:</u> N/A</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 11E:</u> Open WDV-1017.</p> <p><u>STANDARD:</u> Operator selects control switch for WDV-1017 is selected to OPEN and verifies green light OFF, red light ON.</p> <p>EXAMINER'S CUE: WDV-1017 is OPEN.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 12:</u> Notify Shift Supervisor of discharge completion.</p> <p><u>STANDARD:</u> Operator contacts Shift Supervisor that WDT-1A has been released to Containment.</p> <p><u>COMMENTS:</u></p> <p>END of TASK</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

STOP TIME: _____

JPM QUESTION #1

Question: Waste Gas Compressors have been placed in pull-to-lock; RM-A8 and RM-A2 are in high alarm; the Waste Gas Tanks have the following pressures:

WDT-1A	119 psig
WDT-1B	80 psig
WDT-1C	15 psig
WDT-2	31 psig

What is the cause of the Radiation Monitor alarms?

Answer: The Waste Gas Surge Tank's, WDT-2, relief valve has lifted.

CANDIDATE'S RESPONSE

Time:

K/A Rating:

071K1.06//3.1/3.1

References:

OP-412A
Flow diagram 302-691

JPM QUESTION #2

Question: The following Waste Gas conditions exist:

All the Waste Gas Decay Tanks are full (82 psig each).
Both Waste Gas Compressors have been placed in pull-to-lock.

The Waste Gas Header is at 2.4 psig.

WDT-1B's sequencer switch is OFF.

The other Waste Gas Decay Tanks' sequencer switches are ON.

What will happen if the "A" Waste Gas Compressor (selected to lag) has its control handle taken to start? And why?

Answer: The compressor will not start because there is high pressure in all of the Waste Gas Decay Tanks.

CANDIDATE'S RESPONSE

Time:

K/A Rating:

071A3.02//2.8/2.8

References:

OP-412A

Electrical diagram 208-060 & Calibration Data Sheets

**JPM QUESTION #2
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)**

Question:

The following Waste Gas conditions exist:

All the Waste Gas Decay Tanks are full (82 psig each).
Both Waste Gas Compressors have been placed in pull-to-lock.

The Waste Gas Header is at 2.4 psig.

WDT-1B's sequencer switch is OFF.

The other Waste Gas Decay Tanks' sequencer switches are ON.

What will happen if the "A" Waste Gas Compressor (selected to lag) has its control handle taken to start? And why?

**JPM QUESTION #1
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)**

Question: Waste Gas Compressors have been placed in pull-to-lock; RM-A8 and RM-A2 are in high alarm; the Waste Gas Tanks have the following pressures:

WDT-1A	119 psig
WDT-1B	80 psig
WDT-1C	15 psig
WDT-2	31 psig

What is the cause of the Radiation Monitor alarms?

CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

Your are the Primary Plant Operator.
Space is needed in the "A" Waste Gas Decay Tank, following an accident.
Containment integrity exists.

INITIATING CUES:

You are requested to release the "A" Waste Gas Decay Tank, WDT-1A, to the Containment Building by the Technical Support Center.
Vent until 10 psig is in the tank.

DESCRIPTION WASTE GAS DECAY TANK 3A TAG NO. WD-204-PSI
 SPECIFICATION DATA BY _____ DATE _____

SYSTEM CONDITIONS:
 MAX. TEMP. (°F) 150
 MAX. PRESS. (PSIG) 125 OPER. PRESS. 80 (PSIG)
 PROCESS FLUID WASTE GAS

SWITCH DATA:
 PRESSURE VACUUM DIFF. PRESS. (MAX. ΔP _____ PSID)
 TYPE ELEMENT TEFLON DIAPHRAGM
 DIFF. PRESS. INSTRUMENT MAX. DIFF. PRESS. (PSID) _____
 ADJUSTABLE RANGE 0 TO 100 (PSIG)
 SENSITIVITY .25-.75 PSIG FIXED ADJUSTABLE
 DUAL SET POINT A & B
 NO. OF SWITCHES 1 TYPE SPDT (A)
1 TYPE SPDT (B)
 CONTACT RATING 15 AMPS @ 125/250 VAC
 INDICATING SCALE _____ TO _____ ()
 ENCLOSURE: NEMA 4 CONDUIT CONN. SIZE (IN.) 1/2" NPT
 MOUNTING LOCAL

ACCESSORIES: 3 WAY MANIFOLD TIME DELAY
 PULSATION DAMPENER DIAPHRAGM SEAL
 VACUUM PROTECTION SYPHON
 OVER PRESS. PROTECTION
 N/A

REMARKS: _____

ENGINEERING DATA BY _____ DATE _____ REV. _____

SERVICE ACTION SET POINT CABLE NO. ELECT. DWG. NO.
 (1) AUX RELAY (A&B) COI 80 PSIG WDC-92 20X-060 WD-05, N
 (2) PERMISSIVE LIGHT ON COMPRESSOR GOES OUT IF ALL TANKS
 (3) ABOVE 80 PSIG CLOSERS WDV-390 C ACTUATES STEP SWITCH
 (4) IF ALL TANKS FULL - CLOSE WDV-384 & WDV-385
 FLOW DIAGRAM NO. 302-691 SH.2
 INSTRUMENT DIAGRAM NO. 308-12B, 308-62B
 REMARKS COMPRESSORS 1A or 1B SHUT OFF VIA KS ON WDV-384 & WDV-385
REF. DWG # 209-060 WVD-01
REF. PO-3127

MATERIAL DATA BY _____ DATE _____ REV. _____

MANUFACTURER UNITED ELEC. DWG. NO. B-10330
 MODEL NO. 555 TYPE J 302
 VENDOR PRE TEMP CO P.O. NO. PR3- 6333 ITEM _____
 ACCOUNT NO. 102F417708 322-M14 COST _____
 REMARKS _____

S REVISED PER DCN 88-148A

GILBERT ASSOCIATES, INC. ENGINEERS AND CONSULTANTS READING, PENNSYLVANIA JOB NO. 4203	FLORIDA POWER CORPORATION ST. PETERSBURG, FLORIDA CRYSTAL RIVER UNIT 3	INSTRUMENT DATA	REV. SHEET
		PRESSURE SWITCH	NUMBER 5

DESCRIPTION WASTE GAS DECAY TANK 3B TAG NO. WD-205-PS1
 SPECIFICATION DATA BY _____ DATE _____ REV. _____

SYSTEM CONDITIONS:
 MAX. TEMP. (°F) 150
 MAX. PRESS. (PSIG) 125 OPER. PRESS. 80 (PSIG)
 PROCESS FLUID WASTE GAS

SWITCH DATA:
 PRESSURE VACUUM DIFF. PRESS. (MAX. ΔP _____ PSID)
 TYPE ELEMENT TEFLON DIAPHRAGM
 DIFF. PRESS. INSTRUMENT MAX. DIFF. PRESS. (PSID) _____
 ADJUSTABLE RANGE 0 TO 100 (PSIG)
 SENSITIVITY .25-.75 PSIG FIXED ADJUSTABLE
 DUAL SET POINT A & B
 NO. OF SWITCHES 1 TYPE SPDT (A)
1 TYPE SPDT (B)
 CONTACT RATING 15 AMPS @ 125/250 VAC
 INDICATING SCALE _____ TO _____ ()
 ENCLOSURE: NEMA 4 CONDUIT CONN. SIZE (IN.) 1/2" NPT
 MOUNTING LOCAL

ACCESSORIES: 3 WAY MANIFOLD TIME DELAY
 PULSATION DAMPENER DIAPHRAGM SEAL
 VACUUM PROTECTION SYPHON
 OVER PRESS. PROTECTION
 N/A

REMARKS: _____

ENGINEERING DATA BY _____ DATE _____ REV. _____

SERVICE ACTION SET POINT CABLE NO. ELECT. DWG. NO.
 (1) AUX. RELAY (A+B) COF 80 PSIG WDC-93 209-060 WD-05-06
 (2) (A) PERMISSIVE LIGHT ON COMPRESSOR GOES OUT IF ALL TANKS ABOVE 80
 (3) PSIG (B) CLOSURE WDV-391 (C) ACTUATES STEP SWITCH (D) IF ALL TANKS
 (4) FULLY-CLOSE WDV-384 or WDV-385
 FLOW DIAGRAM NO. 302-691 SH-2
 INSTRUMENT DIAGRAM NO. 308-129, 308-628
 REMARKS COMPRESSORS 1A and 1B SHUT OFF VIA KS ON WDV-384 or WDV-385
REF. DWG. # 209-060 WD-01
REF. RO-3127

MATERIAL DATA BY _____ DATE _____ REV. _____

MANUFACTURER UNITED ELEC DWG. NO. B-10330
 MODEL NO. 555 TYPE J302
 VENDOR PRE TEMP CO P.O. NO. PR3- 6333 ITEM _____
 ACCOUNT NO. 102F417708 322-414 COST _____
 REMARKS _____

GILBERT ASSOCIATES, INC. ENGINEERS AND CONSULTANTS READING, PENNSYLVANIA JOB NO. 4203	FLORIDA POWER CORPORATION ST. PETERSBURG, FLORIDA CRYSTAL RIVER UNIT 3	INSTRUMENT DATA	REV. SHEET NUMBER
		PRESSURE SWITCH	5

5 REVISED PER DCN 88-148A 08 APR 1984

DESCRIPTION WASTE GAS DECAY TANK 3C TAG NO. WD-206-PSI

SPECIFICATION DATA BY _____ DATE _____ REV. _____

SYSTEM CONDITIONS:

MAX. TEMP. (°F) 150
MAX. PRESS. (PSIG) 125 OPER. PRESS. 80 (PSIG)
PROCESS FLUID WASTE GAS

SWITCH DATA:

PRESSURE VACUUM DIFF. PRESS. (MAX. ΔP _____ PSID)
TYPE ELEMENT TEFLON DIAPHRAGM
DIFF. PRESS. INSTRUMENT MAX. DIFF. PRESS. (PSID) _____
ADJUSTABLE RANGE 0 TO 100 (PSIG)
SENSITIVITY 25-75 PSIG FIXED ADJUSTABLE
DUAL SET POINT A & B
NO. OF SWITCHES 1 TYPE SPDT (A)
1 TYPE SPDT (B)
CONTACT RATING 15 AMPS @ 125/250 VAC
INDICATING SCALE _____ TO _____ ()
ENCLOSURE: NEMA 4 CONDUIT CONN. SIZE (IN.) 1/2" NPT
MOUNTING LOCAL

ACCESSORIES: 3 WAY MANIFOLD TIME DELAY
PULSATION DAMPENER DIAPHRAGM SEAL
VACUUM PROTECTION SYNCHRON
OVER PRESS. PROTECTION
N/A

REMARKS: _____

ENGINEERING DATA BY _____ DATE _____ REV. _____

SERVICE ACTION SET POINT CABLE NO. ELECT. DWG. NO.
(1) AUX. RELAY (A&B) CO1 80 PSIG WDC94 209-060 WD-0506
(2) PERMISSIVE LIGHT ON COMPRESSOR GOES OUT IF ALL TANKS ABOVE
80 PSIG (B) CLOSES WDV-392 (C) ACTUATES STEP SWITCH (D) IF ALL
TANKS FULL - CLOSE WDV-384 OR WDV-385
FLOW DIAGRAM NO. 302-691 SM-2
INSTRUMENT DIAGRAM NO. 308-128, 308-628
REMARKS COMPRESSORS 1A & 1B SHUT OFF VIA KTS ON WDV-384 & WDV-385
REF DWG #209-060 WD-01
REF RO-3127

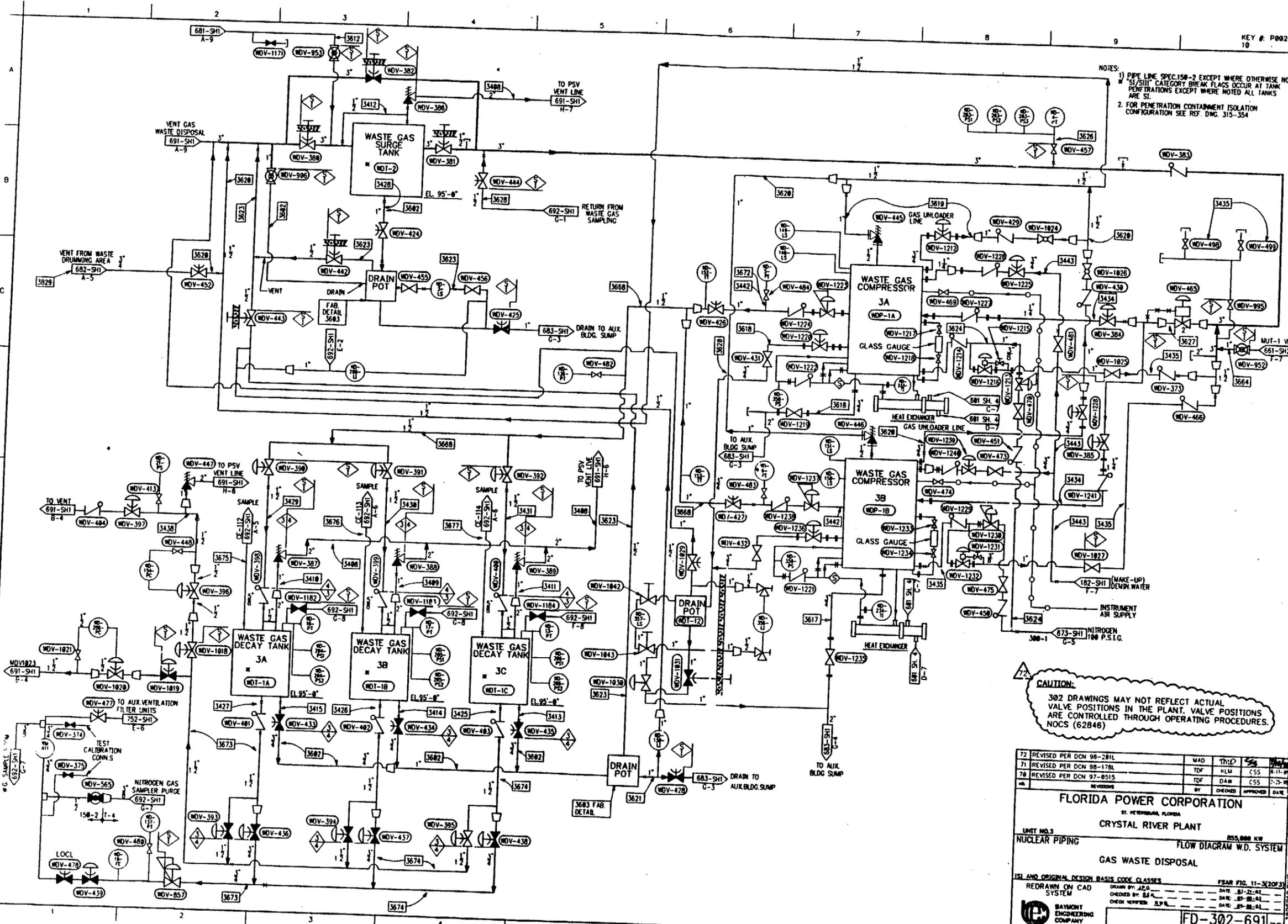
MATERIAL DATA BY _____ DATE _____ REV. _____

MANUFACTURER UNITED ELEC. DWG. NO. B-10330
MODEL NO. 555 TYPE J302
VENDOR PRIE TEMP CO P.O. NO. PRS- 6393 ITEM _____
ACCOUNT NO. 102F417708 322-114 COST _____
REMARKS _____

5 REVISED PER DWG 88-148A

GILBERT ASSOCIATES, INC. ENGINEERS AND CONSULTANTS READING, PENNSYLVANIA JOB NO. 4203	FLORIDA POWER CORPORATION ST. PETERSBURG, FLORIDA CRYSTAL RIVER UNIT 3	INSTRUMENT DATA	REV. SHEET NUMBER
		PRESSURE SWITCH	5

NOTES:
1) PIPE LINE SPEC. 150-2 EXCEPT WHERE OTHERWISE NOTED.
SI/SUIT CATEGORY BREAK FLAGS OCCUR AT TANK PENETRATIONS EXCEPT WHERE NOTED ALL TANKS ARE SI.
2) FOR PENETRATION CONTAINMENT ISOLATION CONFIGURATION SEE REF. DWG. 315-354



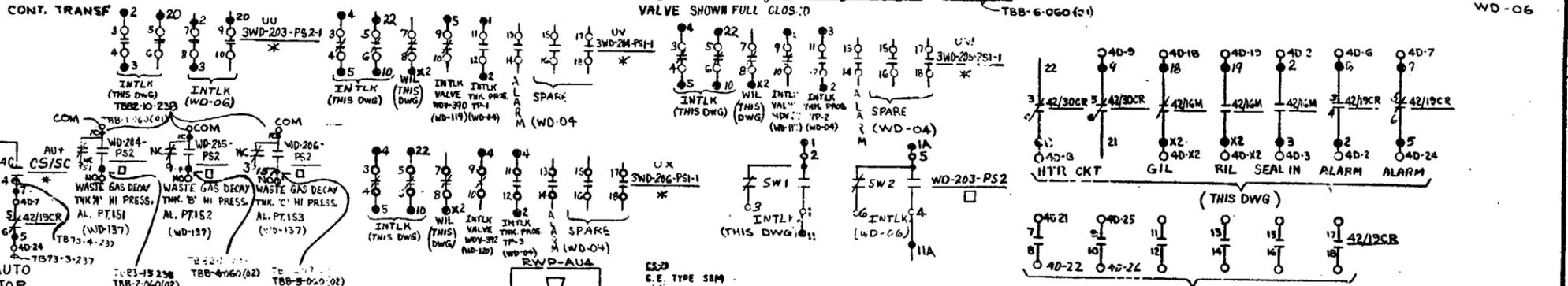
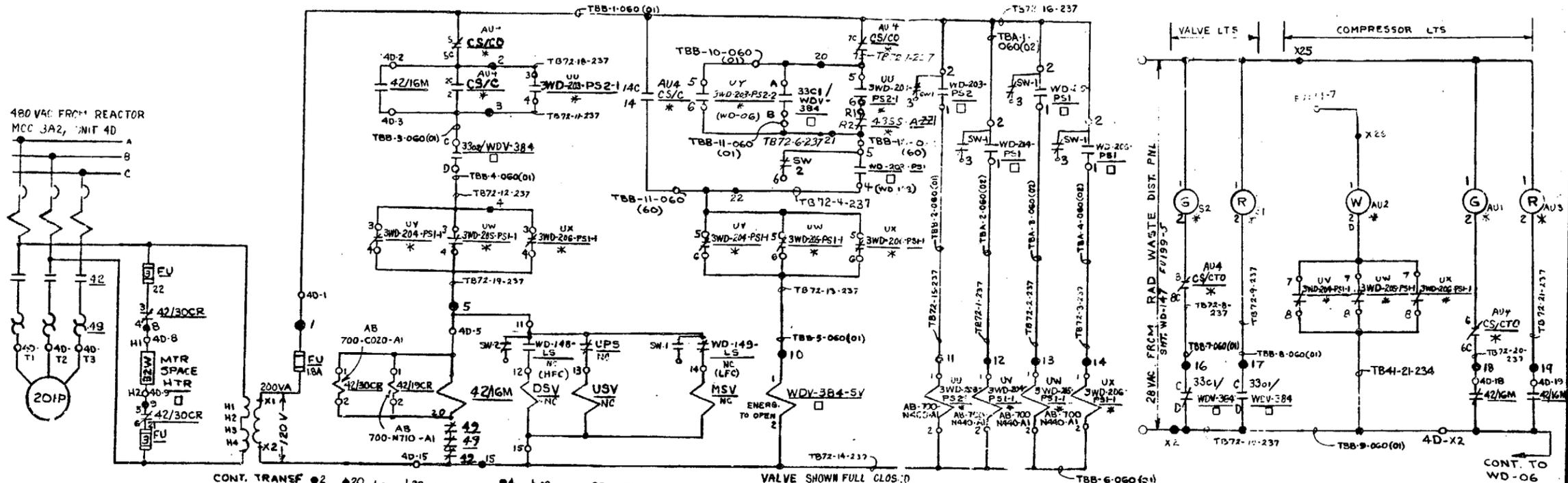
CAUTION:
302 DRAWINGS MAY NOT REFLECT ACTUAL VALVE POSITIONS IN THE PLANT. VALVE POSITIONS ARE CONTROLLED THROUGH OPERATING PROCEDURES. NOCS (62846)

72	REVISED PER DCN 98-281L	MAD	THD	SS	7/2/98
71	REVISED PER DCN 98-178L	TDF	NLM	CSS	8-11-98
78	REVISED PER DCN 97-8515	TDF	DAW	CSS	2-25-98
76	REVISED PER DCN 97-8515	TDF	DAW	CSS	2-25-98
REVISIONS		BY	CHECKED	APPROVED	DATE
FLORIDA POWER CORPORATION					
ST. PETERSBURG, FLORIDA					
CRYSTAL RIVER PLANT					
UNIT NO. 3	855,000 KW				
NUCLEAR PIPING		FLOW DIAGRAM W.D. SYSTEM			
GAS WASTE DISPOSAL					
ISLAND ORIGINAL DESIGN BASIS CODE CLASSES PSAR FIG. 11-3(20F3)					
REDRAWN ON CAD SYSTEM		DRAWN BY: JEG	DATE: 02-21-98		
		CHECKED BY: JEG	DATE: 02-21-98		
		DESIGN NUMBER: 315-354	DATE: 02-21-98		
		BAYMONT ENGINEERING COMPANY			
		FD-302-691			
		SHEET 02 OF 03			
		SCALE			
		DRAWING NUMBER			

DATE: 02-21-98

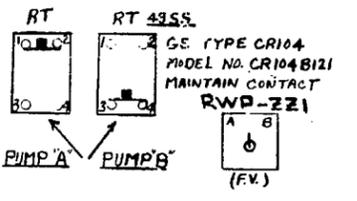
REV: 72

10 0-9-8



- NOTES:**
1. DEVICES WITHOUT LOCATION SYMBOL ARE LOCATED IN MCC
 2. FOR LOGIC DIAG SEE DWG 5-203-060-WD-19
 3. LAST USED WIRE NO. 22
 4. LOCATION SYMBOLS
 □ MOUNTED LOCALLY
 * MOUNTED ON RAD WASTE PNL
 NC-NASH COMPR. CONTROL CAB. - NASH ENG. CO. DWG. 613-3852
 5. DEVICES
 HFC(WD-148-LS)-HIGH LEVEL FLOAT CONTROL ON SEPARATOR TANK (WATER)
 SW1 CLOSURES AT HIGH LEVEL - SW2 CLOSURES AT HIGH LEVEL
 LFC(WD-149-LS)-LOW LEVEL FLOAT CONTROL ON SEPARATOR TANK(WATER)
 SW1 CLOSURES AT LOW LEVEL - SW2 CLOSURES AT LOW LEVEL
 UPS-UNLOADER PRESSURE SWITCH (GAS)
 DSV-TANK DRAIN VALVE SOLENOID (WATER)
 USV-UNLOADER VALVE SOLENOID (GAS)
 MSV-MAKEUP VALVE SOLENOID (WATER)
 (M)-PERMISSIVE LIGHTS-DRAKE MODEL DR5160-458-604W
- SW-2 WD-203-PS1-OPENS WHEN WASTE GAS SURGE TANK SUCTION PRESSURE IS LOW
 SW-1 WD-203-PS2-CLOSES WHEN WASTE GAS SURGE TANK SUCTION PRESSURE IS HIGH
 SW-1 WD-204-PS1-CLOSES WHEN WASTE GAS DECAY TANK 3A PRESSURE IS HIGH
 SW-1 WD-205-PS1-CLOSES WHEN WASTE GAS DECAY TANK 3B PRESSURE IS HIGH
 SW-1 WD-206-PS1-CLOSES WHEN WASTE GAS DECAY TANK 3C PRESSURE IS HIGH
 WD-204-PS2 = WASTE GAS DECAY TANK 3A HIGH PRESSURE CLOSURES CONTACT
 WD-205-PS2 = WASTE GAS DECAY TANK 3B HIGH PRESSURE CLOSURES CONTACT
 WD-206-PS2 = WASTE GAS DECAY TANK 3C HIGH PRESSURE CLOSURES CONTACT

CONTACTS		POSITION (R.V. 1)		STOP	PULL TO LOCK
ODD	EVEN	1	2		
1	IC 2C 2	1	1		
2	1C 2C 2	2	2		
3	3C 4C 4	3	3		
4	1C 2C 2	4	4		
5	5C 6C 6	5	5		
6	1C 2C 2	6	6		
7	7C 8C 8	7	7		
8	1C 2C 2	8	8		
9	9C 10C 10	9	9		
10	1C 2C 2	10	10		
11	11C 12C 12	11	11		
12	1C 2C 2	12	12		
13	13C 14C 14	13	13		
14	1C 2C 2	14	14		



10	REVISED PER DCN 91-202	5/11/77
9	REVISED PER DCN 89-324	5/12/76
8	REVISED PER DCN 88-148A	5/12/76
7	REVISED PER EGM-2288	7/27/75
6	REV. PER F.C. 75-614 (REF. I.C.F.R. 400)	7/29/75
NO.	REVISION	CH APP DATE
EMG	APPROVED FOR CONCEPT	5/17/77

FLORIDA POWER CORPORATION
 ST. PETERSBURG, FLORIDA
 UNIT NO. 3
ELEMENTARY DIAGRAM
 WASTE GAS COMPRESSOR (WD-05) SUCTION VALVE (WDV-384)
 REACTOR MCC 3A2, UNIT 4D

4203 B-208-060 10
 WORK ORDER SIZE DRAWING REV
 GILBERT ASSOCIATES, INC.
 ENGINEERS AND CONSULTANTS
 READING, PENNA.
 APPROVED FOR CONSTRUCTION BY FLORIDA POWER CORPORATION
 DATE 7/27/75
 ALG

C-7-12

Individual Walk-through Test Outline

Facility: <u>Crystal River Unit 3</u>		Date of Examination: <u>2-8-99</u>
Exam Level: <u>RO/SRO</u>		Operating Test No. : 3
System / JPM Title / Type Codes*	Safety Function	Planned Follow-up Questions: K/A/G // Importance // Description
Control Rod Drive (CRD)//Latch and Position Indication align a Safety Group //001A4.03//4.0/3.7//S, D	1	A. 2.2.22//3.4/4.1//What are the Technical Specification requirements, if any when given the position of each rod in group 2 (two rods will not be fully withdrawn)? B. 001K5.05//3.5/3.9//At 350 Effective Full Power Days, what is the worth of the Safety Rods?
Engineered Safeguards (ES)//Manually actuate Low Pressure Injection//006A4.07//4.4 /4.4//S, N, L, A	2	A. 006K4.05//4.3/4.4//Given a set of plant conditions, what is the status of the Decay Heat Pumps (4 psig Reactor Building pressure with a Loss of Off-Site Power)? B. 056AA2.07//4.2/4.3//Given a set of plant conditions, what is the status of the Emergency Feedwater Pumps (High Pressure Injection signal, Low Pressure Injection signal, and Loss of Off-Site Power)?
Reactor Coolant (RCS) //Take Actions Required for Loss of RCS Pressure //010A1.04 //3.6/3.8//S, L, N, A	3	A. 010K1.02//3.9/4.1//If the bubble in the Pressurizer is established at 580°F, what is the condition of the Engineered Safeguards system? B. 010K6.03//3.2/3.6//What are the Technical Specification actions, if any if pressurizer level is 280 inches and Pressurizer heater bank "B" is the only available heater bank?

<p>Reactor Coolant (RCS) //Lower water level in the Reactor Coolant Drain Tank //007A1.01 //2.9/3.1 S, A, D</p>	<p>5</p>	<p>A. 007A1.01//2.9/3.1//The Reactor Coolant Drain Tank (RCDT) high level annunciator has just come into alarm, how many gallons will have to be pumped out to clear the high level alarm and bring the low level annunciator into alarm?</p> <p>B. 007A4.10//3.6/3.8//At full reactor power the pressure in the RCDT is increasing due to a weeping code safety, if RCDT pressure is currently 4 psig (assume no other line losses), what would the temperature and condition be of the steam space in the RCDT (prior to the cooling)?</p>
<p>Radiation Monitors (RM)//Perform a Functional Test of RM-A4//072A4.01//3.0/3.3//CR, N</p>	<p>7</p>	<p>A. 072A4.01//3.0/3.3//Radiation Monitor, RM-A4, is reading 625 cpm, what is the status of Auxiliary Building Ventilation?</p> <p>B. 072A3.01//2.9/3.1//Several Radiation Monitors have come into alarm in a given order, what is the most probable source of the leak and what is the status of Auxiliary Building Ventilation?</p>
<p>Reactor Building (RB)// While RB Purge is in progress respond to Radiation Monitor, RM-A1, actuation //029A3.01//3.8/4.0//CR, D</p>	<p>8</p>	<p>A. 073A1.01//3.2/3.5//Radiation Monitor, RM-A1, is reading 3.0×10^2 mR/hr, what scale of the monitor would this be read from if the Low-Medium-High Valve Controller is in automatic?</p> <p>B. 073A4.02//3.7/3.7//If RM-A1 count rate drops to 4820 cpm particulate and 780,000 cpm iodine, can the atmospheric radiation high alarm be cleared (the gas channel is in warning)?</p>
<p>Reactor Coolant System (RCS)//Startup Fourth Reactor Coolant Pump (RCP) at Power //003A4.02//2.9/2.9//CR, D</p>	<p>7</p>	<p>A. 003K1.01//2.6/2.8//Given a set of RCP conditions, Can an RCP be started?</p> <p>B. 003A4.06//2.9/2.9//Given vibration data for an RCP, what action, if any, should be taken?</p>

<p>Post Accident Hydrogen Sampling //Place the "A" Hydrogen Analyzer in Service//028A4.03//3.1/3.3//P, D</p>	<p>5</p>	<p>A. 028A4.03//3.1/3.3//DC Distribution Panel, DPDP-1A, is de-energized and WSV-38 is failed in the closed position, what is the flow path for both Hydrogen Analyzers?</p> <p>B. 028A4.03//3.1/3.3//With the "A" Hydrogen Analyzer placed in service given the status of the valves associated with the analyzer and the hydrogen concentration, what is the flow path and the status of the "A" Hydrogen Analyzer?</p>
<p>Waste Gas (WG)// Release a Waste Gas Decay Tank to Plant Ventilation //071A4.26 //3.1/3.9//P, D, R</p>	<p>9</p>	<p>A. 071K1.06//3.1/3.1//During a release of the "A" Waste Gas Decay Tank (WDT-1A), Radiation Monitor, RM-A2, gas channel becomes inoperable; what are the requirements, if any, regarding the release?</p> <p>B. 071K4.06//2.7/3.5//Given a partially filled out Enclosure 1 from OP-412B, WGDT Release to Ventilation, what is the release rate for the associated time periods?</p>
<p>Instrument and Station Air (IA/SA)// Start Station Air Compressor, SAP-1E, //065AA1.04//3.5/3.4//P, N</p>	<p>8</p>	<p>A. 078K1.02//2.7/2.7//Station Air Compressor, SAP-1C is supplying the Instrument and Station Air Systems, when a large air leak develops; what will the status of the air systems be if the leak is located between IAV-7 and IAV-11?</p> <p>B. 078A3.01//3.1/3.2//What action, if any is required, given a set of daily surveillance readings on the Instrument Air system (high differential pressure across the dryer along with low Instrument Air pressure)?</p>

* - Type codes: (D)irect from bank, (M)odified from bank, (N)ew, (A)lternate path, (C)ontrol room, (S)imulator, (L)ow Power, (P)lant, (R)CA, (T)ime critical

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

JPM 9S/SIMULATOR

Latch and Position Indication align a Safety Group

CANDIDATE _____

EXAMINER _____

PREPARED/
REVISED BY: Melissa Salton Date/ 12-17-98

VALIDATED BY: * D. Jones Date/ 12-17-98

APPROVED BY: R. Wesley Date/ 12-18-98
(Operations Training Manager)

CONCURRED: ** _____ Date/ _____
(Operations Representative)

* Validation not required for minor enhancements, procedure
Rev changes that do not affect the JPM, or individual step
changes that do not affect the flow of the JPM.

** Operations Concurrence required for new JPMs and changes
that affect the flow of the JPM (if not driven by a procedure
revision).

SIMULATOR OPERATOR INSTRUCTIONS:

1. The plant is in Mode 3.
2. A Plant Startup is in Progress.
3. Control Rod Drive Group 4, Group 3, and Group 2 have already been latched and PI aligned.
4. Group 1's API and RPI will be in agreement.
5. IC #65

Tools/Equipment/Procedures Needed:

OP-502, Section 4.2

READ TO OPERATOR

DIRECTIONS TO TRAINEE:

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

You are the Reactor Operator.
The plant is stable in Mode 3.
A plant Startup is in progress.
Control Rod Drive Groups 4, 3 and 2 have already been latched and PI aligned.

INITIATING CUES:

You are requested to latch and PI align Control Rod Drive Group 1.

START TIME: _____ Shaded Block Indicates Critical Step

<p><u>STEP 1:</u> Obtain a copy of appropriate procedure.</p> <p><u>STANDARD:</u> Operator obtains a copy of OP-502, Section 4.2.</p> <p>EXAMINER'S CUE: For purposes of this JPM assume SRO concurs with each rod manipulation.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 2:</u> Repeat 4.2.2 through 4.2.4 as necessary to complete latching all Safety Groups.</p> <p><u>STANDARD:</u> Operator will begin at step 4.2.2.</p> <p>EXAMINER'S CUE (If Needed): Step 4.2.2 is complete.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>NOTE: The Safety Groups may be latched and aligned in any order. However, the preferred sequence is Group 4, Group 3, Group 2, and Group 1.</p> <p><u>STEP 3:</u> Transfer the desired Safety Group/Rod to the Auxiliary Power Supply per Steps 4.16.1 through 4.16.12 – Group 1.</p> <p><u>STANDARD:</u> Operator goes to 4.16.1 in OP-502.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p>CAUTION: Tave control may go to Feedwater regulation.</p>		
<p><u>STEP 4:</u></p>	<p>Place Reactor Demand control station in HAND if not in Mini Track.</p>	<p>____ SAT</p>
<p><u>STANDARD:</u></p>	<p>Operator verifies the red and white lights on the Reactor Demand control station are ON.</p>	<p>____ UNSAT</p>
<p><u>COMMENTS:</u></p>		
<p><u>STEP 5:</u></p>	<p>Place Reactor Diamond in MANUAL.</p>	<p>____ SAT</p>
<p><u>STANDARD:</u></p>	<p>Operator verifies that Reactor Diamond MANUAL light ON and AUTO light is OFF</p>	<p>____ UNSAT</p>
<p><u>COMMENTS:</u></p>		
<p><u>STEP 6:</u></p>	<p>Select GROUP SELECT Switch to desired group.</p>	<p>____ SAT</p>
<p><u>STANDARD:</u></p>	<p>Operator rotates GROUP SELECT Switch to Group 1.</p>	<p>____ UNSAT</p>
<p><u>COMMENTS:</u></p>		

<p><u>STEP 7:</u> Select ALL or desired rod.</p> <p><u>STANDARD:</u> Operator rotates SINGLE SELECT Switch to ALL.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 8:</u> Select SEQ OR.</p> <p><u>STANDARD:</u> Operator depresses SEQ/SEQ OR pushbutton and verifies SEQ OR light ON and SEQ light ON.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 9:</u> Select AUXIL.</p> <p><u>STANDARD:</u> Operator depresses GROUP/AUXIL pushbutton and verifies AUXIL light ON and GROUP light OFF. The operator will also verify the CONTROL ON white light for group 5 is ON.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 10:</u> Place SPEED SELECTOR switch in JOG.</p> <p><u>STANDARD:</u> Operator rotates RUN/JOG switch to JOG and verifies that the SY light ON.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 11:</u> Select CLAMP.</p> <p><u>STANDARD:</u> Operator depresses CLAMP/CLAMP RELEASE pushbutton and verifies CLAMP light ON and CLAMP REL light OFF.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p>CAUTION: If Amber control on lights for more than one group is on, STOP, and notify SSOD.</p> <p><u>STEP 12:</u> Depress MAN TRANS</p> <p><u>STANDARD:</u> Operator depresses MAN TRANS pushbutton and verifies TR CF light ON. The operator will also verify the amber CONTROL ON lights for Group1 are ON.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>

<p><u>STEP 13:</u> Select CLAMP REL.</p> <p><u>STANDARD:</u> Operator depresses CLAMP/CLAMP RELEASE pushbutton and verifies CLAMP REL light ON and CLAMP light OFF.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 14:</u> Select GROUP.</p> <p><u>STANDARD:</u> Operator depresses GROUP/AUXIL pushbutton and verifies GROUP light ON and AUXIL light OFF. The operator will also verify the SY light OFF.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 15:</u> If latching Safety Rods in accordance with Section 4.2, return to Section 4.2.3 after completion of this step.</p> <p><u>STANDARD:</u> Operator returns to step 4.2.3.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p>NOTE: Groups 1 through 7 IN-LIMIT lamps should be OUT while IN-LIMIT (LATCH) BYPASS pushbutton is depressed.</p> <p>NOTE: Source Range NI indication should be greater than 2 cps prior to rod withdrawal.</p> <p><u>STEP 16A:</u> Perform Latch and PI Alignment. Select JOG.</p> <p><u>STANDARD:</u> Operator verifies RUN/JOG switch to JOG.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 16B:</u> Depress and Hold "IN-LIMIT (LATCH) BYPASS" pushbutton and insert rods for 15 sec.</p> <p><u>STANDARD:</u> Operator depresses the IN-LIMIT BYPASS pushbutton and holds while inserting rods for 15 sec.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 16C:</u> Withdraw group until all PI panel ZONE REF 0% lamps of selected group are OFF.</p> <p><u>STANDARD:</u> Operator withdraws group 1 until all GREEN ZONE REF 0% lamps are OFF.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>

<p><u>STEP 16D:</u> Insert group until the GROUP IN-LIMIT lamp comes ON.</p> <p><u>STANDARD:</u> Operator inserts Group 1 until the green GROUP IN-LIMIT lamp is ON.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 16E:</u> Compare absolute and relative readings on PI panel.</p> <p><u>STANDARD:</u> Operator uses toggle to compare API and RPI readings for Group 1.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 16F:</u> IF reset of RPI is required, THEN rotate SINGLE SELECT switch to desired CRD, AND Restore using POSITION RESET RAISE/LOWER switch.</p> <p><u>STANDARD:</u> N/A (RPI and API match)</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 17:</u> Transfer the Safety Group/Rod from the Auxiliary Power Supply to the DC Hold Bus per Section 4.17 of OP-501.</p> <p>EXAMINER'S CUE: Group 1 has been Latched and PI aligned.</p> <p><u>STANDARD:</u> N/A</p> <p><u>COMMENTS:</u></p> <p>END of TASK</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
---	-------------------------------------

STOP TIME: _____

JPM QUESTION #1

Question: What are the Technical Specification requirements, if any, for the following actual Control Rod Drive Group 2 positions?

ROD	POSITION
2-1	100%
2-2	100%
2-3	98%
2-4	100%
2-5	100%
2-6	99%
2-7	100%
2-8	100%

Answer: With more than one safety rod not fully withdrawn verify Shutdown Margin is $\geq 1\% \Delta k/k$ OR initiate boration to restore Shutdown Margin to within limit in one hour AND, be in Mode 3 in 6 hours.

CANDIDATE'S RESPONSE

Time:

K/A Rating:

2.2.22//3.4/4.1

References:

TS 3.1.5

JPM QUESTION #2

Question: At 350 Effective Full Power Days (EFPD) what is the worth of the Safety Rods?

Answer: -4.67 % Δ k/k (\pm 0.2 % Δ k/k if read from graph)

CANDIDATE'S RESPONSE

Time:

K/A Rating:

001K5.05//3.5/3.9

References:

OP-103C Curve 7

**JPM QUESTION #2
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)**

Question: At 350 Effective Full Power Days (EFPD) what is the worth of the Safety Rods?

**JPM QUESTION #1
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)**

Question: What are the Technical Specification requirements, if any, for the following actual Control Rod Drive Group 2 positions?

ROD	POSITION
2-1	100%
2-2	100%
2-3	98%
2-4	100%
2-5	100%
2-6	99%
2-7	100%
2-8	100%

CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

You are the Reactor Operator.
The plant is stable in Mode 3.
A plant Startup is in progress.
Control Rod Drive Groups 4, 3 and 2 have already been latched and PI aligned.

INITIATING CUES:

You are requested to latch and PI align Control Rod Drive Group 1.

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

JPM 10S/SIMULATOR

QAW 12-18-98

~~During a Normal Cooldown~~ Manually Actuate Low
Pressure Injection

CANDIDATE _____

EXAMINER _____

PREPARED/
REVISED BY: *Melissa Seltzer* Date/ *12-17-98*

VALIDATED BY: * *D. Jones* Date/ *12-17-98*

APPROVED BY: *R. Wes Young* Date/ *12-18-98*
(Operations Training Manager)

CONCURRED: ** *[Signature]* Date/ *12-18-98*
(Operations Representative)

* Validation not required for minor enhancements, procedure
Rev changes that do not affect the JPM, or individual step
changes that do not affect the flow of the JPM.

** Operations Concurrence required for new JPMs and changes
that affect the flow of the JPM (if not driven by a procedure
revision).

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:
Manually actuate Low Pressure Injection.

Alternate Path:
LPI does not automatically actuate.

Facility JPM #:
NEW

K/A Rating(s)/Task Number/AO, RO, SRO:
006A4.07//4.4/4.4//0130502009//RO, SRO

Task Standard:
Manually actuate Low Pressure Injection using EOP-03.

Preferred Evaluation Method:
Simulator In-Plant

References:
EOP-03

Validation Time: 9 min. Time Critical: NO

Candidate: _____ Time Start: _____
NAME

Performance Rating: SAT _____ UNSAT _____ Performance Time _____

Examiner: _____ / _____
NAME SIGNATURE DATE

COMMENTS

SIMULATOR OPERATOR INSTRUCTIONS:

1. While in Mode 3 a LOCA causes a loss of subcooling margin.
2. LPI fails to actuate.
3. IC #63

Tools/Equipment/Procedures Needed:

EOP-03

READ TO OPERATORDIRECTIONS TO TRAINEE:

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

You are the Reactor Operator.

While in Mode 3 a LOCA causes a loss of subcooling margin.

INITIATING CUES:

You are requested to ensure that applicable ES (Engineered Safeguards) equipment is properly aligned.

START TIME: _____ Shaded Block Indicates Critical Step

<p><u>STEP 1:</u> Obtain a copy of appropriate procedure.</p>	<p>_____ SAT</p>
<p><u>STANDARD:</u> Operator obtains a copy of EOP-03, step 3.10.</p>	
<p>EXAMINER'S NOTE: Operator may verify actions in steps 3.1 through 3.9.</p>	<p>_____ UNSAT</p>
<p>EXAMINER'S NOTE: Operator may use EOP-13, Rule 1.</p>	
<p><u>COMMENTS:</u></p>	

<p>EXAMINER'S NOTE: All parts of step 2 can be performed in any sequence.</p> <p><u>STEP 2A:</u> IF at any time, ES systems have, OR should have actuated, THEN ensure ES equipment is properly aligned. Ensure applicable ES actuations: HPI.</p> <p><u>STANDARD:</u> Operator verifies HPI actuation ES status lights are green (excluding 1 HPI pump and 2 RB fans).</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
---	-------------------------------------

<p><u>STEP 2B:</u></p> <p><u>STANDARD:</u></p> <p><u>COMMENTS:</u></p>	<p>LPI</p> <p>Operator verifies LPI actuation ES status lights are green. Operator finds that the LPI actuation ES status lights for LPI pumps are yellow. Operator may either rotate control handles for both DHP-1A and DHP-1B to start OR depress the LPI MANUAL ACTUATION pushbutton. Operator verifies LPI actuation ES status lights are green. (A-2-4 and D-2-4 will alarm with their respective pump and then clear)</p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 2C:</u></p> <p><u>STANDARD:</u></p> <p><u>COMMENTS:</u></p>	<p>RBIC</p> <p>Operator verifies RBIC actuation ES status lights are green.</p> <p>END of TASK</p>	<p>____ SAT</p> <p>____ UNSAT</p>

STOP TIME: _____

JPM QUESTION #1

Question: What is the status of the Decay Heat Pumps given the following set of plant conditions? (assume nothing has been bypassed or manually actuated)

Reactor Coolant pressure is 770 psig.
Reactor Building pressure is 4.3 psig.
There is a Loss of Off-Site Power (LOOP).

Answer: The Decay Heat Pumps will not be running.

CANDIDATE'S RESPONSE

Time:

K/A Rating:

006K4.05//4.3/4.4

References:

ROT-4-13

JPM QUESTION #2

Question: What is the status of the Emergency Feedwater Pumps (EFPs) given the following set of plant conditions? (assume nothing has been bypassed or manually actuated)

Reactor Coolant pressure is 470 psig.
Reactor Building pressure is 2.3 psig.
There is a Loss of Off-Site Power (LOOP).

Answer: EFP-1 will not be running.
EFP-2 will not be running.

CANDIDATE'S RESPONSE

Time:

K/A Rating:
056AA2.07//4.2/4.3

References:
ROT-4-13

**JPM QUESTION #2
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)**

Question:

What is the status of the Emergency Feedwater Pumps given the following set of plant conditions? (assume nothing has been bypassed or manually actuated)

Reactor Coolant pressure is 470 psig.

Reactor Building pressure is 2.3 psig.

There is a Loss of Off-Site Power (LOOP).

**JPM QUESTION #1
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)**

Question: What is the status of the Decay Heat Pumps given the following set of plant conditions? (assume nothing has been bypassed or manually actuated)

Reactor Coolant pressure is 770 psig.
Reactor Building pressure is 4.3 psig.
There is a Loss of Off-Site Power (LOOP).

CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

You are the Reactor Operator.
While in Mode 3 a LOCA causes a loss of subcooling margin.

INITIATING CUES:

You are requested to ensure that applicable ES (Engineered Safeguards) equipment is properly aligned.

channels.

MAR 97-08-12-01 again modified the LPI actuation circuits. From the above modifications, the actuation relay (group two relay) for Decay Heat pump start within the LPI actuation circuits was energize to actuate. Given the concurrent conditions of a LOCA, and a LOOP (with loss of the A battery), a standing trip signal from their respective RCS pressure transmitters would exist due to the loss of cabinet power. Within the "A" train, this is not significant since a loss of power also exist to the control power for the components. However, on the "B" train, the channel 1 actuation must be bypassed (allowed by another part of this modification) to regain control of "B" train components (this removes one of two trip signals). While a standing trip signal will still exist on channel 2, this would not provide one of the two required signals for decay heat pump start with and energize to actuate relay, since the power loss also affects the "B" train actuation and relay cabinets. Therefore, even if RCS pressure decreased below the LPI actuation setpoint (500 psig) and provided a trip signal from the "B" train channel 3 group two relay (DHP), a second actuation signal would not exist (channel 1 is bypassed and the channel two relay would have no power). Modifying the channel 2 relay to be in the tripped state when de-energized, will provides the second trip signal and therefore allow actuation of the DHP by the channel 3 relay. This modification was not needed on the "A" train since a loss of the "B" battery does not create the same conditions on the "A" train.

Changes to the LPI actuation logic have also been incorporated to help protect the diesels from overloading during ES conditions. During a Loss of Off-site Power (LOOP) the following conditions are incorporated:

1. With a LOOP, a manual or automatic (500# not 4#) actuation of LPI will trip EFP-1 (A train only).
2. If a LOOP occurs after an HPI actuation, the EFP-1 will be tripped until block 3 of HPI actuates. Then 5 seconds later the EFW Pump will restart (A train only).

The bypass and reset functions are basically the same as HPI. The actuation matrix design for HPI is used for LPI. The testing logic is the same with separate controls for LPI. Note that all of the LPI Manual Test Group switches are spring return to "OFF", and therefore must be held in the "test" position until LP INJ MAN ACT pushbutton has been released to avoid inadvertent actuations. A list of LPI equipment by group and ES positions is given in Table IV.

2.3.12 RBIC ACTUATION

RBIC actuation circuits are similar to the HPI and LPI circuits except that pressure switches are used instead of bistables for automatic circuit actuation. RBIC has six test groups: five for testing of the various equipment and the sixth for bypass testing (discussed below). Note that the valves associated with HPI diverse containment isolation can be actuated by HPI via relay contacts 63Y3/-H. A list of RBIC equipment by group and ES position is given in Table V.

Case 3 - LOSS OF OFFSITE POWER WITH HPI SIGNAL

Prior to the actuation,

- o contact 62-2/AV is closed,
- o contact 63Z1B/AH is open because its relay (Block 1) is energized.
- o contact 52XA1/BS is closed because the Breaker alignment shows that offsite power is supplying the bus.
- o Relay 62-6/CH (EF Block) is energized

UPON LOSS OF OFF-SITE POWER WITH HPI SIGNAL

- o contact 63Z1B/AH will close when the Block 1 relays de-energize.
- o contact 62-2/AV will remain closed until block 3 times out in 10 seconds.
- o this will keep 62-6/CH energized until block 3 times out. 62-6/CH has a 5 second time delay.
- o At 5 seconds after block 3, the EFW Pump will receive its start signal from the HPI System.

2.3.11 LPI ACTUATION

LPI utilizes the same bistable actuation scheme as HPI. The actuating bistable is set at 500 psig, and the bypass bistable is set at 900 psig. LPI is divided into three groups. Group one relays control the LPI valves (DHV-5 & DHV-34), Group two controls the LPI Pump, and Group three controls the EFW Pump trip. LPI also can be initiated from RBIC actuation via relay 63Y/RB*W.

Any RBIC signal will actuate the valves (group one), however, groups two (pump) and three (EFP-1 trip) will depend upon the status of off site power. Group two will always be actuated by a 500 psig or a manual actuation, but will only be actuated by a cascade from RBIC if off site power is available (note that this is an energize to actuate circuit). Group three will only be actuated if a loss of off site power exist and then only for a 500 psig or a manual actuation. Note that the lights associated with the LPI groups will only be lit if that circuit is actuated. Thus, the groups two and three lamp status will vary depending upon the status of off site power. A contact from relay 63Y2/-N in the LPI circuitry is also provided to de-energize the HPI actuation relays, causing a channel trip in HPI, if for some reason it has not already tripped. Note that an automatic LPI actuation (not a manual) will cause an HPI actuation but will not cause an HPI diverse containment isolation actuation.

MAR 88-05-24-01 has been incorporated which places the DHP start into the LPI logic scheme. The DH Pump no longer starts on HPI. The DH pump start is still dependent upon HPI, however. A HPI Seal-In is required to allow the pump to start. The HPI Seal-In is in series with the LPI Pump matrix. The HPI Seal-In is indicated by a indicating light on the ES Section of the MCB as soon as the Block 4 relay is de-energized on 2 out of 3

2.3.10 EFP BLOCK ACTUATION

Automatic starting of EFP-1 is normally a function of the EFIC System. However, when ES actuations occur, additional consideration must be given to the timing of EFP-1 start signals due to diesel loading considerations. Therefore, the following guidelines apply to automatic starts of EFP-1:

- a. Any EFIC actuation will start EFP-1 immediately unless a loss of off site power exist (see c below).
- b. Any actuation of both A and B trains of ES HPI will actuate EFIC which will in turn start EFP-1 (again if no LOOP exist).
- c. During a LOOP the EFIC start of EFP-1 is blocked (all other EFIC functions will operate normally). For this circuit a LOOP is detected by breaker position rather than bus voltage -- if breakers 3205, 3207, and 3211 are open then the EFIC start of EFP-1 is blocked. In addition, if bus voltage is low, the normal breaker undervoltage protection circuit will generate a trip signal to the pump until voltage is recovered.
- d. Actuation of A train of ES will generate a start signal to EFP-1 five seconds after block 3 (this will normally occur simultaneously with block four, but EFP-1 is technically not a block four load since this same circuit is used to start EFP-1 during a LOOP -- see e below).
- e. During a LOOP (with no ES), EFP-1 will receive a start signal five seconds after the diesel breaker closes from the EF block in the A ES train.
- f. During a simultaneous LOOP, and ES actuation of both HPI and LPI, several events occur: first, the EFIC start of EFP-1 is blocked due to the LOOP, second, the EF block (in the A train ES HPI circuit) will generate a start signal five seconds after block three (the pump will start if LPI has not actuated), and third, the combination of an LPI actuation (either automatic or manual) with a LOOP will generate a trip signal to EFP-1 (this is in addition to the normal undervoltage protection circuits) and thereby either trip EFP-1 (if already started) or prevent any start.

- g. Any time a simultaneous start and stop signal are sent to the pump breaker, the anti-pump feature will open the breaker and lock out all start signals until all start and stop signals are removed from the breaker. With the combination of start and stop signals possible for EFP-1, it is very probable that this will occur. Using condition f above as an example, if a LOOP exist (normal 4160V breakers open) and the diesel is feeding the bus, EFP-1 will receive a start signal from the EF block five seconds after block three is loaded. EFP-1 should start since the undervoltage condition is cleared. Now assume that RCS pressure continues to decrease. When LPI actuates, an EFP-1 trip signal will be generated. However, the start signal from the EF block will also still be present. The anti-pump feature will open the breaker and lock out all start signals. In order to re-start the pump, all start and stop signals must be removed from the breaker. In this case, this would involve the following actions
1. Bypassing or resetting the LPI actuation to remove the trip signal and
 2. Resetting or bypassing HPI, restoring normal power to the 4160V switchgear, and resetting or bypassing EFIC to remove the start signal. (Note that an option to this is to place the control for EFP-1 in the PULL-TO-LOCK position. This will remove all start signals from the breaker for as long as the switch is maintained in this position. However, if any of the start signals remain, the pump will start if the switch is returned to the NORMAL-AFTER-STOP position.

It should be noted that this system design is based on the assumption that if core cooling is by LPI, then we will not be feeding the OTSG's and therefore will not need EFP-1. This is true for a large break LOCA which rapidly de-pressurizes the system. However, for a smaller break, RCS pressure could hold somewhere below the LPI setpoint of 500 psig but above the maximum DH pump discharge pressure of ≈ 200 psig. In that case, it would be necessary to re-start EFP-1 to feed the OTSG's. For this reason, the operator should have a good understanding of the actions required to recover EFP-1.

The various start logic circuits for EFP-1 are as follows:

Case 1 - HPI WITH OFFSITE POWER

Prior to the actuation,

- o contact 62-2/AV is closed,
- o contact 63Z1B/AH is open because its relay (Block 1) is energized.
- o contact 52XA1/BS is closed because the Breaker alignment shows that offsite power is supplying the bus.
- o Relay 62-6/CH (EF Block) is energized

At HPI actuation

- o contact 63Z1B/AH will close when the Block 1 relays de-energize.
- o contact 62-2/AV will remain closed until block 3 times out
- o this will keep 62-6/CH energized until block 3 times out. 62-6/CH has a 5 second time delay.
- o At 5 seconds after block 3, the EFW Pump will receive its start signal from the HPI System

Case 2 - LOSS OF OFFSITE POWER WITH NO HPI SIGNAL

Prior to the actuation,

- o contact 62-2/AV is closed,
- o contact 63Z1B/AH is open because Block 1 is energized.
- o contact 52XA1/BS is closed because the Breaker alignment shows that offsite power is supplying the bus.
- o Relay 62-6/CH (EF Block) is energized

UPON LOSS OF OFF-SITE POWER

- o contact 62-2/AV is closed,
- o contact 63Z1B/AH is open because its relay (Block 1) is energized.
- o contact 52XA1/BS opens because the Breaker alignment shows that the EDG is supplying the bus.
- o At 5 seconds after EDG breaker closes, the EFW Pump will receive its start signal from the HPI System

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

JPM 11S/SIMULATOR

Take Actions Required for Loss of Reactor Coolant
System Pressure

CANDIDATE _____

EXAMINER _____

PREPARED/
REVISED BY: *Melissa Stalder* Date/ 12-17-98

VALIDATED BY: * *D. Jones* Date/ 12-17-98

APPROVED BY: *R. W. Jones* Date/ 12-18-98
(Operations Training Manager)

CONCURRED: ** *[Signature]* Date/ 12-18-98
(Operations Representative)

* Validation not required for minor enhancements, procedure Rev changes that do not affect the JPM, or individual step changes that do not affect the flow of the JPM.

** Operations Concurrence required for new JPMS and changes that affect the flow of the JPM (if not driven by a procedure revision).

SIMULATOR OPERATOR INSTRUCTIONS:

1. Plant is at 60% full power.
2. RCV-13 and RCV-14 will not close (failures) (0.2 setting).
3. IC #61

Tools/Equipment/Procedures Needed:

AP-520
Steam Tables

READ TO OPERATORDIRECTIONS TO TRAINEE:

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

Your are the Reactor Operator.
The plant is at 60% full power.
RCS pressure is decreasing slowly.

INITIATING CUES:

You are requested to perform required actions.

START TIME: _____ Shaded Block Indicates Critical Step

<p><u>STEP 1:</u> Obtain a copy of appropriate procedure.</p> <p><u>STANDARD:</u> Operator obtains a copy of AP-520.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 2:</u> Notify personnel of plant conditions. STA, Plant operators, NSM.</p> <p><u>STANDARD:</u> Operator calls or radios the STA, Plant operators, and NSM.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 3:</u> IF RB is occupied, THEN evacuate RB.</p> <p>EXAMINER'S CUE: No one is in the RB.</p> <p><u>STANDARD:</u> N/A</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 4:</u></p> <p><u>STANDARD:</u></p> <p><u>COMMENTS:</u></p>	<p>Verify OTSG tube leakage has not increased. Notify Chemistry to sample OTSGs. Observe radiation monitors and recorder traces for the following: RM-A12, RM-G26-RI; RM-G27-RI; RM-G25-RI; and RM-G28-RI.</p> <p>Operator contacts chemistry to sample OTSGs. Operator verifies that there are no alarms and RM-A12, RM-G26-RI; RM-G27-RI; RM-G25-RI; and RM-G28-RI by verifying that there is no increasing trend.</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 5:</u></p> <p><u>STANDARD:</u></p> <p><u>COMMENTS:</u></p>	<p>IF a significant rise in RCS leakage exists, THEN GO TO Step 3.11 in this procedure.</p> <p>Operator will verify from tank levels and sump levels and radiation monitors that RCS leakage does not exist and continues on in the procedure.</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p>STATUS: RCS pressure is lowering.</p>		
<p><u>STEP 6:</u></p>	<p>Verify proper operation of PZR heaters. PZR HEATER CONTROL; PZR Htr Banks; RC-203-JI and RC-204-JI.</p>	<p>_____ SAT</p>
<p><u>STANDARD:</u></p>	<p>Operator verifies that red light for each energized heater is ON and RC-203-JI and RC-204-JI reads > 400 kW.</p>	<p>_____ UNSAT</p>
<p><u>COMMENTS:</u></p>		
<p><u>STEP 7:</u></p>	<p>IF RCS pressure continues to lower, THEN isolate possible sources of RCS pressure reduction. Close the following valves: DHV-91, RCV-53, RCV-11, PORV, RCV-13, and RCV-14.</p>	<p>_____ SAT</p>
<p><u>STANDARD:</u></p>	<p>Operator rotates control switch for DHV-91, RCV-53, RCV-11, PORV, RCV-13, and RCV-14 to close and verifies for each valve green light ON and red light OFF. (I-5-2 and I-6-2)</p>	<p>_____ UNSAT</p>
	<p>EXAMINER'S NOTE: RCV-13 and RCV-14 will not close.</p>	
<p><u>COMMENTS:</u></p>		

<p><u>STEP 8A:</u> IF RCS pressure continues to lower, AND RCV-13 is NOT closed, THEN stop RCP-1B. If Rx power is > 75% THEN concurrently perform AP-510 beginning with Step 3.1.</p> <p><u>STANDARD:</u> N/A, Rx power is at 60%.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 8B:</u> WHEN Rx power is < 75%, THEN stop RCP-1B.</p> <p><u>STANDARD:</u> Operator rotates control handle for RCP-1B to the stop position and verifies green light ON and red light OFF. (Operator may turn on lift oil pumps for RCP-1B) (I-5-2, P-8-6; J-3-3)</p> <p>EXAMINER'S CUE: RCS pressure has stopped decreasing.</p> <p><u>COMMENTS:</u></p> <p>END of TASK</p>	<p>____ SAT</p> <p>____ UNSAT</p>

STOP TIME: _____

JPM QUESTION #1

Question: Reactor coolant pressure is lowered until a bubble in the Pressurizer is established at 580°F. What is the condition of the Engineered Safeguards system? (assume that no function of ES is bypassed)

Answer: High Pressure Injection (HPI) has actuated.

CANDIDATE'S RESPONSE

Time:

K/A Rating:

010K1.02//3.9/4.1

References:

Steam Tables

JPM QUESTION #2

Question: What are the Technical Specification actions, if any, if Pressurizer level is 280 inches and Pressurizer Heater Bank "B" is the only available heater bank.

Answer: Restore pressurizer heater capability within 72 hours.
(The "B" Bank is only rated for 126 kW)

CANDIDATE'S RESPONSE

Time:

K/A Rating:

010K6.03//3.2/3.6

References:

TS 3.4.8

**JPM QUESTION #2
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)**

Question: What are the Technical Specification actions, if any, if Pressurizer level is 280 inches and Pressurizer Heater Bank "B" is the only available heater bank.

**JPM QUESTION #1
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)**

Question: Reactor coolant pressure is lowered until a bubble in the Pressurizer is established at 580°F. What is the condition of the Engineered Safeguards system? (assume that no function of ES is bypassed)

CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

Your are the Reactor Operator.
The plant is at 60% full power.
RCS pressure is decreasing slowly.

INITIATING CUES:

You are requested to perform required actions.

Heater banks "D" and "E", when in automatic, will be either full on or off at setpoint. These two banks can be selected to be energized at all times (subject to level interlock) by placing the control switch in ON. Any bank of heaters may be selected to remain off by placing the control switch to OFF. The control switches for banks "A", "B", and "C" are two position (OFF/AUTO) switches with red and green indicating lights to display when the heaters are either energized or off respectively. The control switches for banks "D" and "E" are three position (ON/OFF/AUTO) switches with green, white and red indicating lights to indicate when the heaters are de-energized (green), heaters are energized (red), and if the low pressurizer level heater cutout will permit heater operation (white).

If pressurizer level drops to 40 inches or less the heaters will be automatically cutout. Additionally, the heater control station will revert to manual with a zero demand. The 480 VAC pressurizer heater MCCs A and B are fed from the 480 VAC Reactor Aux Bus 3A and 3B respectively.

PRESSURIZER HEATER DATA

Total number of elements.....	117
Element rating.....	14 KW
Element length.....	9.245 ft.
Number of assemblies.....	3
Elements per assembly.....	39
Assembly rating.....	546 KW
Overall rating.....	1638 KW

<u>BANK</u>	<u>GROUP</u>	<u>NO. ELEMENTS</u>	<u>RATING IN KW</u>	<u>FULL ON</u>	<u>OFF</u>
A	1	9	126	2147	2155
B	2	9	126	2147	2155
C	3 - 6	36	504	2135	2155
D	7 - 9	27	378	2120	2140
E	10 - 13	36	504	2105	2125

When transfer of control functions is made to the Remote Shutdown Panel, Groups 7 through 13 can be operated from the RSP via an OFF/ON control switch. Each group has its own control switch and red/green indicating lights to show the condition of the heater group. Pressurizer heater power for groups 7 through 13 have indicating lights on the Remote Shutdown Panel. The lights indicate power is available for these heaters.

During plant operation, any dissolved gasses that are in the RCS tend to collect in the pressurizer steam space because it is the only part of the RCS that is not filled with water, it is the hottest place in the RCS, and the 1.5 gpm spray line bypass flow into the steam space tends to give up any dissolved gasses that

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

JPM 12S/SIMULATOR

Lower Water Level in the Reactor Coolant Drain
Tank

CANDIDATE _____

EXAMINER _____

PREPARED/
REVISED BY: *Melissa Salter* Date/ 12-17-98

VALIDATED BY: * *D. Jones* Date/ 12-17-98

APPROVED BY: *R. Was Young* Date/ 12-18-98
(Operations Training Manager)

CONCURRED: ** _____ Date/ _____
(Operations Representative)

* Validation not required for minor enhancements, procedure Rev changes that do not affect the JPM, or individual step changes that do not affect the flow of the JPM.

** Operations Concurrence required for new JPMs and changes that affect the flow of the JPM (if not driven by a procedure revision).

SIMULATOR OPERATOR INSTRUCTIONS:

1. Plant is in Mode 5.
2. The RCDT high level alarm is in.
3. WDP-8 does not start.
4. IC #64

Tools/Equipment/Procedures Needed:

OP-407J
Calculator

READ TO OPERATORDIRECTIONS TO TRAINEE:

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

You are the Reactor Operator.
The plant is in Mode 1.
The RCDT (WDT-5) is in high level alarm.

INITIATING CUES:

You are requested to start lowering RCDT level by pumping it to the MWST (Miscellaneous Waste Storage Tank).

START TIME: _____ Shaded Block Indicates Critical Step

<p><u>STEP 1:</u> Obtain a copy of appropriate procedure.</p> <p><u>STANDARD:</u> Operator obtains a copy of OP-507J section 4.1.1.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 2:</u> IF using WDP-7 (RC Drain Pump) to lower WDT-5 (RCDT) level, THEN GO TO 4.6.1.</p> <p><u>STANDARD:</u> N/A, Operator believes WDP-8 is operable.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 3:</u> Determine the flow path from WDT-5 (RCDT), in order to lower WDT-5 (RCDT) level using WDP-8 (RCDT pump). IF RCDT effluent to MWST, THEN GO to Step 4.1.5.</p> <p><u>STANDARD:</u> Operator goes to step 4.1.5 (MWST mentioned in cue).</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 4A:</u> Perform valve alignment for transfer of WDT-5 (RCDT) to WDT-4 (MWST). Close the following: WDV-247.</p> <p><u>STANDARD:</u> Operator rotates WDV-247 switch to close and verifies green light ON and red light OFF.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 4B:</u> Open the following: WDV-94, WDV-62, WDV-61, and WDV-60.</p> <p><u>STANDARD:</u> Operator rotates control switch for WDV-94, WDV-62, WDV-61, and WDV-60 and verifies for each valve red light ON and green light OFF.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 4C:</u> Select WDV-8/9 RC DR DIVERT Switch to MWS.</p> <p><u>STANDARD:</u> Operator rotates RC DR DIVERT Switch to MWS and verifies that associated light comes ON.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 5:</u> Start transfer for WDT-5 (RCDT). Start WDP-8 (RCDT Pump).</p> <p><u>STANDARD:</u> Operator rotates WDP-8 control handle to start and verifies that the red light does NOT come ON.</p> <p>EXAMINER'S NOTE: Operator may ask at some time during the JPM to turn power off to WDP-8.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p>EXAMINER'S CUE: The Shift Supervisor requests that you use WDP-7 to lower the RCDT level.</p> <p>EXAMINER'S NOTE: Operator may restore lineup.</p> <p><u>STEP 6:</u> IF using WDP-7 (RC Drain Pump) to lower WDT-5 (RCDT) level, THEN GO TO 4.6.1.</p> <p><u>STANDARD:</u> Operator goes to step 4.6.1.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 7:</u> Determine the flow path from WDT-5 (RCDT), in order to lower WDT-5 (RCDT) level. IF RCDT effluent to MWST, THEN GO to Step 4.6.5.</p> <p><u>STANDARD:</u> Operator goes to step 4.6.5 (MWST mentioned in cue).</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>

<p><u>STEP 8A:</u> Perform valve alignment for transfer of WDT-5 (RCDT) to WDT-4 (MWST). Close the following: WDV-247.</p> <p><u>STANDARD:</u> Operator notes that WDV-247 has been closed in an earlier step.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 8B:</u> Open the following: WDV-94, WDV-62, WDV-61, and WDV-60.</p> <p><u>STANDARD:</u> Operator notes that WDV-94, WDV-62, WDV-61, and WDV-60 were opened in an earlier step.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 8C:</u> Select WDV-8/9 RC DR DIVERT Switch to MWS.</p> <p><u>STANDARD:</u> Operator notes that WDV-8/9 RC DR DIVERT Switch was selected to MWS in an earlier step.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

JPM QUESTION #1

Question: The Reactor Coolant Drain Tank (RCDT) high level annunciator has just come into alarm. How many gallons will have to be pumped out to clear the high level alarm and bring the low level annunciator into alarm?

Answer: 800 gallons

CANDIDATE'S RESPONSE

Time:

K/A Rating:

007A1.01//2.9/3.1

References:

AR-402; AP-520, Table 1

JPM QUESTION #2

Question: At full reactor power the pressure in the RCDT is increasing due to a weeping code safety. If RCDT pressure is currently 4 psig (assume no other line losses), what would the temperature be of the steam space in the RCDT (prior to cooling)?

Answer: 225°F ± 5°F

CANDIDATE'S RESPONSE

Time:

K/A Rating:

007A4.10//3.6/3.8

References:

Steam table

**JPM QUESTION #2
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)**

Question:

At full reactor power the pressure in the RCDT is increasing due to a weeping code safety. If RCDT pressure is currently 4 psig (assume no other line losses), what would the temperature be of the steam space in the RCDT (prior to cooling)?

**JPM QUESTION #1
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)**

Question:

The Reactor Coolant Drain Tank (RCDT) high level annunciator has just come into alarm. How many gallons will have to be pumped out to clear the high level alarm and bring the low level annunciator into alarm?

CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

Your are the Reactor Operator.
The plant is in Mode 1.
The RCDT (WDT-5) is in high level alarm.

INITIATING CUES:

You are requested to start lowering RCDT level by pumping it to the
MWST (Miscellaneous Waste Storage Tank).

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

JPM 7CR/CONTROL ROOM

Perform a Functional Test of RM-A4

CANDIDATE _____

EXAMINER _____

PREPARED/
REVISED BY: Melissa Galvin Date/ 12-17-98

VALIDATED BY: * [Signature] Date/ 12-17-98

APPROVED BY: [Signature] Date/ 12-18-98
(Operations Training Manager)

CONCURRED: ** [Signature] Date/ 12-18-98
(Operations Representative)

* Validation not required for minor enhancements, procedure Rev changes that do not affect the JPM, or individual step changes that do not affect the flow of the JPM.

** Operations Concurrence required for new JPMs and changes that affect the flow of the JPM (if not driven by a procedure revision).

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:

Perform a Functional Test of RM-A4.

Alternate Path:

N/A

Facility JPM #:

New

K/ARating(s)/Task Number/AO, RO, SRO:

072A4.01//3.0/3.3//0720202002//RO, SRO

Task Standard:

Perform a Functional Test of RM-A4 using SP-335B, Radiation Monitoring Instrumentation Functional Test of RMLs and RM-A3, A4, A7 and A8.

Preferred Evaluation Method:

Simulator _____ In-Plant X

References:

SP-335B, Section 4.2

Validation Time: 20 min.

Time Critical: NO

Candidate: _____
NAME

Time Start: _____

Performance Rating: SAT _____ UNSAT _____ Performance Time _____

Examiner: _____ / _____
NAME SIGNATURE DATE

COMMENTS

SIMULATOR OPERATOR INSTRUCTIONS:

N/A

Tools/Equipment/Procedures Needed:

SP-335B

READ TO OPERATORDIRECTIONS TO TRAINEE:

I will explain the initial conditions, and state the task to be performed. All in-plant steps, including any required communications, shall be simulated for this JPM. Under no circumstances are you to operate any plant equipment. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

The plant is at 100% full power.
SP-335B is in progress.
Testing for RM-A4 is complete through step 4.2.4

INITIATING CUES:

You are requested to complete Functional Test of RM-A4.

START TIME: _____ Shaded Block Indicates Critical Step

<p><u>STEP 1:</u> Obtain a copy of appropriate procedure.</p> <p><u>STANDARD:</u> Operator obtains a copy of SP-335B, Section 4.2.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 2:</u> Obtain the high alarm setpoint for RM-A4 from the Radiation Monitor Setpoint Log and record.</p> <p><u>STANDARD:</u> Operator finds RM-A4 high alarm setpoint in the Radiation Monitor Setpoint Log and records in procedure.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 3:</u> Record RM-A4 background below:</p> <p><u>STANDARD:</u> Operator reads background from RM-A4 and records in procedure.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 4:</u> Verify AHF-10 running.</p> <p><u>STANDARD:</u> Operator verifies red light ON for AHF-10.</p> <p>EXAMINER'S CUE (IF NEEDED): (If AHF-10 in not operating) Indicate that AHF-10 is operating.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 5:</u> For RM-A4, turn the “alarm-operate-check source” selector switch to the “check source” position and hold for approximately one minute or until the meter indication ceases to increase. Record below if an increase occurred in the meter reading and in the reading on RM-A03-RIR.</p> <p><u>STANDARD:</u> Operator rotates and holds the “alarm-operate-check source” selector switch to the “check source” position for one minute.</p> <p>EXAMINER'S NOTE: As, only one person is performing this JPM, the Operator will have to release selector switch to observe RM-A03-RIR.</p> <p>EXAMINER'S CUE: Indicate a reading of 700 cpm on the meter and the RM-A03-RIR AND state that the reading is no longer increasing.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p>EXAMINER'S NOTE: Selector switch may have been released in previous step.</p> <p>STEP 6: Release the selector switch and observe the meter indication. Record below if the indication decreased to approximately the background reading recorded in Step 4.2.6.</p> <p>STANDARD: Operator releases "alarm-operate-check source" selector switch</p> <p>EXAMINER'S CUE: The meter and recorder have returned to background.</p> <p>COMMENTS:</p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p>STEP 7: IF the meter or the recorder did not increase from the check source, THEN perform the following: OTHERWISE, N/A this step.</p> <p>STANDARD: N/A</p> <p>COMMENTS:</p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p>STEP 8: IF the interlock actuation cannot be reached per Steps 4.2.8 through 4.2.10, THEN decrease the high alarm setpoint below background until the actuation occurs. OTHERWISE, N/A this step.</p> <p>STANDARD: N/A</p> <p>COMMENTS:</p>	<p>____ SAT</p> <p>____ UNSAT</p>

<p><u>STEP 9:</u> Record below if the following has occurred: AHF-10 is stopped? Rad Norm Permissive white lamp (AHF-10) OFF?</p> <p>EXAMINER'S CUE: Point to AHF-10 lights and indicate that green is ON, red is OFF and white is OFF.</p> <p><u>STANDARD:</u> Operator records that AHF-10 is stopped and Rad Norm Permissive white lamp for AHF-10 is OFF.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 10:</u> Record below if the annunciator alarm and local horn alarm have been received: Annunciator received? Local Alarm received?</p> <p>EXAMINER'S CUE: PPO has notified the Control Room that RM-A4 is in local alarm. Annunciators H-02-01, Event Point 1721 and H-02-02, Event Point 1722 are in alarm.</p> <p><u>STANDARD:</u> Operator records in the procedure that both annunciator and local alarms have been received.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 11:</u> Silence the local horn alarm by pressing the “horn silence” pushbutton and record below if the alarm has cleared.</p> <p><u>STANDARD:</u> Operator depresses RM-A4 “horn silence” pushbutton and verifies pushbutton back lit.</p> <p>EXAMINER’S CUE: PPO reports to the Control Room that the horn has been silenced.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 12:</u> IF the alarm setpoint was altered in Step 4.2.11, THEN restore it to its original value (as recorded in Step 4.2.5) OTHERWISE, N/A this step.</p> <p><u>STANDARD:</u> N/A</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 13:</u> Reset the monitor by turning the selector switch to the “Alarm Reset” position and record below if the annunciator alarm clears. Annunciator alarm clear?</p> <p><u>STANDARD:</u> Operator rotates selector switch to the “Alarm Reset” position.</p> <p>EXAMINER’S CUE: The Annunciators have cleared.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>

<p><u>STEP 14:</u></p> <p><u>STANDARD:</u></p> <p><u>EXAMINER'S CUE:</u> The back light is out.</p> <p><u>COMMENTS:</u></p>	<p>Re-enable the local horn by pressing the "Horn Silence" pushbutton and observing that the green back light goes out.</p> <p>Operator depresses the RM-A4 "Horn Silence" pushbutton and verifies the back light goes out.</p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 15:</u></p> <p><u>STANDARD:</u></p> <p><u>COMMENTS:</u></p>	<p>Mark RM-A03-RIR recorder chart paper with SP-335B, initials and date.</p> <p>Operator records SP-335B, initials and date on chart recorder</p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 16:</u></p> <p><u>STANDARD:</u></p> <p><u>COMMENTS:</u></p>	<p>IF RM-A4 fails to meet surveillance acceptance criteria, THEN refer to section 5.2, Contingencies.</p> <p>N/A, Operator marks SAT.</p>	<p>____ SAT</p> <p>____ UNSAT</p>

<u>STEP 17:</u>	Restore the ventilation system to its normal operating mode.	_____ SAT
<u>STANDARD:</u>	Operator rotates control handle for AHF-10 to the start position and verifies that red light is ON and green light is OFF	_____ UNSAT
<u>COMMENTS:</u>		
END of TASK		

STOP TIME: _____

JPM QUESTION #1

Question: Radiation Monitor RM-A4 is reading 625 cpm. What is the status of Auxiliary Building Ventilation?

Answer: AHF-10, Spent Fuel Floor Supply Fan, is tripped.

CANDIDATE'S RESPONSE

Time:

K/A Rating:

072A4.01//3.0/3.3

References:

RMS Setpoint Log

JPM QUESTION #2

Question: Several Radiation Monitors have come into high alarm in the following order: RM-G3, RM-A7, RM-A4, and RM-A2. What is the most probable source of the leak and what is the status of Auxiliary Building Ventilation?

Answer: The leak is in the Primary Sample Room. The following fans have tripped: AHF-10, Fuel Handling Area Fan; AHF-11A/B, Auxiliary Building Supply Fans; AHF-9A/B, Penetration Cooling Fans; AHF-34A, Hot Machine Shop/Weld Hood Exhaust Fan and Cooling Unit; AHF-30, Chem Lab Supply Fan.

CANDIDATE'S RESPONSE

Time:

K/A Rating:

072A3.01//2.9/3.1

References:

Operator Aide

**JPM QUESTION #2
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)**

Question:

Several Radiation Monitors have come into high alarm in the following order: RM-G3, RM-A7, RM-A4, and RM-A2. What is the most probable source of the leak and what is the status of Auxiliary Building Ventilation?

**JPM QUESTION #1
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)**

Question: Radiation Monitor RM-A4 is reading 625 cpm. What is the status of Auxiliary Building Ventilation?

**CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)**

INITIAL CONDITIONS:

The plant is at 100% full power.

SP-335B is in progress.

Testing for RM-A4 is complete through step 4.2.4

INITIATING CUES:

You are requested to complete Functional Test of RM-A4.

RM-A4 Gaseous Channel

ALARM SET POINTS

DATE	WARNING SETPOINT	HIGH TRIP SETPOINT	CHANGE DOCUMENT REFERENCE NUMBER	INITIALS
11/22/89	300	500	FUR C89-158	<i>AWG</i>

RMS SETPOINT LOG

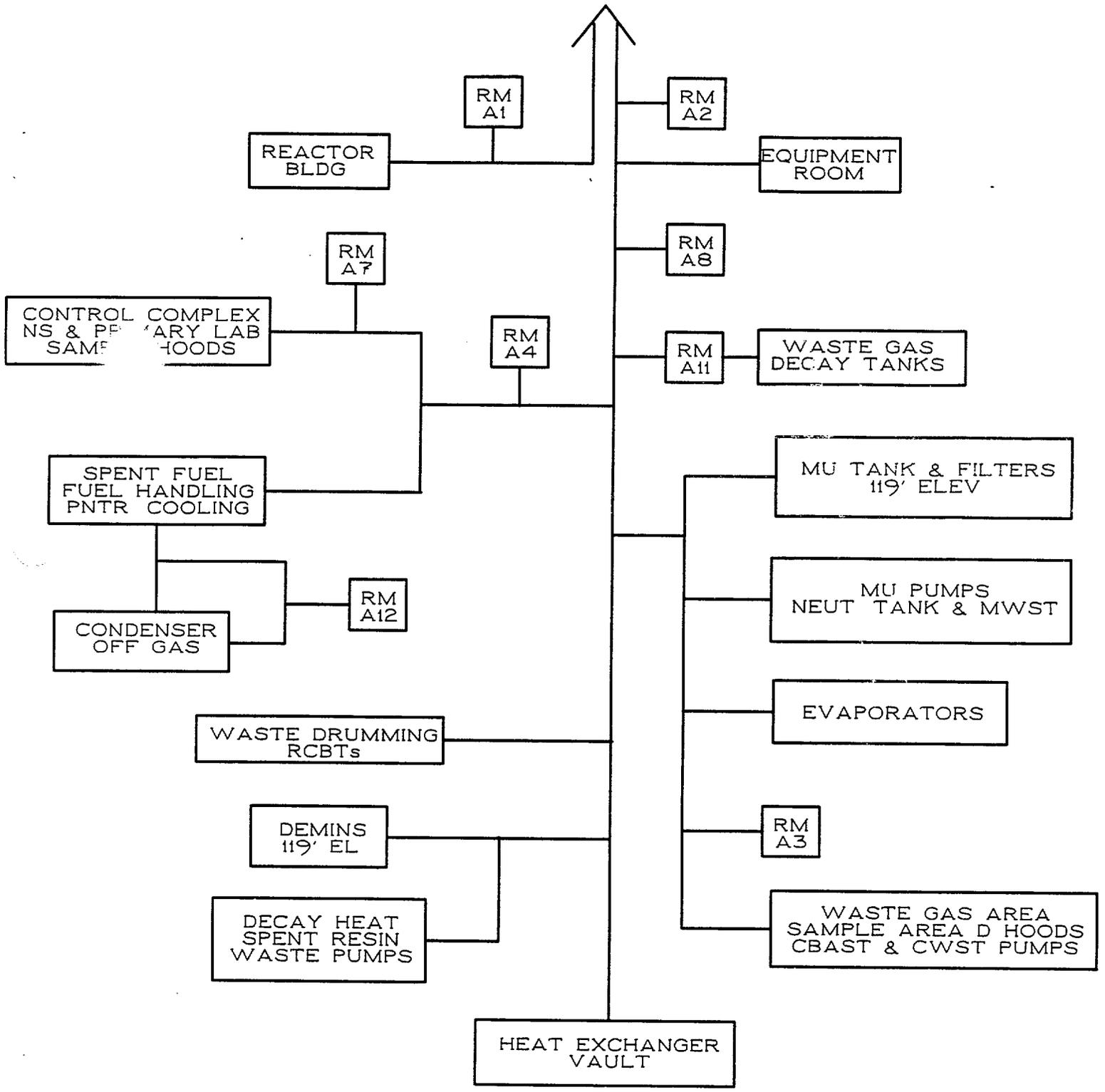


TABLE 1
RMG LOCATIONS AND DETECTOR TYPES

<u>NAME</u>	<u>DETECTOR</u>	<u>LOCATION</u>
<u>AUXILIARY BUILDING</u>		
RM-G1	GM	CONTROL ROOM
RM-G2	GM	RADIO CHEMISTRY LABORATORY
RM-G3	GM	SAMPLE ROOM
RM-G4	GM	RCA ENTRANCE CORRIDOR
RM-G5	GM	GAS DECAY TANK AREA
RM-G6	GM	MAKEUP TANK AREA
RM-G7	GM	RC BLEED TANK AREA
RM-G8	GM	RC BLEED TANK AREA
RM-G9	GM	A. B. NEAR PERSONNEL ACCESS HATCH
RM-G10	GM	MAKEUP PUMP AREA
RM-G11	GM	DEBORATING DEMINERALIZER AREA
RM-G12	GM	SPENT RESIN STORAGE TANK AREA
RM-G13	GM	DECONTAMINATION PIT AREA
RM-G14	GM	FUEL STORAGE POOL AREA
RM-G15	GM	FUEL HANDLING BRIDGE A. B. SIDE
<u>CONTAINMENT BUILDING</u>		
RM-G16	GM	FUEL HANDLING BRIDGE
RM-G17	GM	NEAR PERSONNEL HATCH
RM-G18	GM	INCORE INSTRUMENT REMOVAL AREA
<u>AUXILIARY BUILDING</u>		
RM-G21	SCINTL	WASTE PROCESSING ROOM AREA
RM-G22	SCINTL	WASTE PROCESSING ROOM AREA
RM-G23	SCINTL	WASTE PROCESSING ROOM AREA
RM-G24	SCINTL	WASTE PROCESSING ROOM AREA
<u>INTERMEDIATE BUILDING</u>		
RM-G25	ION CHAMBER	A-1 MAIN STEAM LINE
RM-G26	SCINTL	B-1 MAIN STEAM LINE
RM-G27	SCINTL	A-2 MAIN STEAM LINE
RM-G28	ION CHAMBER	B-2 MAIN STEAM LINE
<u>CONTAINMENT BUILDING</u>		
RM-G29	ION CHAMBER	R. B. TOP OF A 'D' RING
RM-G30	ION CHAMBER	R. B. TOP OF B 'D' RING

TABLE 4

RADIATION MONITORING SYSTEM INTERLOCKS

RMG's

CHANNEL INTERLOCK(s)

THERE ARE NO INTERLOCKS ASSOCIATED WITH THE RMG's.

RMA's

CHANNEL INTERLOCK(s)

RM-A1 Upon alarm on either the gas channel or on high flow, will:
CLOSE AHV-1A, 1B, 1C, AND 1D. (Containment purge supply and exhaust valves)
(NOTE: fans must be stopped manually).
CLOSE LRV-70, 71, 72, 73 (RB Vent Valves)

RM-A2 Upon alarm on either the gas channel OR on high flow will:
TRIP AHF-10 (Fuel Handling Area Fan)
TRIP AHF-11A & B (AB Supply Fans)
TRIP AHF-9A & B (3A & B Penetration cooling fans)
TRIP AHF-34A (Hot machine shop, weld hood exhaust fan and cooling unit)
TRIP AHF-30 (Chem Lab supply fan)
CLOSE WDV-436, 437, & 438 (WGDT outlet isolation to release header)

RM-A3 TRIP AHF-11A & B (AB supply fans)
CLOSE D-29 & 36 (WGDT area supply and exhaust dampers)

RM-A4 TRIP AHF-10 (Fuel handling area supply fan)

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

JPM 8CR/CONTROL ROOM

While Reactor Building Purge is in Progress
respond to RM-A1 Actuation

CANDIDATE _____

EXAMINER _____

PREPARED/
REVISED BY: Melissa Gallier Date/ 12-17-98

VALIDATED BY: * D. Jones Date/ 12-17-98

APPROVED BY: R. Newland Date/ 12-18-98
(Operations Training Manager)

CONCURRED: ** _____ Date/ _____
(Operations Representative)

* Validation not required for minor enhancements, procedure Rev changes that do not affect the JPM, or individual step changes that do not affect the flow of the JPM.

** Operations Concurrence required for new JPMs and changes that affect the flow of the JPM (if not driven by a procedure revision).

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:

While Reactor Building Purge is in progress respond to RM-A1 actuation.

Alternate Path:

N/A

Facility JPM #:

053

K/ARating(s)/Task Number/AO, RO, SRO:

029A3.01//3.8/4.0//1150402011//RO, SRO

Task Standard:

While Reactor Building Purge is in progress respond to RM-A1 actuation using AP-250, Radiation Monitor Actuation.

Preferred Evaluation Method:

Simulator _____ In-Plant X

References:

AP-250

Validation Time: 12 min.

Time Critical: NO

Candidate: _____

NAME

Time Start: _____

Performance Rating: SAT ____ UNSAT ____ Performance Time _____

Examiner: _____ / _____

NAME

SIGNATURE

DATE

COMMENTS

SIMULATOR OPERATOR INSTRUCTIONS:

N/A

Tools/Equipment/Procedures Needed:

AP-250

READ TO OPERATORDIRECTIONS TO TRAINEE:

I will explain the initial conditions, and state the task to be performed. All in-plant steps, including any required communications, shall be simulated for this JPM. Under no circumstances are you to operate any plant equipment. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

The plant is in Mode 5.
The Reactor Building (RB) purge is in progress.
Both purge supply and exhaust fans are operating.
RM-A1 Gas comes into high alarm.

INITIATING CUES:

You are requested to take appropriate actions.

START TIME: _____ Shaded Block Indicates Critical Step

<p><u>STEP 1:</u> Obtain a copy of appropriate procedure.</p> <p><u>STANDARD:</u> Operator obtains a copy of AP-250.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 2:</u> Ensure auto actions of affected radiation monitors occur. See table 1.</p> <p><u>STANDARD:</u> Operator verifies AHV-1A, AHV-1B, AHV-1C and AHV-1D are closed by either verifying the ES status light is green OR at each valves' control switch verifying the green light ON and the red light OFF. The Operator will also verify that LRV-70, LRV-71, LRV-72, and LRV-73 are closed by verifying at each valves' control switch the green light is ON and the red light is OFF.</p> <p>EXAMINER'S CUE: AHV-1A, AHV-1B, AHV-1C, AHV-1D, LRV-70, LRV-71, LRV-72, and LRV-73 are all closed.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 3:</u> Notify personnel of plant conditions. STA, Plant Operators, and NSM.</p> <p><u>STANDARD:</u> Operator calls or radios STA, Plant Operators, and NSM of entry into AP-250 for RM-A1 alarm.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 4:</u> IF RM-A1 Gas is actuated. THEN stop RB purge fans. AHF-7A, AHF-7B, AHF-6A, and AHF-6B.</p> <p><u>STANDARD:</u> Operator rotates control handles of AHF-7A, AHF-7B, AHF-6A, and AHF-6B to the stop position and verifies green light ON and red light OFF.</p> <p>EXAMINER'S CUE: The purge fans are shut down.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>

<p>CAUTION: With all CC ventilation stopped, the CC may reach its design limit of 95°F in 30 minutes.</p> <p>STEP 5: IF RM-A5 is actuated, AND AHD-3 is closed, THEN stop CC supply and return fans.</p> <p>STANDARD: N/A</p> <p>COMMENTS:</p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p>STEP 6A: Verify alarm is valid. Depress the affected radiation monitor remote HORN SILENCE pushbutton.</p> <p>STANDARD: Operator depresses the RM-A1 HORN SILENCE pushbutton and verifies the pushbutton is back-lit.</p> <p>EXAMINER'S CUE: RM-A1 is in HORN SILENCE.</p> <p>COMMENTS:</p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p>STEP 6B: Ensure radiation monitor is energized.</p> <p>STANDARD: Operator verifies power light is illuminated.</p> <p>EXAMINER'S CUE: All power lights are illuminated.</p> <p>COMMENTS:</p>	<p>____ SAT</p> <p>____ UNSAT</p>

<p><u>STEP 6C:</u> Ensure ALARM RESET OPERATE CHECK SOURCE switch is in the OPERATE position.</p> <p><u>STANDARD:</u> Operator verifies ALARM RESET OPERATE CHECK SOURCE switch is selected to the OPERATE position.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 6D:</u> Ensure proper alarm setpoints: RM-A1 per the applicable Release Permit.</p> <p><u>STANDARD:</u> Operator rotates alarm setting switch to verify the setpoints match the Release Permit.</p> <p> EXAMINER'S NOTE: Operator may check the setpoints for RM-A2 also.</p> <p> EXAMINER'S CUE: RM-A1 setpoints match the Release Permit.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 6E:</u> Observe trends on other radiation monitors, if applicable.</p> <p>EXAMINER'S CUE: RM-G16 and RM-G18 are trending upward</p> <p><u>STANDARD:</u> N/A</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 7:</u> IF radiation monitor is off scale high, THEN ensure RANGE switch selected to 1M setting.</p> <p>EXAMINER'S CUE: RM-1G is not off-scale.</p> <p><u>STANDARD:</u> N/A</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 8:</u> Notify Health Physics and Chemistry of radiation monitor actuation.</p> <p><u>STANDARD:</u> Operator notifies Health Physics and Chemistry of the RM-1G actuation.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 9:</u> Evacuate affected areas, if required.</p> <p>EXAMINER'S CUE: No one is in the Reactor Building.</p> <p><u>STANDARD:</u> N/A</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 10:</u> Review current Operation, Maintenance, and Chemistry activities for any actions that may have caused the actuation.</p> <p>EXAMINER'S CUE: The Nuclear Shift Manager is performing this activity.</p> <p><u>STANDARD:</u> N/A</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 11:</u> Stop activities suspected of causing increased radiation levels and restore systems as necessary.</p> <p>EXAMINER'S CUE: The Nuclear Shift Manager is performing this activity.</p> <p><u>STANDARD:</u> N/A</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 12:</u></p> <p><u>STANDARD:</u></p> <p><u>COMMENTS:</u></p>	<p>IF RM-A1 is NOT actuated, THEN GO TO Step 3.14 in this procedure.</p> <p>N/A, Operator continues with the next step.</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 13:</u></p> <p><u>STANDARD:</u></p> <p><u>COMMENTS:</u></p>	<p>IF RM-A1 Gas indicates or approaches off-scale high, THEN select RM-A1 LMH VALVE CONTROLLER to AUTO.</p> <p>EXAMINER'S CUE: RM-A1G is nearing off-scale.</p> <p>Operator selects LMH VALVE CONTROLLER toggle to AUTO.</p> <p>EXAMINER'S CUE: LMH VALVE CONTROLLER toggle is selected to AUTO. Terminate JPM.</p> <p>END of TASK</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

STOP TIME: _____

JPM QUESTION #1

Question: Radiation Monitor, RM-A1G, is reading 3.0×10^2 mR/hr. Which detector (Low-Medium-High) scale of the monitor would this be read from if the Low-Medium-High Valve Controller is in automatic?

Answer: The High-Range detector would automatically be selected.

CANDIDATE'S RESPONSE

Time:

K/A Rating:

073A1.01//3.2/3.5

References:

RM-A1 meters in the Control Room

JPM QUESTION #2

Question: If RM-A1 count rate drops to 4820 cpm particulate and 780,000 cpm iodine can the "Atmospheric Radiation High" alarm be cleared (the gas channel is in warning)?

Answer: Yes.

CANDIDATE'S RESPONSE

Time:

K/A Rating:
073A4.02//3.7/3.7

References:
RMS Setpoint Log; AR-403

**JPM QUESTION #2
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)**

Question:

If RM-A1 count rate drops to 4820 cpm particulate and 780,000 cpm iodine can the "Atmospheric Radiation High" alarm be cleared (the gas channel is in warning)?

**JPM QUESTION #1
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)**

Question:

Radiation Monitor, RM-A1G, is reading 3.0×10^2 mR/hr. Which detector (Low-Medium-High) scale of the monitor would this be read from if the Low-Medium-High Valve Controller is in automatic?

CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

The plant is in Mode 5.
The Reactor Building (RB) purge is in progress.
RM-A1 Gas comes into high alarm.

INITIATING CUES:

You are requested to take appropriate actions.

2.5 COMPUTER

A multi-job, multi-task, data acquisition and processing computer is used to perform gamma spectroscopic analysis. The computer operates the near line solenoid valves and the moveable collimator whenever their individual control switches are in REMOTE.

2.6 MULTI CHANNEL ANALYZER

The multi channel analyzer is a digital computer terminal that acquires the gamma spectrum from the signal transmitter from each detector. It operates the spectrum analysis software and is installed in the IRP.

2.7 INSTRUMENT RADIONUCLIDE ANALYSIS PANEL (IRP)

The IRP is located in the Counting Room and contains various components used in gamma spectroscopic analysis. The solid state relay panel contains a series of toggle switches used to manually operate the collimators and the solenoid valves located in the near sample lines in the AIMS cabinets. When these switches are in the REMOTE position, they are operated by the computer. The CAV-484 controller is located at the top of the IRP and the gamma spectroscopy hardware is located at the bottom.

2.8 LINE PRINTER

Generates hard copy reports.

2.9 REACTOR BUILDING AND AUXILIARY BUILDING VENT MANIFOLDS

The RANGE system contains two identical manifolds: a Reactor Building Vent (RBV) manifold and an Auxiliary Building Vent (ABV) manifold. Each manifold contains two high range particulate and iodine filters, a mid range noble gas monitor, a high range noble gas monitor, sample line solenoid valves, and the LMHVC. The two high range particulate and iodine filters use silver zeolite rather than activated charcoal. This enables them to collect much higher concentrations of particulates and iodides than the filters in RM-A1 and RM-A2 can. The mid range noble gas monitors have a range of 10^{-2} to 10^3 MR/HR. They overlap the low range monitors (RM-A1 and RM-A2) upper limit of 10^6 CPM.

Each mid range monitor consists of a halogen quenched Geiger-Muller tube with a provision for flushing the sample chamber with instrument air. This is to protect the detector from accident radiation levels. The high range monitors have a range of 10^{-1} to 10^7 MR/HR. They overlap the mid range monitors upper limit of 10^3 MR/HR. The high range monitors use dual ion chambers and are always on line when the mid range monitors are on line.

2.10 LOW MEDIUM HIGH VALVE CONTROLLER

The LMHVC operates a series of valves to direct the flow of air samples to the desired low, medium, or high radiation detectors. The LMHVC may be operated either manually or automatically. In MANUAL, the operator directs air flow by selecting opening and closing of the valves. In AUTOMATIC, the LMHVC directs air flow to the correct detectors according to the radiation intensity of the sample air flow. The LMHVC Systems are installed in the Auxiliary Building Vent RANGE Manifold and the Reactor Building Vent RANGE Manifold. During normal conditions, RM-A1 takes a 5 cfm sample from the Reactor Building vent and passes it through the normal duty particulate and iodine filters and the low range noble gas detector. The sample is then either returned to the RB vent duct by the RM-A1 gas pump, sent to the RANGE AIMS for isotopic analysis, and/or sent to the RANGE grab sampler. RM-A1 measures noble gas concentrations from 10 to 10^6 CPM. When the RM-A1 noble gas detector reaches approximately $\frac{3}{4}$ of its range, the sample flow path is automatically diverted to the RANGE manifold by a second nozzle and the LMHVC. This sampling path uses the RM-A1 pump but bypasses the RM-A1 detector and filter. In this configuration, the sample flows through the high range particulate and iodine filters, the high range noble gas detector, and then the mid range noble gas detector. The mid range detector measures the noble gas concentrations from 10^{-2} to 10^3 MR/HR. When the mid range detector reaches $\frac{3}{4}$ of its range, the LMHVC cuts it out of the sample flow path leaving only the high range detector in service. In this configuration, the sample flows through the high range particulate and iodine filters and then the high range noble gas detector. The high range detector measures noble gas concentrations from 10^{-1} to 10^7 MR/HR. Because the mid range detector Geiger-Muller tube will deteriorate if exposed to high levels of radioactivity, purge air is introduced into the chamber of the mid range detector when the LMHVC switches the sample to the high range detector. As the noble gas concentration returns to normal, the mid range and low range detectors are automatically reactivated at appropriate range settings. After passing through the Reactor Building Vent RANGE, the sample is either returned to the duct by the RM-A1 gas pump, sent to the RANGE AIMS for isotopic analysis, and/or sent to the RANGE grab sampler. The Auxiliary Building Vent RANGE system is

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

JPM 9CR/CONTROL ROOM

Startup Fourth Reactor Coolant Pump at Power

CANDIDATE _____

EXAMINER _____

PREPARED/
REVISED BY: *Melissa Hallan* Date/ 12-17-98

VALIDATED BY: * *D. Jones* Date/ 12-17-98

APPROVED BY: *A. W. [Signature]* Date/ 12-18-98
(Operations Training Manager)

CONCURRED: ** _____ Date/ _____
(Operations Representative)

* Validation not required for minor enhancements, procedure Rev changes that do not affect the JPM, or individual step changes that do not affect the flow of the JPM.

** Operations Concurrence required for new JPMs and changes that affect the flow of the JPM (if not driven by a procedure revision).

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:

Startup the fourth Reactor Coolant Pump at power.

Alternate Path:

N/A

Facility JPM #:

045

K/ARating(s)/Task Number/AO, RO, SRO:

003A4.02//2.9/2.9//0020102021//RO, SRO

Task Standard:

Startup the fourth Reactor Coolant Pump (RCP) at power using OP-302, RC Pump Operation.

Preferred Evaluation Method:

Simulator _____ In-Plant X

References:

OP-302

Validation Time: 18 min.

Time Critical: NO

Candidate: _____

NAME

Time Start: _____

Performance Rating: SAT _____ UNSAT _____ Performance Time _____

Examiner: _____ / _____

NAME

SIGNATURE

DATE

COMMENTS

SIMULATOR OPERATOR INSTRUCTIONS:

N/A

Tools/Equipment/Procedures Needed:

OP-302

READ TO OPERATOR

DIRECTIONS TO TRAINEE:

I will explain the initial conditions, and state the task to be performed. All in-plant steps, including any required communications, shall be simulated for this JPM. Under no circumstances are you to operate any plant equipment. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

The plant is at 20% full power.
RCP-1D is not running.
The DNPO Pre-Job Briefing for RCP start is complete.

INITIATING CUES:

You are requested to start RCP-1D.

START TIME: _____ Shaded Block Indicates Critical Step

<p><u>STEP 1:</u> Obtain a copy of appropriate procedure.</p> <p><u>STANDARD:</u> Operator obtains a copy of OP-302, Section 4.5.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 2:</u> Perform a DNPO Pre-Job Briefing in accordance with AI-607, Pre-Job and Post-Job Briefings.</p> <p><u>STANDARD:</u> N/A, see initial conditions.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 3:</u> Ensure RCP Start Permissives are met. Refer to Step 3.1.12 of this procedure.</p> <p><u>STANDARD:</u> Operator verifies that permissive white lights for RCP-1D are ON.</p> <p>EXAMINER'S CUE: Indicate that all permissive lights are illuminated except lift oil.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 4:</u> Select applicable Group to trend for one hour at ten minute intervals. Monitor applicable group if printer is unavailable, Group 81 for RCP-1D.</p> <p>EXAMINER'S CUE: The Printer is unavailable.</p> <p><u>STANDARD:</u> Operator selects group trend on the computer, then selects Group 81 and monitors.</p> <p>EXAMINER'S CUE: Group 81 is being displayed.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>NOTE: RCP-1A has only a DC Lift Oil Pump.</p> <p><u>STEP 5:</u> IF Starting RCP-1B, RCP-1C, or RCP-1D, THEN Start the applicable AC Lift Oil Pump. Otherwise GO TO 4.5.7. Start AC Lift Oil Pump and allow pump to run for a minimum of 2 minutes before continuing.</p> <p><u>STANDARD:</u> Operator rotates control handle of AC Lift Oil Pump for RCP-1D to start and verifies red light ON and green light OFF.</p> <p>EXAMINER'S CUE: The AC Lift Oil Pump for RCP-1D has been running for 2 minutes.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 6:</u> Select DC Lift Oil Pump control switch to NOR-AFT-STOP.</p> <p>EXAMINER'S CUE: The DC Lift Oil Pump is in PULL-TO-LOCK.</p> <p><u>STANDARD:</u> Operator pushes control handle for DC Lift Oil Pump control handle in and rotates handle to NOR- AFT-STOP and verifies green light ON and red light OFF.</p> <p>EXAMINER'S CUE: The DC Lift Oil Pump is in NOR-AFT-STOP.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 7A:</u> Ensure DC Lift Oil Pump is operational. Trip AC Lift Oil Pump and verify DC Lift Oil Pump starts.</p> <p><u>STANDARD:</u> Operator rotates control handle of AC Lift Oil Pump to STOP and verifies green light ON and red light OFF. Operator verifies DC Lift Oil Pump is running by red light ON and green light OFF.</p> <p>EXAMINER'S CUE: The DC Lift Oil Pump for RCP-1D is running.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 7B:</u> Start AC Lift Oil Pump.</p> <p><u>STANDARD:</u> Operator rotates control handle of AC Lift Oil Pump for RCP-1D to start and verifies red light ON and green light OFF.</p> <p>EXAMINER'S CUE: The AC Lift Oil Pump for RCP-1D is running.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 7C:</u> Stop DC Lift Oil Pump.</p> <p><u>STANDARD:</u> Operator rotates control handle of DC Lift Oil Pump for RCP-1D to stop and verifies green light ON and red light OFF.</p> <p>EXAMINER'S CUE: The DC Lift Oil Pump for RCP-1D is stopped.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>

<p><u>STEP 7D:</u> Ensure DC Lift Oil Pump control handle is in NOR-AFT-STOP.</p> <p><u>STANDARD:</u> Operator verifies the DC Lift Oil Pump control switch is in NOR-AFT-STOP and verifies green light ON and red light OFF.</p> <p><u>EXAMINER'S CUE:</u> The DC Lift Oil Pump is in NOR-AFT-STOP.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 8:</u> IF Starting RCP-1A, THEN Start DC Lift Oil Pump for RCP-1A.</p> <p><u>STANDARD:</u> N/A</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 9A:</u> Start RCP AND verify all operating parameters. IF ICS is in AUTO, THEN Ensure FW re-ratioing.</p> <p>EXAMINER'S CUE: ICS is in AUTO.</p> <p><u>STANDARD:</u> Operator rotates the control handle of RCP-1D and verifies red light ON and green light OFF. Operator verifies FW flows stabilize and each loop is approximately equal.</p> <p>EXAMINER'S CUE: RCP-1D is running and Feedwater is normal.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 9B:</u> IF ICS not in AUTO, THEN manually re-ratio FW.</p> <p><u>STANDARD:</u> N/A</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 9C:</u> Check RCP operating parameters: Controlled Bleed-off flow, Seal Injection flow, individual seal temperatures, and seal pressures.</p> <p><u>STANDARD:</u> Operator at a minimum should refer to Group 81 trend on the computer and check the RCP-1D seal pressures on the back of the control board.</p> <p>EXAMINER'S CUE: All parameters for RCP-1D are normal.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 9D:</u> IF pump is within its operating parameters, THEN Select NOR-AFT-STOP on Lift Oil Pump control switch.</p> <p><u>STANDARD:</u> Operator rotates control handle of AC Lift Oil Pump for RCP-1D to stop and then ensure handle goes to NOR-AFT-STOP and verify green light ON and red light OFF.</p> <p>EXAMINER'S CUE: The AC Lift Oil Pump for RCP-1D is in NOR-AFT-STOP.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>

<p><u>STEP 9E:</u> RCP Motor Oil Collection System should be checked each shift for detection of any in-leakage, i.e., SW System.</p> <p>EXAMINER'S CUE: The SPO has been notified to perform this task.</p> <p><u>STANDARD:</u> N/A</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 10:</u> Ensure Seal Injection Flows are equalized for all 4 RCPs.</p> <p>EXAMINER'S CUE: Seal Injection flows are equalized.</p> <p><u>STANDARD:</u> N/A</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>

<p><u>STEP 11:</u> Ensure proper alignment of RC Inlet Temp Signal Sources.</p> <p>EXAMINER'S CUE: RC Inlet Temp Signal Sources are in proper alignment.</p> <p><u>STANDARD:</u> N/A</p> <p><u>COMMENTS:</u></p> <p>END of TASK</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
--	-------------------------------------

STOP TIME: _____

JPM QUESTION #1, NO PROCEDURE ALLOWED

Question: Given the following set of RCP conditions, can the forth RCP be started?

Reactor power is 10%.

Total Nuclear Services Closed Cycle Cooling Water (SW) flow to all RCPs is 1100 gpm. Assume flow is evenly distributed between the pumps.

All Controlled Bleed-Off valves are open.

Tcold for the loop is 470°F.

Oil lift pressure for the pump to be started is 105 psig.

All Oil Reservoirs for the RCPs are Normal.

Total Seal Injection for all RCPs is 23 gpm. Assume flow is evenly distributed between the pumps.

Answer: No. Oil lift pressure is too low.

CANDIDATE'S RESPONSE

Time:

K/A Rating:

003K1.01//2.6/2.8

References:

No Reference is allowed

JPM QUESTION #2

Question: Both MTR VIBRATION HIGH AND VIBRATION ALERT Alarms are annunciated for RCP-1D. Given the attached set of vibration readings what action, if any, should be taken?

Answer: Reduce power to < 95% and stop RCP-1D.

CANDIDATE'S RESPONSE

Time:

K/A Rating:

003A4.06//2.9/2.9

References:

AR-501

OP-302

RCP Action Levels

**JPM QUESTION #2
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)**

Question:

Both MTR VIBRATION HIGH AND VIBRATION ALERT Alarms are annunciated for RCP-1D. Given the attached set of vibration readings what action, if any, should be taken?

**JPM QUESTION #1
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)**

Question:

Given the following set of RCP conditions, can the forth RCP be started?

Reactor power is 10%.

Total Nuclear Services Closed Cycle Cooling Water (SW) flow to all RCPs is 1100 gpm. Assume flow is evenly distributed between the pumps.

All Controlled Bleed-Off valves are open.

Tcold for the loop is 470°F.

Oil lift pressure for the pump to be started is 105 psig.

All Oil Reservoirs for the RCPs are Normal.

Total Seal Injection for all RCPs is 23 gpm. Assume flow is evenly distributed between the pumps.

CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

The plant is at 20% full power.

RCP-1D is not running.

The DNPO Pre-Job Briefing for RCP start is complete.

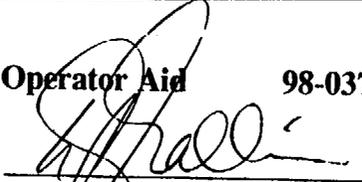
INITIATING CUES:

You are requested to start RCP-1D.

RCP ACTION LEVELS FOR OP-302

RCP Shutdown Action Levels (Bently-Nevada 3300 Vector Modules)										
Revised	10/15/98									
SENSOR	TAG #	SHUTDOWN DIRECT	SHUTDOWN 1X AMP. (Low)	SHUTDOWN 1X AMP. (High)	SHUTDOWN 1X PHASE (Low)	SHUTDOWN 1X PHASE (High)	SHUTDOWN 2X AMP. (Low)	SHUTDOWN 2X AMP. (High)	SHUTDOWN 2X PHASE (Low)	SHUTDOWN 2X PHASE (High)
RCP-1A										
Pump X	LP-10-SI1A	20.00	NA	18.00	120	245	NA	5.00	195	325
Pump Y	LP-10-SI2A	20.00	NA	18.00	25	155	NA	5.00	10	140
Motor X	LP-10-SI4A	20.00	NA	18.00	NA	NA	NA	5.00	NA	NA
Motor Y	LP-10-SI5A	20.00	NA	18.00	NA	NA	NA	5.00	NA	NA
RCP-1B										
Pump X	LP-10-SI1B	20.00	NA	18.00	335	105	NA	5.00	180	310
Pump Y	LP-10-SI2B	20.00	NA	18.00	245	15	NA	5.00	20	145
Motor X	LP-10-SI4B	20.00	NA	18.00	305	75	NA	5.00	220	350
Motor Y	LP-10-SI5B	20.00	NA	18.00	215	345	NA	5.00	45	175
RCP-1C										
Pump X	LP-10-SI1C	20.00	NA	18.00	NA	NA	NA	5.00	100	230
Pump Y	LP-10-SI2C	20.00	NA	18.00	NA	NA	NA	5.00	305	75
Motor X	LP-10-SI4C	20.00	NA	18.00	140	270	NA	5.00	NA	NA
Motor Y	LP-10-SI5C	20.00	NA	18.00	30	160	NA	5.00	355	125
RCP-1D										
Pump X	LP-10-SI1D	20.00	NA	18.00	125	255	NA	5.00	150	280
Pump Y	LP-10-SI2D	20.00	NA	18.00	10	140	NA	5.00	325	95
Motor X	LP-10-SI4D	20.00	NA	18.00	120	250	NA	5.00	205	335
Motor Y	LP-10-SI5D	20.00	NA	18.00	0	130	NA	5.00	20	150

Operator Aid 98-037


 NSM Approval Signature

The above limits are intended primarily for 4 RCP operation at steady state 100% power. Verify redundant monitors clearly indicate unacceptable levels prior to securing an RCP under startup/shutdown or changing conditions.

RCP Vibration Readings

	Monitor	Direct Vibration (mils)	1X Amplitude (mils)	1X Phase Lag (degrees)	2X Amplitude (mils)	2X Amplitude (mils)
RCP-1A	LP-10-SI1A					
	LP-10-SI2A					
	LP-10-SI4A					
	LP-10-SI5A					
RCP-1B	LP-10-SI1B					
	LP-10-SI2B					
	LP-10-SI4B					
	LP-10-SI5B					
RCP-1C	LP-10-SI1C					
	LP-10-SI2C					
	LP-10-SI4C					
	LP-10-SI5C					
RCP-1D	LP-10-SI1D	21.0	19.3	256		
	LP-10-SI2D	26.3	18.7	143		
	LP-10-SI4D	19.7	17.6	270		
	LP-10-SI5D	21.2	18.4	120		

Initial/Date

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

JPM 7P/PLANT

Place the "A" Hydrogen Analyzer In Service

CANDIDATE _____

EXAMINER _____

PREPARED/
REVISED BY: Melissa Bellin Date/ 12-17-98

VALIDATED BY: * D. Jones Date/ 12-17-98

APPROVED BY: B. Wes Young Date/ 12-18-98
(Operations Training Manager)

CONCURRED: ** _____ Date/ _____
(Operations Representative)

* Validation not required for minor enhancements, procedure
Rev changes that do not affect the JPM, or individual step
changes that do not affect the flow of the JPM.

** Operations Concurrence required for new JPMs and changes
that affect the flow of the JPM (if not driven by a procedure
revision).

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:

Place the "A" Hydrogen Analyzer in Service.

Alternate Path:

N/A

Facility JPM #:

Requal JPM

K/A Rating(s)/Task Number/AO, RO, SRO:

028A4.03//3.1/3.3//0090503001//AO, RO, SRO

Task Standard:

Place the "A" Hydrogen Analyzer in service using EOP-14, Enclosure 2.

Preferred Evaluation Method:

Simulator _____ In-Plant X

References:

EOP-14

Validation Time: 11 min.

Time Critical: NO

Candidate: _____
NAME

Time Start: _____

Performance Rating: SAT _____ UNSAT _____ Performance Time _____

Examiner: _____ / _____
NAME SIGNATURE DATE

COMMENTS

SIMULATOR OPERATOR INSTRUCTIONS:

N/A

Tools/Equipment/Procedures Needed:

EOP-14, Enclosure 2
Key

READ TO OPERATOR

DIRECTIONS TO TRAINEE:

I will explain the initial conditions, and state the task to be performed. All in-plant steps, including any required communications, shall be simulated for this JPM. Under no circumstances are you to operate any plant equipment. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

Your are the Primary Plant Operator.
The plant has just tripped.
A LOCA is in progress.
DHV-3 is energized.

INITIATING CUES:

You are requested by the Shift Supervisor to complete EOP-14,
Enclosure 2.

START TIME: _____ Shaded Block Indicates Critical Step

<p><u>STEP 1:</u> Obtain a copy of appropriate procedure.</p> <p><u>STANDARD:</u> Operator obtains a copy of EOP-14, Enclosure 2.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 2:</u> Energize DHV-3.</p> <p><u>STANDARD:</u> N/A, see initial conditions.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 3:</u> Energize HPI recirc to sump valves. Unlock and close DPDP 8A-4 energizing MUV-543 and MUV-544 ("A" ES 4160 SWGR Room).</p> <p><u>STANDARD:</u> Operator unlock breaker DPDP-8A-4 and rotate handle to ON.</p> <p>EXAMINER'S CUE: Breaker DPDP-8A-4 is ON.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 4:</u> Energize PZR vent valves. Unlock and close DPDP 8A-13 energizing RCV-159 and RCV-160 ("A" ES 4160 SWGR Room).</p> <p><u>STANDARD:</u> Operator unlock breaker DPDP-8A-13 and rotate handle to ON.</p> <p>EXAMINER'S CUE: Breaker DPDP-8A-13 is ON.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 5:</u> Energize WS valves for Hydrogen analyzers. Unlock and close DPDP 8A-14 energizing WSV-28, WSV-30, WSV-34 and WST-42 ("A" ES 4160 SWGR Room).</p> <p><u>STANDARD:</u> Operator unlock breaker DPDP-8A-14 and rotate handle to ON.</p> <p>EXAMINER'S CUE: Breaker DPDP-8A-14 is ON.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 6:</u> Ensure "A" DC cooling control is aligned to Control Room. Ensure DH COOLER 3A OUTLET TEMP. CONTROL LOCATION switch DCV-177 MS is selected to CONTROL ROOM ("A" ES 4160V SWGR Room).</p> <p><u>STANDARD:</u> Operator verifies that DH COOLER 3A OUTLET TEMP. CONTROL LOCATION switch DCV-177 MS is selected to CONTROL ROOM.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 7:</u> Energize HPI recirc to sump valves. Unlock and close DPDP 8B-8 energizing MUV-545 and MUV-546 ("B" ES 4160 SWGR Room).</p> <p><u>STANDARD:</u> Operator unlock breaker DPDP-8B-8 and rotate handle to ON.</p> <p>EXAMINER'S CUE: Breaker DPDP-8B-8 is ON.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>

<p><u>STEP 8:</u> Energize WS valves for Hydrogen Analyzers. Unlock and close DPDP 8B-21 energizing WSV-26, WSV-32, WSV-38 and WSV-41 ("B" ES 4160 SWGR Room).</p> <p><u>STANDARD:</u> Operator unlock breaker DPDP-8B-21 and rotate handle to ON.</p> <p>EXAMINER'S CUE: Breaker DPDP-8B-21 is ON.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 9:</u> Ensure "B" DC cooling control is aligned to Control Room. Ensure DH COOLER 3B OUTLET TEMP. CONTROL LOCATION switch DCV-178 MS is selected to CONTROL ROOM ("B" ES 4160V SWGR Room).</p> <p><u>STANDARD:</u> Operator verifies that DH COOLER 3B OUTLET TEMP. CONTROL LOCATION switch DCV-178 MS is selected to CONTROL ROOM.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 10:</u> Energize "A" loop HPVs. Unlock and close DPDP 5A-1 energizing RCV-157 and RCV-158 ("A" ES 480 SWGR Room).</p> <p><u>STANDARD:</u> Operator unlock breaker DPDP-5A-1 and rotate handle to ON.</p> <p>EXAMINER'S CUE: Breaker DPDP-5A-1 is ON.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 11:</u> Energize WS valves for Hydrogen Analyzers. Unlock and close DPDP 5A-2 energizing WSV-29, WSV-31, WSV-35 and WSV-43 ("A" ES 480 SWGR Room).</p> <p><u>STANDARD:</u> Operator unlock breaker DPDP-5A-2 and rotate handle to ON.</p> <p>EXAMINER'S CUE: Breaker DPDP-5A-2 is ON.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>

<p><u>STEP 12:</u> Energize "B" loop HPVs. Unlock and close DPDP 5B-1 energizing RCV-163 and RCV-164 ("B" ES 480 SWGR Room).</p> <p><u>STANDARD:</u> Operator unlock breaker DPDP-5B-1 and rotate handle to ON.</p> <p>EXAMINER'S CUE: Breaker DPDP-5B-1 is ON.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 13:</u> Energize WS valves for Hydrogen Analyzers. Unlock and close DPDP 5B-27 energizing WSV-27, WSV-33, WSV-39 and WSV-40 ("B" ES 480 SWGR Room).</p> <p><u>STANDARD:</u> Operator unlock breaker DPDP-5B-27 and rotate handle to ON.</p> <p>EXAMINER'S CUE: Breaker DPDP-5B-27 is ON.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>

<p>NOTE: Which Hydrogen analyzer to be used should be based on pre-existing (standby) status of analyzers and their power supplies. IF VBXS-1A is not on its normal power supply, "A" analyzer should not be considered available. If VBXS-1B is not on its normal power supply, "B" analyzer should not be considered available.</p> <p>EXAMINER'S CUE: All Inverters are on their normal power supply.</p> <p>STEP 14: Notify NSS to choose Hydrogen analyzer and containment sample points to be used.</p> <p>EXAMINER'S CUE: The NSS requests you place the "A" Hydrogen Analyzer in service sampling from the RB Dome.</p> <p>STANDARD: N/A</p> <p>COMMENTS:</p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p>STEP 15: IF "B" Hydrogen Analyzer is to be place in service, THEN GO TO Step 2.19 in this enclosure.</p> <p>STANDARD: N/A</p> <p>COMMENTS:</p>	<p>____ SAT</p> <p>____ UNSAT</p>

<p>STATUS: The "A" Hydrogen Analyzer is to be place in service.</p> <p>STEP 16: Open Containment Monitor Hydrogen Sampling Valves for sample point selected ("A" EFIC Room, RELAY RACK RR4A). IF RB Dome was elected, THEN open the following valves: WSV-30 and WSV-31.</p> <p>STANDARD: Operator rotates control switches for both WSV-30 and WSV-31 to open and verifies red light ON and green light OFF.</p> <p>EXAMINER'S CUE: WSV-30 and WSV-31 are open.</p> <p>COMMENTS:</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>STEP 17: Open the "A" Hydrogen Analyzer return valves ("A" EFIC Room, RELAY RACK RR4A). WSV-42 and WSV-43.</p> <p>STANDARD: Operator rotates control switches for both WSV-42 and WSV-43 to open and verifies red light ON and green light OFF.</p> <p>EXAMINER'S CUE: WSV-42 and WSV-43 are open.</p> <p>COMMENTS:</p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 18:</u> Energize the “A” Hydrogen Analyzer (“A” EFIC Room, RELAY RACK RR4A). Select “System Power” switch to ON on WS-11-CS.</p> <p><u>STANDARD:</u> Operator selects toggle switch for “System Power” to on and verifies the indicating light illuminated.</p> <p>EXAMINER’S CUE: The “A” Hydrogen Analyzer is in service.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 19:</u> Notify Control Room that PPO post event actions are complete with the “A” Hydrogen Analyzer in service and EXIT this enclosure.</p> <p><u>STANDARD:</u> Operator notifies the Control Room.</p> <p><u>COMMENTS:</u></p> <p style="text-align: center;">END of TASK</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

STOP TIME: _____

JPM QUESTION #1

Question: Following a LOCA with other complicating events, DPDP-1A is de-energized and WSV-38 is failed in the closed position. What are the sample flow paths for both hydrogen Analyzers?

Answer: The "A" Hydrogen Analyzer has no flow path.
The "B" Hydrogen Analyzer can only take samples from the Reactor Building Recirculation Duct.

CANDIDATE'S RESPONSE

Time:

K/A Rating:

028A4.03//3.1/3.3

References:

EOP-14, Enclosure 2
Flow diagram

JPM QUESTION #2

Question: With the "A" Hydrogen Analyzer placed in service hydrogen concentration is 2.7% with a flow rate of 0.8 scfh through the analyzer. The following valves are open:

WSV-30, WSV-31, WSV-42 and WSV-43

What is the flow path and alarm status of the "A" Hydrogen Analyzer?

Answer: The "A" Hydrogen Analyzer is taking samples from the Reactor Building Dome. The "A" Hydrogen Analyzer should also be in alarm for low sample flow.

CANDIDATE'S RESPONSE

Time:

K/A Rating:

028A4.03//3.1/3.3

References:

EOP-14, Enclosure 2
Flow diagram
AR-302

**JPM QUESTION #2
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)**

Question:

With the "A" Hydrogen Analyzer placed in service hydrogen concentration is 2.7% with a flow rate of 0.8 scfh through the analyzer. The following valves are open:

WSV-30, WSV-31, WSV-42 and WSV-43

What is the flow path and alarm status of the "A" Hydrogen Analyzer?

**JPM QUESTION #1
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)**

Question:

Following a LOCA with other complicating events, DPDP-1A is de-energized and WSV-38 is failed in the closed position. What are the sample flow paths for both hydrogen Analyzers?

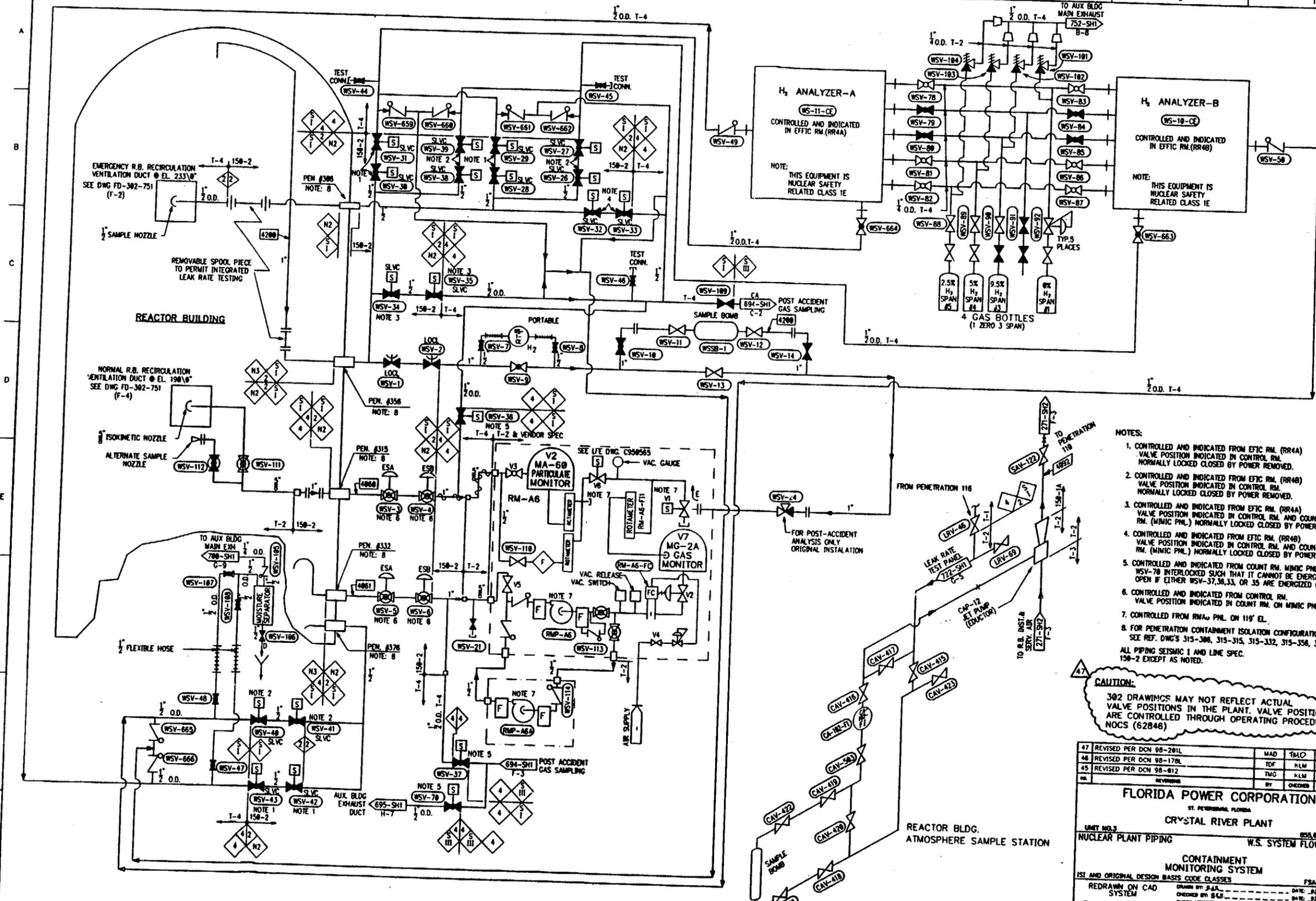
CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

Your are the Primary Plant Operator.
The plant has just tripped.
A LOCA is in progress.
DHV-3 is energized.

INITIATING CUES:

You are requested by the Shift Supervisor to complete EOP-14,
Enclosure 2.



- NOTES:
1. CONTROLLED AND INDICATED FROM EFCR RM. (RR4A)
VALVE POSITION INDICATED IN CONTROL RM.
NORMALLY LOCKED CLOSED BY POWER REMOVED.
 2. CONTROLLED AND INDICATED FROM EFCR RM. (RR4B)
VALVE POSITION INDICATED IN CONTROL RM.
NORMALLY LOCKED CLOSED BY POWER REMOVED.
 3. CONTROLLED AND INDICATED FROM EFCR RM. (RR4A)
VALVE POSITION INDICATED IN CONTROL RM. AND COUNT RM. (MIMIC PNL.) NORMALLY LOCKED CLOSED BY POWER REMOVED.
 4. CONTROLLED AND INDICATED FROM EFCR RM. (RR4B)
VALVE POSITION INDICATED IN CONTROL RM. AND COUNT RM. (MIMIC PNL.) NORMALLY LOCKED CLOSED BY POWER REMOVED.
 5. CONTROLLED AND INDICATED FROM COUNT RM. MIMIC PNL.
WSV-78 INTERLOCKED SUCH THAT IT CANNOT BE ENERGIZED OPEN IF EITHER WSV-37, 36, 33, OR 35 ARE ENERGIZED OPEN.
 6. CONTROLLED AND INDICATED FROM CONTROL RM.
VALVE POSITION INDICATED IN COUNT RM. ON MIMIC PNL.
 7. CONTROLLED FROM RM. PNL. ON 119' EL.
 8. FOR PENETRATION CONTAMINATION ISOLATION CONFIGURATION
SEE REF. DWG'S 315-306, 315-315, 315-332, 315-356, 315-376
ALL PIPING SEISMIC I AND LINE SPEC. 158-2 EXCEPT AS NOTED.

CAUTION:
302 DRAWINGS MAY NOT REFLECT ACTUAL VALVE POSITIONS IN THE PLANT. VALVE POSITIONS ARE CONTROLLED THROUGH OPERATING PROCEDURES. NOCS (62846)

47	REVISED PER DCN 98-201L	MAD	TMD	4/98
46	REVISED PER DCN 98-178L	IDF	KLM	3-13-98
45	REVISED PER DCN 98-812	TMG	KLM	5-19-98
44	REVISED PER DCN 98-812	BY	CSS	5-19-98

FLORIDA POWER CORPORATION
ST. PETERSBURG, FLORIDA
CRYSTAL RIVER PLANT
LIMIT NO. 3
NUCLEAR PLANT PIPING
W.S. SYSTEM FLOW DIAGRAM
CONTAINMENT MONITORING SYSTEM
FSAR FIG. 8-28
REDRAWN ON CAD SYSTEM
DRAWN BY J.A.R. DATE 02-12-98
CHECKED BY B.C.S. DATE 02-12-98
OVERSEEN BY J.N.A. DATE 02-12-98
BAYMONT ENGINEERING COMPANY
FD-302-693
SHEET 01 OF 01
SCALE
D-9-8

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

JPM 8P/PLANT

Release a Waste Gas Decay Tank to Plant
Ventilation

CANDIDATE _____

EXAMINER _____

PREPARED/
REVISED BY: Melissa Gallier Date/ 12-17-98

VALIDATED BY: * D. Jones Date/ 12-17-98

APPROVED BY: T. W. Jones Date/ 12-18-98
(Operations Training Manager)

CONCURRED: ** _____ Date/ _____
(Operations Representative)

* Validation not required for minor enhancements, procedure Rev changes that do not affect the JPM, or individual step changes that do not affect the flow of the JPM.

** Operations Concurrence required for new JPMs and changes that affect the flow of the JPM (if not driven by a procedure revision).

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:

Release a Waste Gas Decay Tank to Plant Ventilation..

Alternate Path:

N/A

Facility JPM #:

NRC Bank

K/A Rating(s)/Task Number/AO, RO, SRO:

071A4.26//3.1/3.9//0710103006//AO, RO, SRO

Task Standard:

Using OP-412B, WGDT Release to Ventilation, finish the startup of a release of "C" Waste Gas Decay Tank to plant ventilation.

Preferred Evaluation Method:

Simulator _____ In-Plant X

References:

OP-412B

Validation Time: 9 min.

Time Critical: NO

Candidate: _____
NAME

Time Start: _____

Performance Rating: SAT _____ UNSAT _____ Performance Time _____

Examiner: _____ / _____
NAME SIGNATURE DATE

COMMENTS

SIMULATOR OPERATOR INSTRUCTIONS:

N/A

Tools/Equipment/Procedures Needed:

OP-412A
Key
Calculator

READ TO OPERATOR**DIRECTIONS TO TRAINEE:**

I will explain the initial conditions, and state the task to be performed. All in-plant steps, including any required communications, shall be simulated for this JPM. Under no circumstances are you to operate any plant equipment. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

You are the Primary Plant Operator.
The previous shift has started the process of releasing the "C" Waste Gas Decay Tank to plant ventilation.

INITIATING CUES:

You are requested to continue with the release of the "C" Waste Gas Decay Tank, starting with step 4.1.32.

START TIME: _____ Shaded Block Indicates Critical Step

<p><u>STEP 1:</u> Obtain a copy of appropriate procedure.</p> <p><u>STANDARD:</u> Operator obtains the partially completed copy of OP-412B.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 2Aa:</u> Perform Valve Alignment for WGDT "C" Discharge. Close the following: WDV-392.</p> <p><u>STANDARD:</u> Operator rotates WDV-392 control switch to CLOSE.</p> <p>EXAMINER'S CUE: WDV-392 is CLOSED.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 2Ab:</u> Perform Valve Alignment for WGDT "C" Discharge. Close the following: WDV-435.</p> <p>EXAMINER'S CUE: WDV-435 was CLOSED by the previous shift.</p> <p><u>STANDARD:</u> N/A</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>

<p><u>STEP 2Ac:</u> Perform Valve Alignment for WGDТ "C" Discharge. Close the following: WDV-395.</p> <p><u>STANDARD:</u> Operator rotates WDV-395 control switch to CLOSE.</p> <p>EXAMINER'S CUE: WDV-395 is CLOSED.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 2Ba:</u> Perform Valve Alignment for WGDТ "C" Discharge. Open the following: WDV-439.</p> <p><u>STANDARD:</u> Operator rotates WDV-439 control switch to OPEN.</p> <p>EXAMINER'S CUE: WDV-439 is OPEN.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>

<p><u>STEP 2Bb:</u> Perform Valve Alignment for WGDT "C" Discharge. Open the following: WDV-438.</p> <p><u>STANDARD:</u> Operator rotates WDV-438 control switch to OPEN.</p> <p>EXAMINER'S CUE: WDV-438 is OPEN.</p> <p><u>STANDARD:</u> N/A</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 2Bc:</u> Perform Valve Alignment for WGDT "C" Discharge. Open the following: WDV-477.</p> <p><u>STANDARD:</u> Operator rotates WDV-477 handwheel in counter-clockwise direction until OPEN.</p> <p>EXAMINER'S CUE: WDV-477 is OPEN.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>

<p><u>STEP 3A:</u> Complete Valve Alignment for WGDT Release. Close WDV-566.</p> <p><u>STANDARD:</u> Operator rotates WDV-566 manual valve operator in clockwise direction until CLOSED.</p> <p>EXAMINER'S CUE: WDV-566 is CLOSED.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 3B:</u> Complete Valve Alignment for WGDT Release. Close WDV-549.</p> <p><u>STANDARD:</u> Operator rotates WDV-549 handwheel in clockwise direction until CLOSED.</p> <p>EXAMINER'S CUE: WDV-549 is CLOSED.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>

<p><u>STEP 3C:</u> Complete Valve Alignment for WGDT Release. Open WDV-565.</p> <p><u>STANDARD:</u> Operator rotates WDV-565 manual valve operator in counter-clockwise direction until OPEN.</p> <p>EXAMINER'S CUE: WDV-565 is OPEN.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 4:</u> IF RM-A11 is inoperable, THEN complete Independent Verification of Discharge Valves Lineup.</p> <p>EXAMINER'S CUE: RM-A11 is operable.</p> <p><u>STANDARD:</u> N/A</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>

<p><u>STEP 5:</u> Notify Security of Waste Gas Release.</p> <p>EXAMINER'S CUE: This has been completed by the Control Room.</p> <p><u>STANDARD:</u> N/A</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 6:</u> Ensure Channel Check on WD-19-FR is completed.</p> <p>EXAMINER'S CUE: Step 4.1.16 has been completed SAT.</p> <p><u>STANDARD:</u> N/A</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 7</u> Start WGDT Release to Ventilation Filter Units. Unlock and throttle WDV-478, adjusting flow to the most conservative of the following: flow less than 10 SCFM on WD-19-FR OR flow less than limits established on GRWRP.</p> <p>EXAMINER'S CUE: The GRWRP limit is 15 SCFM.</p> <p><u>STANDARD:</u> Operator unlocks WDV-478 and rotates handwheel counter-clockwise to a throttled position.</p> <p>EXAMINER'S CUE: WDV-478 is throttled with WD-19-FR indicating 12 SCFM. (WDV-478 is in a different location from WD-19-FR.)</p> <p><u>STANDARD:</u> Operator rotates WDV-478 handwheel clockwise to a throttled position.</p> <p>EXAMINER'S CUE: WDV-478 is throttled with WD-19-FR indicating 7 SCFM. This completes the JPM</p> <p><u>COMMENTS:</u></p> <p>END of TASK</p>	<p>SAT</p> <p>UNSAT</p>
---	-------------------------

STOP TIME: _____

JPM QUESTION #1

Question: During a release of the "A" Waste Gas Decay Tank (WDT-1A), Radiation Monitor RM-A2 gas channel becomes inoperable; what are the requirements, if any, regarding the release?

Answer: The release may continue provided grab samples are collected at least once per 12 hours and analyzed within 24 hours, and either the requirements of ACTION 24 Part 2 (independent verification of the samples; release rate calculations and discharge valve lineup) are met or Radiation Monitor RM-A11 is OPERABLE prior to releasing the contents of the Waste Gas Decay Tanks.

CANDIDATE'S RESPONSE

Time:

K/A Rating:

071K1.0//3.1/3.1

References:

ODCM

JPM QUESTION #2

Question: Complete Enclosure 1 from OP-412B, WGDT Release to Ventilation?

Answer: See attached.

CANDIDATE'S RESPONSE

Time:

K/A Rating:

071K4.06//2.7/3.5

References:

OP-412B

**JPM QUESTION #2
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)**

Question: Complete Enclosure 1 from OP-412B, WGDT Release to Ventilation?

JPM QUESTION #1
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)

Question:

During a release of the "A" Waste Gas Decay Tank (WDT-1A), Radiation Monitor RM-A2 gas channel becomes inoperable; what are the requirements, if any, regarding the release?

CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

Your are the Primary Plant Operator.
The previous shift has started the process of releasing the "C" Waste
Gas Decay Tank to plant ventilation.

INITIATING CUES:

You are requested to continue with the release of the "C" Waste Gas
Decay Tank, starting with step 4.1.32.

MANUAL RELEASE RATE DATA SHEET

Time*	WGDT Pressure (PSIG)	Δ WGDT Pressure (PSIG)	Δ Pressure _____ X 119.28 Δ Time (min)	Release Rate (SCFM)	Initials & Date
0900	78	N/A	N/A	N/A	
1100	75		_____ X 119.28 =		
1300	71		_____ X 119.28 =		
1500	69		_____ X 119.28 =		
			_____ X 119.28 =		
			_____ X 119.28 =		
			_____ X 119.28 =		
			_____ X 119.28 =		
			_____ X 119.28 =		

*Every two hours or per SSOD

Reviewed by _____ Time _____ Date _____
SSOD

MANUAL RELEASE RATE DATA SHEET

Time*	WGDT Pressure (PSIG)	Δ WGDT Pressure (PSIG)	Δ Pressure _____ X 119.28 Δ Time (min)	Release Rate (SCFM)	Initials & Date
0900	78	N/A	N/A	N/A	MG 2-8-99
1100	75	3	$\frac{3}{120} \times 119.28 =$	2.98	MG 2-8-99
1300	71	4	$\frac{4}{120} \times 119.28 =$	3.98	MG 2-8-99
1500	69	2	$\frac{2}{120} \times 119.28 =$	1.99	MG 2-8-99
			_____ X 119.28 =		
			_____ X 119.28 =		
			_____ X 119.28 =		
			_____ X 119.28 =		
			_____ X 119.28 =		

*Every two hours or per SSOD

Reviewed by _____ Time _____ Date _____
SSOD

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

JPM 9P/PLANT

Start Station Air Compressor, SAP-1E

CANDIDATE _____

EXAMINER _____

PREPARED/
REVISED BY: Melissa Gallian Date/ 12-17-98

VALIDATED BY: * D. J. [Signature] Date/ 12-17-98

APPROVED BY: R. [Signature] Date/ 12-18-98
(Operations Training Manager)

CONCURRED: ** [Signature] Date/ 12-18-98
(Operations Representative)

* Validation not required for minor enhancements, procedure
Rev changes that do not affect the JPM, or individual step
changes that do not affect the flow of the JPM.

** Operations Concurrence required for new JPMs and changes
that affect the flow of the JPM (if not driven by a procedure
revision).

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:
Start Station Air Compressor-1E.

Alternate Path:
N/A

Facility JPM #:
New

K/A Rating(s)/Task Number/AO, RO, SRO:
065AA1.04//3.5/3.4//0780104005//AO, RO, SRO

Task Standard:
Start Station Air Compressor-1E using OP-411 or Operator Aide at
compressor.

Preferred Evaluation Method:
Simulator _____ In-Plant X

References:
OP-411

Validation Time: 4 min. Time Critical: NO

Candidate: _____ Time Start: _____
NAME

Performance Rating: SAT _____ UNSAT _____ Performance Time _____

Examiner: _____ / _____
NAME SIGNATURE DATE

COMMENTS

SIMULATOR OPERATOR INSTRUCTIONS:

N/A

Tools/Equipment/Procedures Needed:

OP-411 or Operator Aide
FD-302-271

READ TO OPERATORDIRECTIONS TO TRAINEE:

I will explain the initial conditions, and state the task to be performed. All in-plant steps, including any required communications, shall be simulated for this JPM. Under no circumstances are you to operate any plant equipment. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

Your are the Secondary Plant Operator.
The plant has had a loss of all OFF-Site Power.
All in-house air compressors have no power.
SAP-1C and SAP-1D have no power.

INITIATING CUES:

You are requested to start SAP-1E.

START TIME: _____ Shaded Block Indicates Critical Step

<p><u>STEP 1:</u> Obtain a copy of appropriate procedure.</p> <p><u>STANDARD:</u> Operator obtains a copy of OP-411 step 4.5.1.4 or Operator Aide.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 2:</u> Ensure open SAV-140, SAP-1E discharge valve.</p> <p><u>STANDARD:</u> Operator rotates handwheel of SAV-140 in the counter-clockwise direction until the hard stop is reached.</p> <p>EXAMINER'S CUE: SAV-140 is open.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 3:</u> Select UNLOAD/AUTO switch to UNLOAD.</p> <p><u>STANDARD:</u> Operator selects UNLOAD/AUTO toggle switch to UNLOAD.</p> <p>EXAMINER'S CUE: The UNLOAD/AUTO switch is selected to UNLOAD.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p><u>STEP 4:</u> Start engine by placing the TEST/OFF/AUTO switch to TEST.</p> <p><u>STANDARD:</u> Operator selects TEST/OFF/AUTO toggle switch to TEST and verifies SAP-1E starts.</p> <p>EXAMINER'S CUE: SAP-1E is running.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 5:</u> IF engine does not start during the start cycle, THEN place the TEST/OFF/AUTO switch to OFF to reset the system; otherwise, N/A.</p> <p><u>STANDARD:</u> N/A</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>

<p><u>STEP 6:</u> Select UNLOAD/AUTO switch to AUTO.</p> <p><u>STANDARD:</u> Operator selects UNLOAD/AUTO toggle switch to AUTO.</p> <p> EXAMINER'S CUE: The UNLOAD/AUTO switch is selected to AUTO.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 7:</u> Ensure open 3 inch discharge valve located below control panel at hose connection to compressor.</p> <p><u>STANDARD:</u> Operator rotates handwheel of 3 inch valve in the counter-clockwise direction until the hard stop is reached.</p> <p> EXAMINER'S CUE: 3 inch valve is open.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

JPM QUESTION #1, NO PROCEDURE ALLOWED

Question: SAP-1C is supplying the Instrument and Station Air Systems when a large air leak develops. What will the status of the air systems be if the leak is located between IAV-7 and IAV-11?

Answer: If the Instrument Air and Station Air pressure falls below 95 psig, all the in-house air compressors will auto-start. If the Instrument Air pressure falls below 80 psig, IAV-30 closes and SAV-6 (a check valve) will try to supply Instrument Air with Station Air. However, because of the leak location and depending on the size of the leak, the Instrument Air pressure will continue to decrease. If the leak is sufficiently sized, Station Air pressure may continue to decrease.

CANDIDATE'S RESPONSE

Time:

K/A Rating:

078K1.02//2.7/2.7

References:

Flow diagram

JPM QUESTION #2

Question: Given a set of daily surveillance readings on the Instrument Air system (see attached), what action(s), if any, is (are) required?

Answer: There is a high differential pressure across the dryer initiate maintenance.

CANDIDATE'S RESPONSE

Time:

K/A Rating:

078A3.01//3.1/3.2

References:

SP-300
OP-411

**JPM QUESTION #2
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)**

Question: Given a set of daily surveillance readings on the Instrument Air system (see attached), what action(s), if any, is (are) required?

JPM QUESTION #1
NO PROCEDURE ALLOWED
CANDIDATE COPY
(TO BE RETURNED TO EXAMINER)

Question: SAP-1C is supplying the Instrument and Station Air Systems when a large air leak develops. What will the status of the air systems be if the leak is located between IAV-7 and IAV-11?

CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

Your are the Secondary Plant Operator.
The plant has had a loss of all OFF-Site Power.
All in-house air compressors have no power.
SAP-1C and SAP-1D have no power.

INITIATING CUES:

You are requested to start SAP-1E.

Sequence: 49	Station: 49	480V RX AUX BUS 3B TRANSFORMER TEMP.
Maximum: 180	Units: DEG C	SI
Minimum:		
		Location: 95
Applicable DOW: Every		

Shift	Reading	Operator	Notes
00:00			
08:00			
16:00			

Sequence: 50	Station: 50	480V RX AUX BUS 3A TRANSFORMER TEMP.
Maximum: 180	Units: DEG C	SI
Minimum:		
		Location: 95
Applicable DOW: Every		

Shift	Reading	Operator	Notes
00:00			
08:00			
16:00			

Sequence: 51	Station: 51	480V TURB AUX BUS 3B TRANSFORMER TEMP.
Maximum: 180	Units: DEG C	SI
Minimum:		
		Location: 95
Applicable DOW: Every		

Shift	Reading	Operator	Notes
00:00			
08:00			
16:00			

Sequence: 52	Station: 52	480V TURB AUX BUS 3A TRANSFORMER TEMP.
Maximum: 180	Units: DEG C	SI
Minimum:		
		Location: 95
Applicable DOW: Every		

Shift	Reading	Operator	Notes
00:00			
08:00			
16:00			

Sequence: 53	Station: 73	Tag No.: IA-8-PI	IA PRE-FILTER INLET PRESSURE
Maximum:	Units: PSIG		Location: 95
Minimum: 100			Applicable DOW: Every

Shift	Reading	Operator	Notes
00:00	120		
08:00			
16:00			

Sequence: 54	Station: 74	Tag No.: IA-9-PI	IA DRYER INLET PRESSURE
Maximum:	Units: PSIG		Location: 95
Minimum: 92			Applicable DOW: Every

Shift	Reading	Operator	Notes
00:00	112		
08:00	N/A		
16:00	N/A		

Sequence: 55	Station: 75	Tag No.: CALCULATION	IA PRE-FIL DELTA P (IA-8-PI)-(IA-9-PI)
Maximum: 10	Units: PSID	SI	Location: 95
Minimum:			Applicable DOW: Every

Shift	Reading	Operator	Notes
00:00			
08:00	N/A		
16:00	N/A		

Sequence: 56	Station: 76	Tag No.: IA-10-PI	IA DRYER OUTLET PRESSURE
Maximum:	Units: PSIG		Location: 95
Minimum: 92			Applicable DOW: Every

Shift	Reading	Operator	Notes
00:00	96		
08:00	N/A		
16:00	N/A		

Sequence: 57	Station: 77	Tag No.: CALCULATION	IA DRYER DELTA PRESS (IA-9-PI)-(IA-10-PI)
Maximum: 15	Units: PSID	SI	Location: 95
Minumum:			Applicable DOW: Every

Shift	Reading	Operator	Notes
00:00			
08:00	N/A		
16:00	N/A		

Sequence: 58	Station: 78	Tag No.: IA-11-PI	IA POST-FLTR OUTLET PRESSURE
Maximum:	Units: PSIG		Location: 95
Minumum: 92			Applicable DOW: Every

Shift	Reading	Operator	Notes
00:00	91		
08:00	N/A		
16:00	N/A		

Sequence: 59	Station: 79	Tag No.: CALCULATION	IA POST-FLTR DELTA P (IA-10-PI)-(IA-11-P)
Maximum: 10	Units: PSID	SI	Location: 95
Minumum:			Applicable DOW: Every

Shift	Reading	Operator	Notes
00:00			
08:00	N/A		
16:00	N/A		

Sequence: 60	Station: 80	Tag No.: IA-21-FI	IA DRYER (IADR-1) PURGE FLOW
Maximum: 16.6	Units: SCFM		Location: 95
Minumum: 15.4			Applicable DOW: Every

Shift	Reading	Operator	Notes
00:00			
08:00	N/A		
16:00	N/A		

Sequence: 61	Station: 81	Tag No.: IA-52-MA	IA DEWPOINT MONITOR
Maximum: 20	Units: DEG F		Location: 95
Minumum:			Applicable DOW: Every

Shift	Reading	Operator	Notes
00:00			
08:00	N/A		
16:00	N/A		

Sequence: 62	Station: 82	Tag No.: IA-52-MA	IA & SA RECEIVERS ARE DRAINED?
Maximum: YES	Units:		Location: 95
Minumum: YES			Applicable DOW: Every

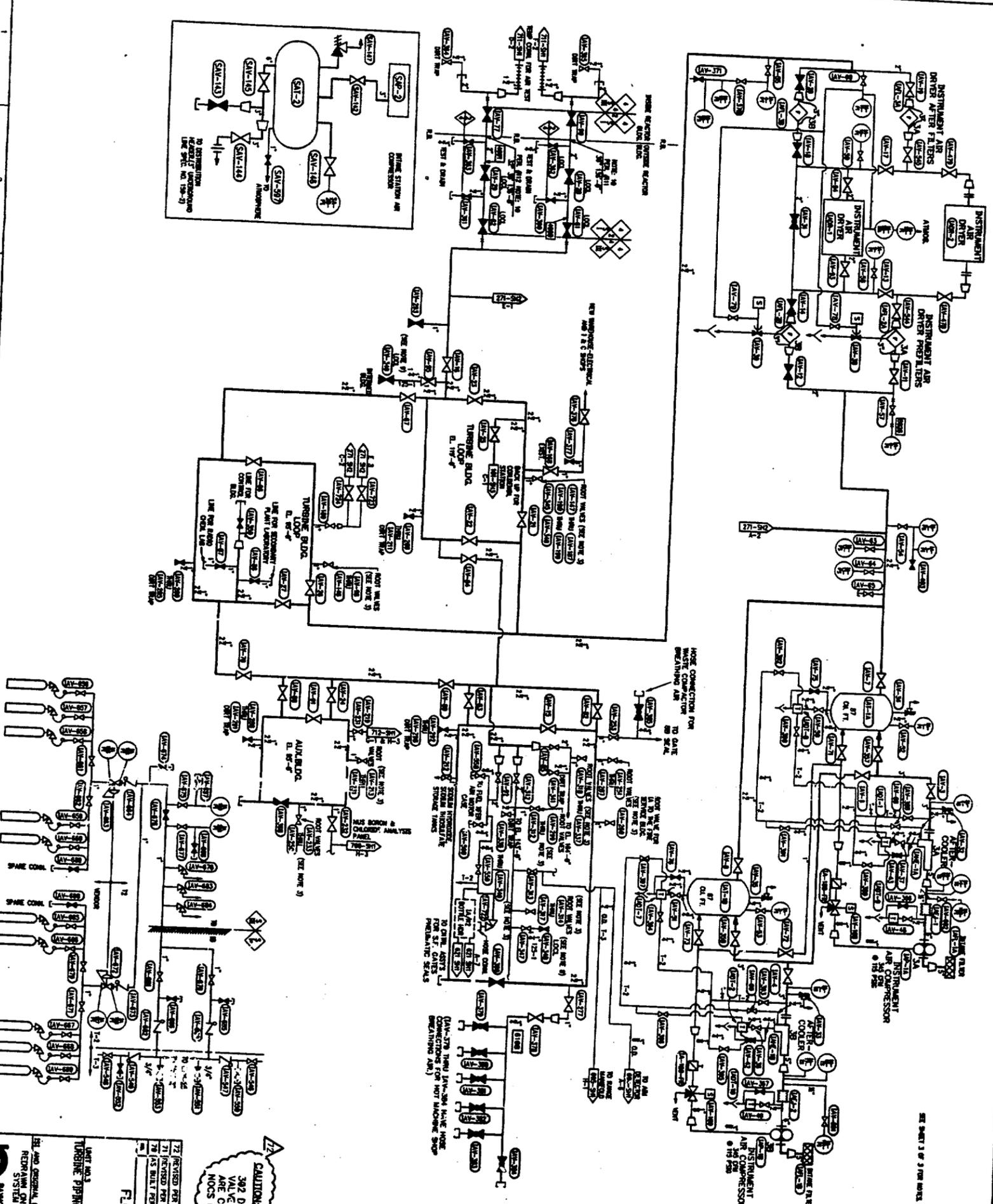
Shift	Reading	Operator	Notes
00:00			
08:00	N/A		
16:00	N/A		

Sequence: 63	Station: 53	Tag No.: MTSW 2G	4160V REACTOR AUX TRANSFORMER TEMP.
Maximum: 180	Units: DEG C	SI	Location: 95
Minumum:			Applicable DOW: Every

Shift	Reading	Operator	Notes
00:00			
08:00			
16:00			

Sequence: 64	Station: 54	Tag No.: MTSW 2G	GENERATOR H2 DRYER CRYSTALS ARE BLUE?
Maximum: YES	Units:	SI	Location: 95
Minumum: YES			Applicable DOW: Every

Shift	Reading	Operator	Notes
00:00			
08:00			
16:00			



CAUTION:
 382 DRAWINGS MAY NOT REFLECT ACTUAL VALVE POSITIONS IN THE PLANT. VALVE POSITIONS ARE CONTROLLED THROUGH OPERATING PROCEDURES. NOCS (62846)

22	REVISED PER DOW 88-2810	MAID	L-117	CS	7-1
21	REVISED PER DOW 88-1786	TOP	MAID	CS	7-1
78	AS BUILT PER DOW 97-81-88-81-FCM-3	MAID	DAVE	CSS	7-1
79	AS BUILT PER DOW 97-81-88-81-FCM-3	MAID	DAVE	CSS	7-1
80	AS BUILT PER DOW 97-81-88-81-FCM-3	MAID	DAVE	CSS	7-1
81	AS BUILT PER DOW 97-81-88-81-FCM-3	MAID	DAVE	CSS	7-1
82	AS BUILT PER DOW 97-81-88-81-FCM-3	MAID	DAVE	CSS	7-1
83	AS BUILT PER DOW 97-81-88-81-FCM-3	MAID	DAVE	CSS	7-1
84	AS BUILT PER DOW 97-81-88-81-FCM-3	MAID	DAVE	CSS	7-1
85	AS BUILT PER DOW 97-81-88-81-FCM-3	MAID	DAVE	CSS	7-1
86	AS BUILT PER DOW 97-81-88-81-FCM-3	MAID	DAVE	CSS	7-1
87	AS BUILT PER DOW 97-81-88-81-FCM-3	MAID	DAVE	CSS	7-1
88	AS BUILT PER DOW 97-81-88-81-FCM-3	MAID	DAVE	CSS	7-1
89	AS BUILT PER DOW 97-81-88-81-FCM-3	MAID	DAVE	CSS	7-1
90	AS BUILT PER DOW 97-81-88-81-FCM-3	MAID	DAVE	CSS	7-1

FLORIDA POWER CORPORATION
 CRYSTAL RIVER PLANT
 INSTRUMENT AIR & STATION SERVICE AIR
 PIPING DIAGRAM

UNIT NO. 3
 TURBINE PIPING
 INSTRUMENT AIR & STATION SERVICE AIR
 PIPING DIAGRAM

DATE: 10-15-79
 BY: [Signature]
 CHECKED BY: [Signature]
 APPROVED BY: [Signature]

FD-302-271 72
 SHEET 01 OF 03

D-9-8