

PENNSYLVANIA POWER & LIGHT COMPANY
JOB PERFORMANCE MEASURE
APPROVAL AND ADMINISTRATIVE DATA SHEET

S/RO	00.AD.038.001	0	01/28/04	2.1.20	4.3/4.2
Appl. To	JPM Number	Rev. No.	Date	NUREG 1123 Sys. No.	K/A

Task Title: Complete Aborted Evolution Log

Completed By:	Reviews:
<u>Russ Halm</u>	
Writer	Instructor/Writer
Date	Date

Approval:

Requesting Supv./C.A. Head	Date	Nuclear Trng. Supv.	Date
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Date of Performance:	10 Allowed Time (Min.)	Time Taken (Min.)
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JPM Performed By:

Student Name: _____

Last	First	M.I.	Employee #/S.S. #
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Performance Evaluation: () Satisfactory () Unsatisfactory

Evaluator Name: _____

Signature	Typed or Printed
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Comments: _____

**REQUIRED TASK INFORMATION
JOB PERFORMANCE MEASURE
S/RO 00.AD.038.001**

I. SAFETY CONSIDERATIONS

- A. All Operations personnel are responsible for maintaining their radiation exposure As Low As Reasonably Achievable in accordance with OP-AD-002, Standards for Shift Operations.
- B. All applicable safety precautions shall be taken in accordance with established PPL safety policies and the Safety Rule Book, for example:
 - 1. Whenever any electrical panel is opened for inspection during JPM performance.
 - 2. Whenever entering any plant area where specific safety equipment; such as hearing or eye protection, safety shoes, hardhats, etc; is required and/or posted as being necessary.
- C. If in the judgement of the evaluator any safety issue occurs during the performance of a JPM, the JPM will be terminated until the issue is resolved.

II. REFERENCES

- A. OP-133-001 CHEMICAL ADDITION TO TURBINE BUILDING CHILLED WATER SYSTEM (Rev. 21) filled out up to step 2.4.13.
- B. OP-AD-002 STANDARDS FOR SHIFT OPERATIONS (Rev. 10)
- C. Blank Aborted Evolution Control Log (AECL) Form OP-AD-002-1 (Attachment H)

III. REACTIVITY MANIPULATIONS

This JPM satisfies the requirements of Operational Activity(s):

NONE

IV. TASK CONDITIONS

- A. Unit 1 is in Mode 1
- B. All Plant Equipment required for Mode 1 is in operation
- C. Turbine Building Chilled Water System In Service
- D. The Turbine building NPO is performing a Chemical Addition to Turbine Building Chilled Water System IAW OP-133-001 Section 2.4.
- E. During step 2.4.14 TB Chilled Wtr Chem Add Tank Out valve 188011 could not be opened. Maintenance will not be available until dayshift tomorrow to support opening 188011 valve.
- F. You are the Unit 1 PCOM

V. INITIATING CUE

Your Supervisor directs you complete the Aborted Evolution Control Log and the administrative activities associated with these conditions as prescribed in OP-AD-002 STANDARDS FOR SHIFT OPERATIONS

VI. TASK STANDARD

Aborted Evolution Control Log identifies TB Chilled Wtr Chem Add Tank Out valve 188011 could not be opened. Unit 1 turbine bldg. NPO, and Control Room Supervisor notified to make turnover sheet entries referencing the Aborted evolution. Plant operator turnover sheet entry referencing the Aborted evolution is made.

PERFORMANCE CHECKLIST

Appl. To/JPM No.: 00.AD.038.001

Student Name: _____

Step	Action	Standard	Eval	Comments
	<p><u>EVALUATOR NOTE:</u></p> <ul style="list-style-type: none"> Ensure a copy of OP-AD-002 Section 8.4 and OP-AD-002 Attachment H is available. OP-133-001 2.4 available <p><u>EVALUATOR NOTE:</u></p> <p>To begin this JPM, provide the candidate with the Task Conditions and Initiating Cue Sheet.</p>			
1	Obtain a controlled copy of OP-AD-002	Controlled copy obtained.		
2	Selects the correct section to perform. OP-AD-002 Section 8.4	Determines OP-AD-002 Section 8.4 is appropriate.		
3	<p>Aborted Evolution Control Log (AECL) Form OP-AD-002-1 (Attachment H) shall be completed when:</p> <p>An evolution is aborted prior to completion and will not be resumed prior to shift turnover.</p> <p>Equipment is left in an abnormal lineup and additional information is essential to the on-coming shift.</p>	<p>Determines:</p> <p>Attachment H will need to be completed.</p>		

*Critical Step

#Critical Sequence

PERFORMANCE CHECKLIST

Appl. To/JPM No.: 00.AD.038.001

Student Name: _____

Step	Action	Standard	Eval	Comments
4	Completes Attachment H of OP-AD-002 by performing the following: Completing Line 1	Places: Date, Time, and name in the spaces provide in line 1.		
5	Completing Line 2	Places: System number 133 and system name Turbine Building Chilled Water System in the spaces provide in line 2.		
6	Completing Line 3	Places: Procedure number OP-133-001, Revision 20, step 2.4.13 in the spaces provide in line 3		
*7	Completing Line 4	Places: TB Chilled Wtr Chem Add Tank Out valve 188011 could not be opened in the space provide in line 4		

*Critical Step

#Critical Sequence

PERFORMANCE CHECKLIST

Appl. To/JPM No.: 00.AD.038.001

Student Name: _____

Step	Action	Standard	Eval	Comments
	<p><u>EVALUATOR NOTE:</u> Due to the nature of this JPM, the information provided by the candidate in the next 2 steps may vary from the information scripted in the STANDARD column. Evaluator judgement may need to be applied to information provided by the candidate.</p>			
8	Completing Line 5	<p>Places: NONE in the space provide in line 5</p>		
9	Completing Line 6	<p>Places: Restart procedure beginning at step 2.4.14 in the space provide in line 6</p>		
10	Each AECL activity shall be referenced on the Turnover Sheet of the Operator performing the evolution and be reviewed as part of the Turnover process until such time as the AECL is no longer required, or in control.	<p>Identifies: Turbine Building NPO turnover sheet must have a reference to the aborted evolution, and be reviewed as part of the Turbine building NPO turnover process until such time as the AECL is no longer required.</p>		

*Critical Step

#Critical Sequence

PERFORMANCE CHECKLIST

Appl. To/JPM No.: 00.AD.038.001

Student Name: _____

Step	Action	Standard	Eval	Comments
*11	<p>Informs Turbine building NPO of Administrative requirements for the aborted evolution.</p> <p><u>EVALUATOR CUE:</u> Role-play Turbine building NPO acknowledge the report.</p>	<p>Informs Turbine building NPO to:</p> <ul style="list-style-type: none"> • Reference the aborted evolution IAW the AECL form <p style="text-align: center;">AND</p> <ul style="list-style-type: none"> • Review the AECL as part of the turnover to the oncoming shift 		
12	<p>Each AECL activity shall be referenced on the Unit Supervisor Turnover Sheet and the affected Plant Operator Turnover Sheet. The AECL Form shall be maintained by Unit Supervisor in the Control Room with a copy on the Plant Operator Turnover.</p>	<p>Identifies:</p> <ul style="list-style-type: none"> • Unit 1 Control room Supervisor's turnover sheet and the Unit 1 Plant operator's turnover sheet must have a reference to the aborted evolution. • Original of the AECL is to be maintained by the Unit 1 Control room Supervisor • Copy of the AECL is to be maintained with the Plant Operator Turnover sheet. 		

*Critical Step

#Critical Sequence

PERFORMANCE CHECKLIST

Appl. To/JPM No.: 00.AD.038.001

Student Name: _____

Step	Action	Standard	Eval	Comments
*13	<p>Informs Unit 1 Control room Supervisor of Administrative requirements for the aborted evolution.</p> <p><u>EVALUATOR CUE:</u></p> <p>Role-play Unit 1 Control room Supervisor acknowledge the report.</p> <p><u>EVALUATOR CUE:</u></p> <p>This completes the JPM</p>	<p>Informs Unit 1 Control room Supervisor to:</p> <ul style="list-style-type: none"> • Reference the aborted evolution IAW the AECL form <p style="text-align: center;">AND</p> <ul style="list-style-type: none"> • Review the AECL as part of the turnover to the oncoming shift 		

*Critical Step

#Critical Sequence

ANSWER KEY

Attachment H
OP-AD-002
Revision 10
Page 85 of 89

ABORTED EVOLUTION CONTROL LOG

1. Date TODAY Time NOW Initiated by CANDIDATE NAME/INITIALS
2. System:
Number 133 Name TURBINE BUILDING CHILLED WATER SYSTEM
3. Evolution aborted at:
Procedure Number OP-133-001 Rev. 20 Step 2.4.13
- * 4. Reason procedure stopped or equipment in abnormal alignment.
OP-133-001 step 2.4.14 could NOT be completed.
TB chilled WTR Chem ADD TANK OUT 188011 VALVE
Bound → Will NOT OPEN.
5. Task(s) to accomplish prior to restart/alignment.
Review Prerequisites & Precautions OR NONE
6. Suggestions/cautions for restart/realignment.
when 188011 valve can be opened, continue
with OP-133-001 step 2.4.14 to completion
7. Plant/System realigned to normal configuration or procedure restarted:

DATE

TIME

SIGNATURE

* = Critical Step

TASK CONDITIONS:

- A. Unit 1 is in Mode 1
- B. All Plant Equipment required for Mode 1 is in operation
- C. Turbine Building Chilled Water System In Service
- D. The Turbine building NPO is performing a Chemical Addition to Turbine Building Chilled Water System IAW OP-133-001 Section 2.4.
- E. During step 2.4.14 TB Chilled Wtr Chem Add Tank Out valve 188011 could not be opened. Maintenance will not be available until dayshift tomorrow to support opening 188011 valve.
- F. You are the Unit 1 PCOM

INITIATING CUE

Your Supervisor directs you complete the Aborted Evolution Control Log and the administrative activities associated with these conditions as prescribed in OP-AD-002 STANDARDS FOR SHIFT OPERATIONS

TASK CONDITIONS:

- A. Unit 1 is in Mode 1
- B. All Plant Equipment required for Mode 1 is in operation
- C. Turbine Building Chilled Water System In Service
- D. The Turbine building NPO is performing a Chemical Addition to Turbine Building Chilled Water System IAW OP-133-001 Section 2.4.
- E. During step 2.4.14 TB Chilled Wtr Chem Add Tank Out valve 188011 could not be opened. Maintenance will not be available until dayshift tomorrow to support opening 188011 valve.
- F. You are the Unit 1 PCOM

INITIATING CUE

Your Supervisor directs you complete the Aborted Evolution Control Log and the administrative activities associated with these conditions as prescribed in OP-AD-002 STANDARDS FOR SHIFT OPERATIONS

PENNSYLVANIA POWER & LIGHT COMPANY

JOB PERFORMANCE MEASURE

APPROVAL AND ADMINISTRATIVE DATA SHEET

S/RO 00.AD.037.051 0 01/29/04 2.1.33 3.4/4.0
Appl. To JPM Number Rev. No. Date NUREG 1123 Sys. No. K/A

Task Title: Calculate RCS leakage and determine if leakage is less than Tech. Spec LCO.

Completed By: _____ Reviews: _____

Russ Halm _____
Writer Date Instructor/Writer Date

Approval:

Requesting Supv./C.A. _____
Head Date Nuclear Trng. Supv. Date

Date of Performance: _____
Allowed Time (Min.) 15/25 Time Taken (Min.)

JPM Performed By:

Student Name: _____
Last First M.I. Employee #/S.S. #

Performance Evaluation: () Satisfactory () Unsatisfactory

Evaluator Name: _____
Signature Typed or Printed

Comments:

**REQUIRED TASK INFORMATION
JOB PERFORMANCE MEASURE
S/RO 00.AD.037.051**

I. SAFETY CONSIDERATIONS

- A. All Operations personnel are responsible for maintaining their radiation exposure As Low As Reasonably Achievable in accordance with OP-AD-002, Standards for Shift Operations.
- B. All applicable safety precautions shall be taken in accordance with established PPL safety policies and the Safety Rule Book, for example:
 - 1. Whenever any electrical panel is opened for inspection during JPM performance.
 - 2. Whenever entering any plant area where specific safety equipment; such as hearing or eye protection, safety shoes, hardhats, etc; is required and/or posted as being necessary.
- C. If in the judgement of the evaluator any safety issue occurs during the performance of a JPM, the JPM will be terminated until the issue is resolved.

II. REFERENCES

SO-100-006 SHIFTLY SURVEILLANCE OPERATING LOG (Revision 44)
SO-100-006 SHIFTLY SURVEILLANCE OPERATING LOG Attachments F and M filled out for the 2100 hour surveillance

III. REACTIVITY MANIPULATIONS

This JPM satisfies the requirements of Operational Activity(s):

NONE

IV. TASK CONDITIONS

- A. Unit 1 is at 100% power. Sometime during the past 24 hours, Drywell sump inleakage began increasing.
- B. It is 0900 hours and time to perform SO-100-006 SHIFTLY SURVEILLANCE OPERATING LOGS
- C. Total level increases on LR/FR-16103 for Sump A are 109 in the last 12 hours
- D. Total level increases on LR/FR-16103 for Sump B are 99 in the last 12 hours
- E. Total percent rise in LR/FR-16103 forwarded over the last 24 hours is 268%

V. INITIATING CUE

Your supervisor directs you to Determine RCS leakage by performing the Drywell Floor Drain inleakage calculation IAW with SO-100-006 SHIFTLY SURVEILLANCE OPERATING LOG and determine if any Tech Spec limits are being exceeded. Report the results of the calculation and determination to your supervisor.

VI. TASK STANDARD

Unidentified RCS leakage is determined to be 5.77 gpm. A determination is made that RCS leakage is in excess of Tech Spec allowable value of ≤ 5 gpm.

PERFORMANCE CHECKLIST

Appl. To/JPM No.: 00.AD.037.051

Student Name: _____

Step	Action	Standard	Eval	Comments
	<p><u>EVALUATOR NOTE:</u></p> <p>To begin this JPM, provide the candidate with the Task Conditions and Initiating Cue Sheet Attachments F and M filled out for the 2100 hour surveillance.</p>			
1	Obtain a controlled copy of SO-100-006 SHIFTLY SURVEILLANCE OPERATING LOG	Controlled copy obtained.		
2	Selects the correct section to perform.	Selects item A21 on page 25 of 136		
3	Determines Attachment F and L will need to be completed	Determines Attachment F and L will need to be completed		
	<p><u>EVALUATOR NOTE:</u></p> <p>The candidate may refer to Attachments E and M for the instructions on how to complete Attachments F and L. This JPM is written to follow this guidance. The candidate does not need to use Attachments E and M to complete the JPM, rather the candidate need only correctly complete Attachments F and L to successfully complete this JPM.</p>			
4	Refers to Attachments E and M for instructions on completing Attachments F and L.	Locates Attachments E and M.		

*Critical Step

#Critical Sequence

PERFORMANCE CHECKLIST

Appl. To/JPM No.: 00.AD.037.051

Student Name: _____

Step	Action	Standard	Eval	Comments
5	Determine total number of level increases from the last 12 hour period on DRWL SUMPS FLOW & LVL LR/FR-16103 (Point 1) (Alternate: Computer Pt. RLL004Z) including increase that occurs coincident with start of each pumpdown (indicated by a sharp drop in level; level spike may not be evident).	Places 109 in the space provided on SO-100-006 Attachment F. (item b)		
6	Determine total number of level increases for the last 12 hour period on DRWL SUMPS FLOW & LVL RECORDER LR/FR-16103 (Alternate: Computer Pt. RLL005Z) (Point 2) including increase that occurs coincident with start of each pumpdown (indicated by a sharp drop in level; level spike may not be evident).	Places 99 in the space provided on SO-100-006 Attachment F. (item c)		
7	Compute total gallons accumulated for DRWL Sump A. (Total Level Increases) (19 gal/level) = total gallons.	Places 2071 in the space provided on SO-100-006 Attachment F. (item d) (109 X 19=2071)		
8	Compute total gallons accumulated for DRWL Sump B. (Total Level Increases) (21 gal/level) = total gallons.	Places 2079 in the space provided on SO-100-006 Attachment F. (item e) (99 X 21=2079)		

*Critical Step

#Critical Sequence

PERFORMANCE CHECKLIST

Appl. To/JPM No.: 00.AD.037.051

Student Name: _____

Step	Action	Standard	Eval	Comments
	<p><u>EVALUATOR NOTE:</u> Total elapsed time in minutes for the last 12 hour time period on LR/FR-16103 (Alternate: Computer Pts. RLL004Z/RLL005Z) (720 mins).</p>			
9	<p>Determine average Inleakage for DRWL Sump A (total gallons)/(elapsed time in minutes) = average inleakage.</p>	<p>Places 2.88 in the space provided on SO-100-006 Attachment F. (item g)</p> <p>(2071/720=2.88)</p>		
	<p><u>EVALUATOR NOTE:</u> 0.02 needed in the next step was provided as a carry-over item in the initial conditions.</p>			
10	<p>24 hour previous average inleakage recorded from previous day's worksheet for DRWL Sump A.</p>	<p>Places 0.02 in the space provided on SO-100-006 Attachment F. (item h)</p>		
11	<p>Determine the change in inleakage from the last time the inleakage was determined. (current inleakage) - (previous inleakage) = change (Δ) in inleakage.</p>	<p>Places 2.86 in the space provided on SO-100-006 Attachment F. (item i)</p> <p>(2.88 - 0.02=2.86)</p>		

*Critical Step

#Critical Sequence

PERFORMANCE CHECKLIST

Appl. To/JPM No.: 00.AD.037.051

Student Name: _____

Step	Action	Standard	Eval	Comments
12	Determine average inleakage for DRWL Sump B (total gallons)/(elapsed time in minutes) = average inleakage. <u>EVALUATOR NOTE:</u> 0.03 needed in the next step was provided as a carry-over item in the initial conditions.	Places 2.89 in the space provided on SO-100-006 Attachment F. (item j) (2079/720=2.89)		
13	24 hour previous average inleakage recorded from previous day's worksheet for DRWL Sump B.	Places 0.03 in the space provided on SO-100-006 Attachment F. (item k)		
14	Determine change in inleakage from the last time the inleakage was determined. (current inleakage) - (previous inleakage) = change (Δ) in inleakage.	Places 2.86 in the space provided on SO-100-006 Attachment F. (item l) (2.89-0.03=2.86)		
15	Determine the total average inleakage (inleakage Sump A) + (inleakage Sump B). < 5 gpm required.	Places 5.77 in the space provided on SO-100-006 Attachment F. (item m) (2.88 + 2.89 = 5.77)		
*16	Determine the total change in inleakage from the last time the inleakage was determined (delta inleakage Sump A) + (delta inleakage Sump B). < 2 gpm/24 hours required.	Places 5.72 in the space provided on SO-100-006 Attachment F. (item n) (2.86 + 2.86 = 5.72)		

*Critical Step

#Critical Sequence

PERFORMANCE CHECKLIST

Appl. To/JPM No.: 00.AD.037.051

Student Name: _____

Step	Action	Standard	Eval	Comments
17	<p>After 0900 average inleakage calculation, Enter average inleakage recorded for both 2100 and 0900 in steps g. and j. to next day's worksheet to be used as 24 hour previous values in steps h. and k. for 2100 and 0900, respectively.</p> <p><u>EVALUATOR CUE:</u></p> <p>If necessary inform the candidate that it is not necessary to perform this transposition for this JPM.</p>			
18	<p>Compute total gallons accumulated for DRWL Sump A. (Add total from each 12 hour period from Attachment F)</p>	<p>Places 2565 in the space provided on SO-100-006 Attachment M. (item 1a)</p> <p>(494 + 2071=2565)</p>		
19	<p>Compute total gallons accumulated for DRWL Sump B. (Add total from each 12 hour period from Attachment F)</p>	<p>Places 2394 in the space provided on SO-100-006 Attachment M. (item 1b)</p> <p>(315 + 2079=2394)</p>		
20	<p>Determine total elapsed time in minutes for 24 hour period (1440 minutes).</p>			
21	<p>Determine average inleakage for DRWL Sump A.</p> <p>(total gallons)/(elapsed time in minutes) = average inleakage</p>	<p>Places 1.78 in the space provided on SO-100-006 Attachment M. (item 1d)</p> <p>(2565/1440=1.78)</p>		

*Critical Step

#Critical Sequence

PERFORMANCE CHECKLIST

Appl. To/JPM No.: 00.AD.037.051

Student Name: _____

Step	Action	Standard	Eval	Comments
22	Determine average inleakage for DRWL Sump B. (total gallons)/(elapsed time in minutes) = average inleakage	Places 1.66 in the space provided on SO-100-006 Attachment M. (item 1e) (2394/1440=1.66)		
23	Determine total percent from last 24 hr time mark on DRWL EQUIP DRN TANK LR/FR-16103 (Alternate: Computer Pt. RLL006Z).	Places 268 in the space provided on SO-100-006 Attachment M. (item 2a)		
24	Compute total gallons accumulated on LEVEL RECORDER LR/FR-16103 (Alternate: Computer Pt. RLL006Z). (Total %) (8.5 gal/%) = total gallons Example: (380%) (8.5 gal) = 3230 gallons	Places 2278 in the space provided on SO-100-006 Attachment M. (item 2b) (268 X 8.5=2278)		
25	Determine total elapsed time in minutes from last 24 hr time mark on LEVEL RECORDER LR/FR-16103 (Alternate: Computer Pt. RLL006Z) (1440 minutes).			
26	Determine average inleakage recorded on LEVEL RECORDER LR/FR-16103 (Alternate: Computer Pt. RLL006Z) (total gallons)/(elapsed time in minutes) = average inleakage.	Places 1.58 in the space provided on SO-100-006 Attachment M. (item 2d) (2278/1440=1.58)		
27	Compute TOTAL DRYWELL LEAKAGE Record average leakrate from step 1.d.	Places 1.78 in the space provided on SO-100-006 Attachment M. (item 3a)		

*Critical Step

#Critical Sequence

PERFORMANCE CHECKLIST

Appl. To/JPM No.: 00.AD.037.051

Student Name: _____

Step	Action	Standard	Eval	Comments
28	Record average leakrate from step 1.e.	Places 1.66 in the space provided on SO-100-006 Attachment M. (item 3b)		
29	Record average leakrate from step 2.d.	Places 1.58 in the space provided on SO-100-006 Attachment M. (item 3c)		
30	<p>Sum total leakrate (a+b+c) required <25 gpm.</p> <p><u>EVALUATOR CUE:</u></p> <p>If necessary, remind candidate that they were asked to report the results to the supervisor.</p> <p><u>EVALUATOR NOTE:</u></p> <p>The total leakage is greater than 2 gpm in 24 hours, however the Tech Spec is in a 4 hour period. Therefore more information and calculation would be needed to determine if this Tech Spec has been exceeded. It is not necessary for this JPM to perform this additional assessment.</p>	<p>Places 5.02 in the space provided on SO-100-006 Attachment M. (item 3d)</p> <p>(1.78 + 1.66 + 1.58 = 5.02)</p>		

*Critical Step

#Critical Sequence

PERFORMANCE CHECKLIST

Appl. To/JPM No.: 00.AD.037.051

Student Name: _____

Step	Action	Standard	Eval	Comments
31	<p>Compares calculated values to the ACCEPTABLE values listed in item A21 of SO-100-006 SHIFTLY SURVEILLANCE OPERATING LOG.</p>	<p>Compares calculated values to the ACCEPTABLE values listed in item A21 of SO-100-006 SHIFTLY SURVEILLANCE OPERATING LOG.</p> <p>AND</p> <p>Determines that the 5.77 gpm leakrate calculated in step m of attachment F is GREATER Than Tech Spec allowable value of ≤ 5 gpm.</p>		
*32	<p>Report the results of the calculation and determination.</p> <p><u>EVALUATOR CUE:</u></p> <p>Role-play Control room supervisor and acknowledge the report.</p> <p><u>EVALUATOR CUE:</u></p> <p>This completes the JPM for the ROs ONLY</p>	<p>Reports Leakage rate is greater than the ≤ 5 gpm limit.</p> <p>[Tech Spec 3.4.4.b RCS]</p>		

*Critical Step

#Critical Sequence

PERFORMANCE CHECKLIST

Appl. To/JPM No.: 00.AD.037.051

Student Name: _____

Step	Action	Standard	Eval	Comments
33	<p><u>EVALUATOR CUE:</u> <u>FOR SRO CANDIDATES ONLY</u> Give the SRO candidate the second cue sheet that addresses the Tech Spec LCO for RCS Leakage</p> <p>Obtains a copy of the Tech Specs</p>	References Tech Spec 3.4.4.b		
*34	<p><u>EVALUATOR CUE:</u> It may be necessary to ask the candidate what additional actions would be required IF the RCS leakage cannot be reduced below 5 gpm Within 4 hours</p> <p>Determines required actions</p>	<p>Determines the following actions will be required: Restore leakage to below 5 gpm Within 4 hours</p> <p>If leakage cannot be reduced to below 5 gpm then: Enter MODE 3 within 12 hours AND MODE 4 within 36 hours</p>		

*Critical Step

#Critical Sequence

PERFORMANCE CHECKLIST

Appl. To/JPM No.: 00.AD.037.051

Student Name: _____

Step	Action	Standard	Eval	Comments
	<u>EVALUATOR CUE:</u> This completes the JPM.			

*Critical Step

#Critical Sequence

ANSWER Key

Attachment F
SO-100-006
Revision 43
Page 119 of 136

DRYWELL FLOOR DRAIN INLEAKAGE CALCULATION WORKSHEET (1) (ADHERENCE LEVEL - STEP-BY-STEP)

NOTE:	Circle Alternate if used.		
a.	Time	<u>2100</u>	<u>0900</u>
b.	Total Level increases LR/FR-16103 Sump A (Alternate: Computer Pt. RLL004Z)	<u>26</u>	<u>109</u>
c.	Total Level increases LR/FR-16103 Sump B (Alternate: Computer Pt. RLL005Z)	<u>15</u>	<u>99</u>
d.	Total Gallons DRWL SUMP A (Total Levels) x (19 gal/level)	<u>494</u> gal	<u>2071</u> gal
e.	Total Gallons DRWL SUMP B (Total levels) x (21 gal/level)	<u>315</u> gal	<u>2079</u> gal
f.	Total elapsed time	<u>720</u> min	<u>720</u> min
g.	Average inleakage DRWL SUMP A (total gal)/(elapsed time) (d/f)	<u>.69</u> gpm	<u>2.88</u> gpm
h.	Average inleakage from previous day (24 hours previous) for DRWL SUMP A	<u>.02</u> gpm	<u>.02</u> gpm
i.	Delta inleakage DRWL SUMP A (g-h)	<u>.67</u> gpm	<u>2.86</u> gpm
j.	Average inleakage DRWL SUMP B (total gal)/(elapsed time) (e/f)	<u>.44</u> gpm	<u>2.89</u> gpm
k.	Average inleakage from previous day (24 hours previous) for DRWL SUMP B	<u>.03</u> gpm	<u>.03</u> gpm
l.	Delta inleakage for DRWL SUMP B (j-k)	<u>.41</u> gpm	<u>2.86</u> gpm
m.	Total average inleakage (g+j) < 5 gpm required	<u>1.13</u> gpm	<u>5.77</u> gpm
n.	Total delta inleakage (i+l) < 2 gpm/24 hours required	<u>1.08</u> gpm	<u>5.72</u> gpm

ANSWER KEY

DRYWELL LEAKAGE CALCULATION WORKSHEET

(ADHERENCE LEVEL - STEP-BY-STEP)

Attachment M
SO-100-006
Revision 43
Page 130 of 136

1. DRYWELL FLOOR DRAIN LEAKAGE (Unidentified Leakage)

2100 0900
to to
2100 0900

NOTE: Leakage is calculated for the previous 24 hour period.

- a. Total gallons DRWL Sump A (From Attachment F) 900 gal 2565 gal
- b. Total gallons DRWL Sump B (From Attachment F) 200 gal 2394 gal
- c. Total elapsed time for 24 hr period 1440 min 1440 min
- d. Average inleakage DRWL Sump A (Total gallons)/(elapsed time) .63 gpm 1.78 gpm
- e. Average inleakage DRWL Sump B (Total gallons)/(elapsed time) .14 gpm 1.66 gpm

2. DRYWELL EQUIPMENT DRAIN LEAKAGE (Identified Leakage)

NOTE: **Circle** Alternate if used.

- a. Total percent (Primary: LR/FR-16103) (Alternate: Computer Pt. RLL006Z) 267 % 268 %
- b. Total gallons (Total percent) (8.5 gal/%) 2269.5 gal 2278 gal
- c. Total elapsed time for 24 hr period 1440 min 1440 min
- d. Average inleakage (Total gallons)/(elapsed time) 1.58 gpm 1.58 gpm

3. TOTAL DRYWELL LEAKAGE

- a. Drywell Floor Drain (Step 1.d) (Unidentified) .63 gpm 1.78 gpm
- b. Drywell Floor Drain (Step 1.e) (Unidentified) .14 gpm 1.66 gpm
- c. Drywell Equipment Drain (Step 2.d) (Identified) 1.58 gpm 1.58 gpm
- d. Total leakrate (a+b+c) required \leq 25 gpm 2.35 gpm 5.02 gpm

SRO ONLY

TASK CONDITIONS

Unit 1 is in Mode 1.

- A. SO-100-006 SHIFTLY SURVEILLANCE OPERATING LOG the unidentified RCS Leakage was determined to be 5.8 gpm.

INITIATING CUE

What Technical Specifications action(s), including time limits, is/are required as a result of this determination?

SRO ONLY

TASK CONDITIONS

Unit 1 is in Mode 1.

- A. SO-100-006 SHIFTLY SURVEILLANCE OPERATING LOG the unidentified RCS Leakage was determined to be 5.8 gpm.

INITIATING CUE

What Technical Specifications action(s), including time limits, is/are required as a result of this determination?

TASK CONDITIONS

- A. Unit 1 is at 100% power. Sometime during the past 24 hours, Drywell sump inleakage began increasing.
- B. It is 0900 hours and time to perform SO-100-006 SHIFTLY SURVEILLANCE OPERATING LOGS
- C. Total level increases on LR/FR-16103 for Sump A are 109 in the last 12 hours
- D. Total level increases on LR/FR-16103 for Sump B are 99 in the last 12 hours
- E. Total percent rise in LR/FR-16103 forwarded over the last 24 hours is 268%

INITIATING CUE

Your supervisor directs you to Determine RCS leakage by performing the Drywell Floor Drain inleakage calculation IAW with SO-100-006 SHIFTLY SURVEILLANCE OPERATING LOG and determine if any Tech Spec limits are being exceeded. Report the results of the calculation and determination to your supervisor.

TASK CONDITIONS

- A. Unit 1 is at 100% power. Sometime during the past 24 hours, Drywell sump inleakage began increasing.
- B. It is 0900 hours and time to perform SO-100-006 SHIFTLY SURVEILLANCE OPERATING LOGS
- C. Total level increases on LR/FR-16103 for Sump A are 109 in the last 12 hours
- D. Total level increases on LR/FR-16103 for Sump B are 99 in the last 12 hours
- E. Total percent rise in LR/FR-16103 forwarded over the last 24 hours is 268%

INITIATING CUE

Your supervisor directs you to Determine RCS leakage by performing the Drywell Floor Drain inleakage calculation IAW with SO-100-006 SHIFTLY SURVEILLANCE OPERATING LOG and determine if any Tech Spec limits are being exceeded. Report the results of the calculation and determination to your supervisor.

DRYWELL FLOOR DRAIN INLEAKAGE CALCULATION WORKSHEET (1)
 (ADHERENCE LEVEL - STEP-BY-STEP)

NOTE: Circle Alternate if used.

a.	Time	<u>2100</u>	<u>0900</u>
b.	Total Level increases LR/FR-16103 Sump A (Alternate: Computer Pt. RLL004Z)	<u>26</u>	_____
c.	Total Level increases LR/FR-16103 Sump B (Alternate: Computer Pt. RLL005Z)	<u>15</u>	_____
d.	Total Gallons DRWL SUMP A (Total Levels) x (19 gal/level)	<u>494</u> gal	_____ gal
e.	Total Gallons DRWL SUMP B (Total levels) x (21 gal/level)	<u>315</u> gal	_____ gal
f.	Total elapsed time	<u>720 min</u>	<u>720 min</u>
g.	Average inleakage DRWL SUMP A (total gal)/(elapsed time) (d/f)	<u>.69</u> gpm	_____ gpm
h.	Average inleakage from previous day (24 hours previous) for DRWL SUMP A	<u>.02</u> gpm	<u>.02</u> gpm
i.	Delta inleakage DRWL SUMP A (g-h)	<u>.67</u> gpm	_____ gpm
j.	Average inleakage DRWL SUMP B (total gal)/(elapsed time) (e/f)	<u>.44</u> gpm	_____ gpm
k.	Average inleakage from previous day (24 hours previous) for DRWL SUMP B	<u>.03</u> gpm	<u>.03</u> gpm
l.	Delta inleakage for DRWL SUMP B (j-k)	<u>.41</u> gpm	_____ gpm
m.	Total average inleakage (g+j) < 5 gpm required	<u>1.13</u> gpm	_____ gpm
n.	Total delta inleakage (i+l) < 2 gpm/24 hours required	<u>1.08</u> gpm	_____ gpm

DRYWELL LEAKAGE CALCULATION WORKSHEET

(ADHERENCE LEVEL - STEP-BY-STEP)

Attachment M
SO-100-006
Revision 43
Page 130 of 136

1. DRYWELL FLOOR DRAIN LEAKAGE (Unidentified Leakage) 2100 0900
to to
2100 0900

NOTE: Leakage is calculated for the previous 24 hour period.

- a. Total gallons DRWL Sump A (From Attachment F) 900 gal _____ gal
- b. Total gallons DRWL Sump B (From Attachment F) 200 gal _____ gal
- c. Total elapsed time for 24 hr period 1440 min 1440 min
- d. Average inleakage DRWL Sump A (Total gallons)/(elapsed time) .63 gpm _____ gpm
- e. Average inleakage DRWL Sump B (Total gallons)/(elapsed time) .14 gpm _____ gpm

2. DRYWELL EQUIPMENT DRAIN LEAKAGE (Identified Leakage)

NOTE: **Circle** Alternate if used.

- a. Total percent (Primary: LR/FR-16103) , (Alternate: Computer Pt. RLL006Z) 267 % _____ %
- b. Total gallons (Total percent) (8.5 gal/%) 2269.5 gal _____ gal
- c. Total elapsed time for 24 hr period 1440 min 1440 min
- d. Average inleakage (Total gallons)/(elapsed time) 1.58 gpm _____ gpm

3. TOTAL DRYWELL LEAKAGE

- a. Drywell Floor Drain (Step 1.d) (Unidentified) .63 gpm _____ gpm
- b. Drywell Floor Drain (Step 1.e) (Unidentified) .14 gpm _____ gpm
- c. Drywell Equipment Drain (Step 2.d) (Identified) 1.58 gpm _____ gpm
- d. Total leakrate (a+b+c) required ≤ 25 gpm 2.35 gpm _____ gpm

PENNSYLVANIA POWER & LIGHT COMPANY
JOB PERFORMANCE MEASURE
APPROVAL AND ADMINISTRATIVE DATA SHEET

S/RO	00.SO.003.051	0	02/17/04	2.2.12	3.0/3.4
Appl. To	JPM Number	Rev. No.	Date	NUREG 1123 Sys. No.	K/A

Task Title: Determine Jet Pump Operability

Completed By:	Reviews:
Russ Halm	
Writer	Instructor/Writer
Date	Date

Approval:

Requesting Supv./C.A. Head	Date	Nuclear Trng. Supv.	Date
----------------------------	------	---------------------	------

Date of Performance:	30 Allowed Time (Min.)	Time Taken (Min.)
----------------------	---------------------------	-------------------

JPM Performed By: _____

Student Name: _____

Last	First	M.I.	Employee #/S.S. #
------	-------	------	-------------------

Performance Evaluation: () Satisfactory () Unsatisfactory

Evaluator Name: _____

Signature	Typed or Printed
-----------	------------------

Comments: _____

**REQUIRED TASK INFORMATION
JOB PERFORMANCE MEASURE
S/RO 00.SO.003.051**

I. SAFETY CONSIDERATIONS

- A. All Operations personnel are responsible for maintaining their radiation exposure As Low As Reasonably Achievable in accordance with OP-AD-002, Standards for Shift Operations.
- B. All applicable safety precautions shall be taken in accordance with established PPL safety policies and the Safety Rule Book, for example:
 - 1. Whenever any electrical panel is opened for inspection during JPM performance.
 - 2. Whenever entering any plant area where specific safety equipment; such as hearing or eye protection, safety shoes, hardhats, etc; is required and/or posted as being necessary.
- C. If in the judgement of the evaluator any safety issue occurs during the performance of a JPM, the JPM will be terminated until the issue is resolved.

II. REFERENCES

SO-100-007 Daily Surveillance Log (Revision 37)

III. REACTIVITY MANIPULATIONS

This JPM satisfies the requirements of Operational Activity(s):

NONE

IV. TASK CONDITIONS

- A. Unit 1 is operating at 100% power.
- B. Both Reactor Recirc pumps and Loops are in operation.
- C. The necessary data to perform the daily surveillance for Recirc pump and jet pump operability has been taken and recorded on Attachment C "PERFORMANCE DATA SHEET RECIRCULATION SYSTEM DUAL LOOP" of SO-100-007, "DAILY SURVEILLANCE LOG".

V. INITIATING CUE

Using the data provided on Attachment C "PERFORMANCE DATA SHEET RECIRCULATION SYSTEM DUAL LOOP" of SO-100-007, "DAILY SURVEILLANCE LOG", complete the remaining items in Attachment C "PERFORMANCE DATA SHEET RECIRCULATION SYSTEM DUAL LOOP" of SO-100-007, "DAILY SURVEILLANCE LOG" and determine Recirc pump and jet pump operability IAW Item 1 of SO-100-007, "DAILY SURVEILLANCE LOG". Report the results of the surveillance to your supervisor.

VI. TASK STANDARD

Recirculation pumps declared OPERABLE; Jet pumps declared INOPERABLE

PERFORMANCE CHECKLIST

Appl. To/JPM No.: 00.SO.003.051

Student Name: _____

Step	Action	Standard	Eval	Comments
	<p><u>EVALUATOR NOTE:</u></p> <ul style="list-style-type: none"> • Provide the candidate with the filled-out Attachment C of SO-100-007. 			
1	Obtain a controlled copy of SO-100-007 Daily Surveillance Log.	Controlled copy obtained.		
2	Selects the correct section to perform.	Selects Item 1		
3	<p>To determine Recirc Pumps/Jet Pumps and Flow Biased Simulated Thermal Power-Upscale (RPS) OPERABLE, complete applicable attachments</p> <p>If in dual loop operation, complete attachment C for Recirc Pumps and Jet Pumps</p>	Determines attachment C is applicable		
4	Refers to Attachment C			

*Critical Step

#Critical Sequence

PERFORMANCE CHECKLIST

Appl. To/JPM No.: 00.SO.003.051

Student Name: _____

Step	Action	Standard	Eval	Comments
*5	Recirc pumps operable if loop jet pump flow mismatch maintained within a or b: Enter N/A for item that does not apply. a. 5 Mlbm/hr with core flow \geq 75 Mlbm/hr b. 10 Mlbm/hr with core flow \leq 75 Mlbm/hr	On Attachment C PERFORMANCE DATA SHEET RECIRCULATION SYSTEM DUAL LOOP Compares line g to h Determines that the mismatch between Loop A and Loop B is 1 Mlbm/hr Records: 1 Mlbm/hr on SR 3.4.1.1 line a Records: N/A on SR 3.4.1.1 line b Determines Recirc Pumps are operable Circles YES and initials Confirm on SR 3.4.1.1 line Records: SAT on Recirc Pumps line of item 1 of SO-100-007 Daily Surveillance Log Attachment A		

*Critical Step

#Critical Sequence

PERFORMANCE CHECKLIST

Appl. To/JPM No.: 00.SO.003.051

Student Name: _____

Step	Action	Standard	Eval	Comments
6	<p><u>EVALUATOR NOTE:</u> If any of these conditions exist, or If any parameter differs by than more than 5% of established value, candidate should notify Reactor Engineering.</p> <p>Notifies Reactor Engineering directly that surveillance parameters differ from established values by more than 5% or notifies SRO to contact Reactor Engineering.</p> <p><u>EVALUATOR CUE:</u> Role-play Reactor Engineering or SRO and acknowledge the report.</p>	<p>Contacts Reactor Engineering directly Notifies that surveillance parameters differ from established values by more than 5% .</p> <p style="text-align: center;">OR</p> <p>Notifies SRO to contact Reactor Engineering.</p>		

*Critical Step

#Critical Sequence

PERFORMANCE CHECKLIST

Appl. To/JPM No.: 00.SO.003.051

Student Name: _____

Step	Action	Standard	Eval	Comments
7	<p>When recirc pumps operating with flow within limits of a or b above, jet pumps operable if no two (2) following conditions exist simultaneously:</p> <p>Recirculation loop drive flow versus recirculation generator speed differs > 10% from established patterns. (Plot applicable performance data on figures 1 and 2 of this attachment)</p>	<p>On Figure 1 RECIRC PUMP A FLOW VS. SPEED TWO LOOP OPERATION of ATTACHMENT C</p> <p>Plots a point corresponding to a: RECIRC GENERATOR A SPEED (SI-14032A) of 87%</p> <p>AND</p> <p>RECIRC PUMP A FLOW (KGPM) of 38 KGPM</p> <p>On Figure 2 RECIRC PUMP B FLOW VS. SPEED TWO LOOP OPERATION of ATTACHMENT C</p> <p>Plots a point corresponding to a: RECIRC GENERATOR B SPEED (SI-14032B) of 88%</p> <p>AND</p> <p>RECIRC PUMP B FLOW (KGPM) of 33 KGPM</p> <p>Circles YES and initials Confirm on SR 3.4.2.1 line a</p>		

*Critical Step

#Critical Sequence

PERFORMANCE CHECKLIST

Appl. To/JPM No.: 00.SO.003.051

Student Name: _____

Step	Action	Standard	Eval	Comments
8	<p>Recirculation loop drive flow versus total core flow differs > 10% from established patterns. (Plot applicable performance data on Figures 3 and 4 of this attachment)</p> <p><u>EVALUATOR NOTE:</u> Perform only if a or b above fail. Record applicable data on pages 3 and 4 of this attachment</p>	<p>On Figure 3 TOTAL CORE FLOW VS. RECIRC PUMP A FLOW TWO LOOP OPERATION of ATTACHMENT C</p> <p>Plots a point corresponding to a: RECIRC PUMP A FLOW (KGPM) (FR-B31-1R614) of 38 KGPM</p> <p>AND</p> <p>TOTAL CORE FLOW MLB/HR of 92 MLB/HR</p> <p>On Figure 4 TOTAL CORE FLOW VS. RECIRC PUMP B FLOW TWO LOOP OPERATION of ATTACHMENT C</p> <p>Plots a point corresponding to a: RECIRC PUMP A FLOW (KGPM) (FR-B31-1R614) of 33 KGPM</p> <p>AND</p> <p>TOTAL CORE FLOW MLB/HR of 92 MLB/HR</p> <p>Circles NO and initials Confirm on SR 3.4.2.1 line b</p>		

*Critical Step

#Critical Sequence

PERFORMANCE CHECKLIST

Appl. To/JPM No.: 00.S0.003.051

Student Name: _____

Step	Action	Standard	Eval	Comments
9	Calculates LOOP A JET PUMP ΔP PERCENT DEVIATION FROM THE AVERAGE to be used in Plotting applicable performance data on figure 1 of attachment I	<p>Records the following data on Attachment C LOOP A JET PUMP ΔP PERCENT DEVIATION FROM THE AVERAGE:</p> <ol style="list-style-type: none"> 1. JP11_34_(JP11 - A) ÷ A X 100 = <u>-0.87</u> 2. JP12_35_(JP12 - A) ÷ A X 100 = <u>2.04</u> 3. JP13_34_(JP13 - A) ÷ A X 100 = <u>-0.87</u> 4. JP14_35_(JP14 - A) ÷ A X 100 = <u>2.04</u> 5. JP15_35_(JP15 - A) ÷ A X 100 = <u>2.04</u> 6. JP16_35_(JP16 - A) ÷ A X 100 = <u>2.04</u> 7. JP17_34_(JP17 - A) ÷ A X 100 = <u>-0.87</u> 8. JP18_34_(JP18 - A) ÷ A X 100 = <u>-0.87</u> 9. JP19_35_(JP19 - A) ÷ A X 100 = <u>2.04</u> 10. JP20_32_(JP20 - A) ÷ A X 100 = <u>-6.71</u> <p>A = <u>343</u> X 0.1 = <u>34.3</u> (Sum of ΔP%) JP11 thru 20</p>		

*Critical Step

#Critical Sequence

PERFORMANCE CHECKLIST

Appl. To/JPM No.: 00.SO.003.051

Student Name: _____

Step	Action	Standard	Eval	Comments
10	Calculates LOOP B JET PUMP ΔP PERCENT DEVIATION FROM THE AVERAGE to be used in Plotting applicable performance data on figure 2 of attachment I	<p>Records the following data on Attachment C LOOP B JET PUMP ΔP PERCENT DEVIATION FROM THE AVERAGE:</p> <ol style="list-style-type: none"> 1. JP1_39_(JP1 - A) ÷ A X 100 = <u>3.17</u> 2. JP2_39_(JP2 - A) ÷ A X 100 = <u>3.17</u> 3. JP3_37_(JP3 - A) ÷ A X 100 = <u>-2.12</u> 4. JP4_39_(JP4 - A) ÷ A X 100 = <u>3.17</u> 5. JP5_39_(JP5 - A) ÷ A X 100 = <u>3.17</u> 6. JP6_39_(JP6 - A) ÷ A X 100 = <u>3.17</u> 7. JP7_30_(JP7 - A) ÷ A X 100 = <u>-20.63</u> 8. JP8_39_(JP8 - A) ÷ A X 100 = <u>3.17</u> 9. JP9_39_(JP9 - A) ÷ A X 100 = <u>3.17</u> 10. JP10_38_(JP10 - A) ÷ A X 100 = <u>.53</u> <p>A = <u>378</u> X 0.1 = <u>37.8</u> (Sum of ΔP%) JP1 thru 10</p>		

*Critical Step

#Critical Sequence

PERFORMANCE CHECKLIST

Appl. To/JPM No.: 00.SO.003.051

Student Name: _____

Step	Action	Standard	Eval	Comments
11	Each jet pump to lower plenum differential pressure differs by > 20% from the established patterns, (Plot applicable performance data on figures 1 and 2 of attachment I	<p>On Figure 1 TWO LOOP JET PUMP DISTRIBUTION LOOP A of ATTACHMENT I</p> <p>Plots the following points:</p> <p>JP11 and -0.87 % DEVIATION FROM THE MEAN DELTA P VALUE</p> <p>JP12 and 2.04 % DEVIATION FROM THE MEAN DELTA P VALUE</p> <p>JP13 and -0.87 % DEVIATION FROM THE MEAN DELTA P VALUE</p> <p>JP14 and 2.04 % DEVIATION FROM THE MEAN DELTA P VALUE</p> <p>JP15 and 2.04 % DEVIATION FROM THE MEAN DELTA P VALUE</p> <p>JP16 and 2.04 % DEVIATION FROM THE MEAN DELTA P VALUE</p> <p>JP17 and -0.87 % DEVIATION FROM THE MEAN DELTA P VALUE</p> <p>JP18 and -0.87 % DEVIATION FROM THE MEAN DELTA P VALUE</p> <p>JP19 and 2.04 % DEVIATION FROM THE MEAN DELTA P VALUE</p> <p>JP20 and -6.71 % DEVIATION FROM THE MEAN DELTA P VALUE</p> <p>Determines that all points are within <u>±20%</u> from the established patterns</p>		

*Critical Step

#Critical Sequence

PERFORMANCE CHECKLIST

Appl. To/JPM No.: 00.SO.003.051

Student Name: _____

Step	Action	Standard	Eval	Comments
12		<p>On Figure 2 TWO LOOP JET PUMP DISTRIBUTION LOOP B of ATTACHMENT I</p> <p>Plots the following points:</p> <p>JP1 and 3.17 % DEVIATION FROM THE MEAN DELTA P VALUE</p> <p>JP2 and 3.17 % DEVIATION FROM THE MEAN DELTA P VALUE</p> <p>JP3 and -2.12 % DEVIATION FROM THE MEAN DELTA P VALUE</p> <p>JP4 and 3.17 % DEVIATION FROM THE MEAN DELTA P VALUE</p> <p>JP5 and 3.17 % DEVIATION FROM THE MEAN DELTA P VALUE</p> <p>JP6 and 3.17 % DEVIATION FROM THE MEAN DELTA P VALUE</p> <p>JP7 and -20.63 % DEVIATION FROM THE MEAN DELTA P VALUE</p> <p>JP8 and 3.17 % DEVIATION FROM THE MEAN DELTA P VALUE</p> <p>JP9 and 3.17 % DEVIATION FROM THE MEAN DELTA P VALUE</p> <p>JP10 and .53 % DEVIATION FROM THE MEAN DELTA P VALUE</p> <p>Determines that jet pump 7 is NOT within $\pm 20\%$ from the established patterns</p> <p>Circles YES and initials Confirm on SR 3.4.2.1 line c</p>		

*Critical Step

#Critical Sequence

PERFORMANCE CHECKLIST

Appl. To/JPM No.: 00.SO.003.051

Student Name: _____

Step	Action	Standard	Eval	Comments
*13	When recirc pumps operating with flow within limits of a or b above, jet pumps operable if no two (2) following conditions exist simultaneously:	<p>Determines Jet pumps are NOT operable based on two (2) of the conditions under SR 3.4.2.1 not being met simultaneously.</p> <p>Circles NO and initials Confirm on SR 3.4.2.1</p> <p>Records: UNSAT on Jet Pumps line of item 1 of SO-100-007 Daily Surveillance Log Attachment A</p>		

*Critical Step

#Critical Sequence

ANSWER KEY

ACCEPTANCE CRITERIA for DUAL LOOP

SR 3.4.1.1

Recirc Pumps **OPERABLE** if loop jet pump flow mismatch maintained within a or b: **Enter NA** for item that does not apply.

- a. 5 Mlbm/hr with core flow \geq 75 Mlbm/hr.
- b. 10 Mlbm/hr with Core Flow $<$ 75 Mlbm/hr.

ACCEPTABLE

CONFIRM

YES/NO

INITIALS

1.0 Mlbm/hr.

N/A Mlbm/hr.

SR 3.4.2.1

When recirc pumps operating with flow within limits of a or b above, Jet Pumps **OPERABLE** if no two (2) following conditions exist simultaneously:

YES/NO

INITIALS

AS FOUND

NOTE: **IF** any of these conditions exist, or, **IF** any parameter differs by more than 5% of established value, **Notify** Reactor Engineering.

- a. Recirculation loop drive flow versus recirculation generator speed differs $>$ 10% from established patterns. (**Plot** applicable performance data on Figures 1 and 2 of this attachment.)
- b. Recirculation loop drive flow versus total core flow differs $>$ 10% from established patterns. (**Plot** applicable performance data on Figures 3 and 4 of this attachment.)

YES/NO

INITIALS

YES/NO

INITIALS

NOTE: **Perform ONLY IF** a or b above fail. **Record** applicable data on pages 3 and 4 of this Attachment.

- c. Each jet pump to lower plenum differential pressure differs by \geq 20% from established patterns, (**Plot** applicable performance data on Figures 1 and 2 of Attachment I.)

YES/NO/NA

INITIALS

ANSWER KEY

Attachment C
SO-100-007
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LOOP A

JET PUMP ΔP PERCENT DEVIATION FROM THE AVERAGE

A = Average Jet Pump ΔP Loop A (Calculate below)

		<u>JP ΔP%</u>	<u>% JP ΔP Dev.</u>	
1.	JP11	<u>34</u>	$(JP11 - A) \div A \times 100 =$	<u>-0.87</u>
2.	JP12	<u>35</u>	$(JP12 - A) \div A \times 100 =$	<u>2.04</u>
3.	JP13	<u>34</u>	$(JP13 - A) \div A \times 100 =$	<u>-0.87</u>
4.	JP14	<u>35</u>	$(JP14 - A) \div A \times 100 =$	<u>2.04</u>
5.	JP15	<u>35</u>	$(JP15 - A) \div A \times 100 =$	<u>2.04</u>
6.	JP16	<u>35</u>	$(JP16 - A) \div A \times 100 =$	<u>2.04</u>
7.	JP17	<u>34</u>	$(JP17 - A) \div A \times 100 =$	<u>-0.87</u>
8.	JP18	<u>34</u>	$(JP18 - A) \div A \times 100 =$	<u>-0.87</u>
9.	JP19	<u>35</u>	$(JP19 - A) \div A \times 100 =$	<u>2.04</u>
10.	JP20	<u>32</u>	$(JP20 - A) \div A \times 100 =$	<u>-6.71</u>

PLOT ON
FIG. 1
ATTACHMENT I

$$A = \frac{343}{10} \times 0.1 = \underline{34.3}$$

(Sum of ΔP%)
JP11 thru 20

ANSWER KEY

Attachment C
SO-100-007
Revision 37
Page 25 of 56

LOOP B

JET PUMP ΔP PERCENT DEVIATION FROM THE AVERAGE

B = Average Jet Pump ΔP Loop B (Calculate below)

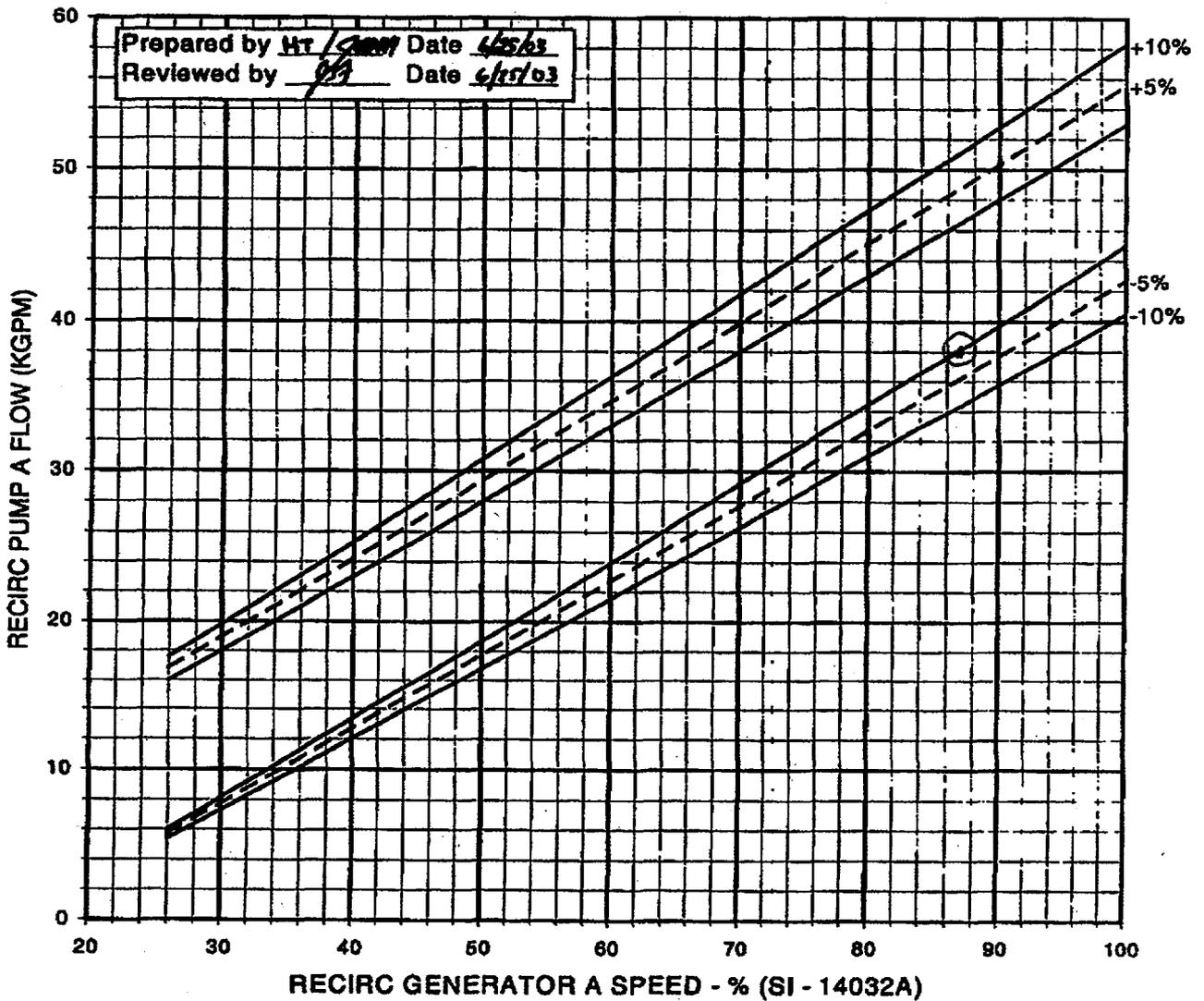
		<u>JP ΔP%</u>	<u>% JP ΔP Dev.</u>	
1.	JP1	<u>39</u>	$(JP1 - B) \div B \times 100 =$	<u>3.17</u>
2.	JP2	<u>39</u>	$(JP2 - B) \div B \times 100 =$	<u>3.17</u>
3.	JP3	<u>37</u>	$(JP3 - B) \div B \times 100 =$	<u>-2.12</u>
4.	JP4	<u>39</u>	$(JP4 - B) \div B \times 100 =$	<u>3.17</u>
5.	JP5	<u>39</u>	$(JP5 - B) \div B \times 100 =$	<u>3.17</u>
6.	JP6	<u>39</u>	$(JP6 - B) \div B \times 100 =$	<u>3.17</u>
7.	JP7	<u>30</u>	$(JP7 - B) \div B \times 100 =$	<u>-20.63</u>
8.	JP8	<u>39</u>	$(JP8 - B) \div B \times 100 =$	<u>3.17</u>
9.	JP9	<u>39</u>	$(JP9 - B) \div B \times 100 =$	<u>3.17</u>
10.	JP10	<u>38</u>	$(JP10 - B) \div B \times 100 =$	<u>.53</u>
		$B = \frac{378}{10} \times 0.1 =$	<u>37.8</u>	
		(Sum of ΔP%)		
		JP1 thru 10		

PLOT ON
FIG. 2
ATTACHMENT I

ANSWER KEY

Attachment C
SO-100-007
Revision 37
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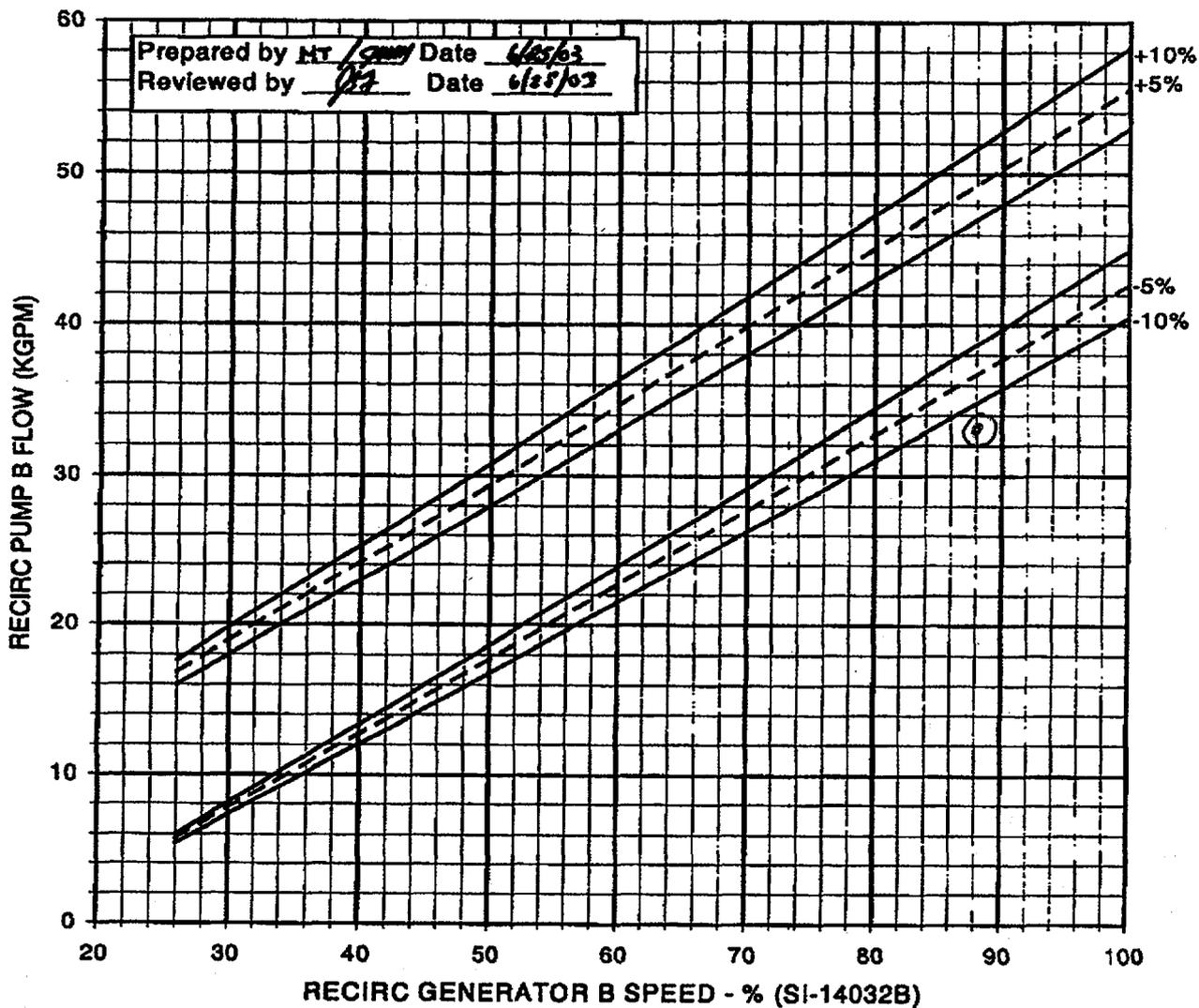
FIGURE - 1
RECIRC PUMP A FLOW VS. SPEED
TWO LOOP OPERATION



ANSWER KEY

Attachment C
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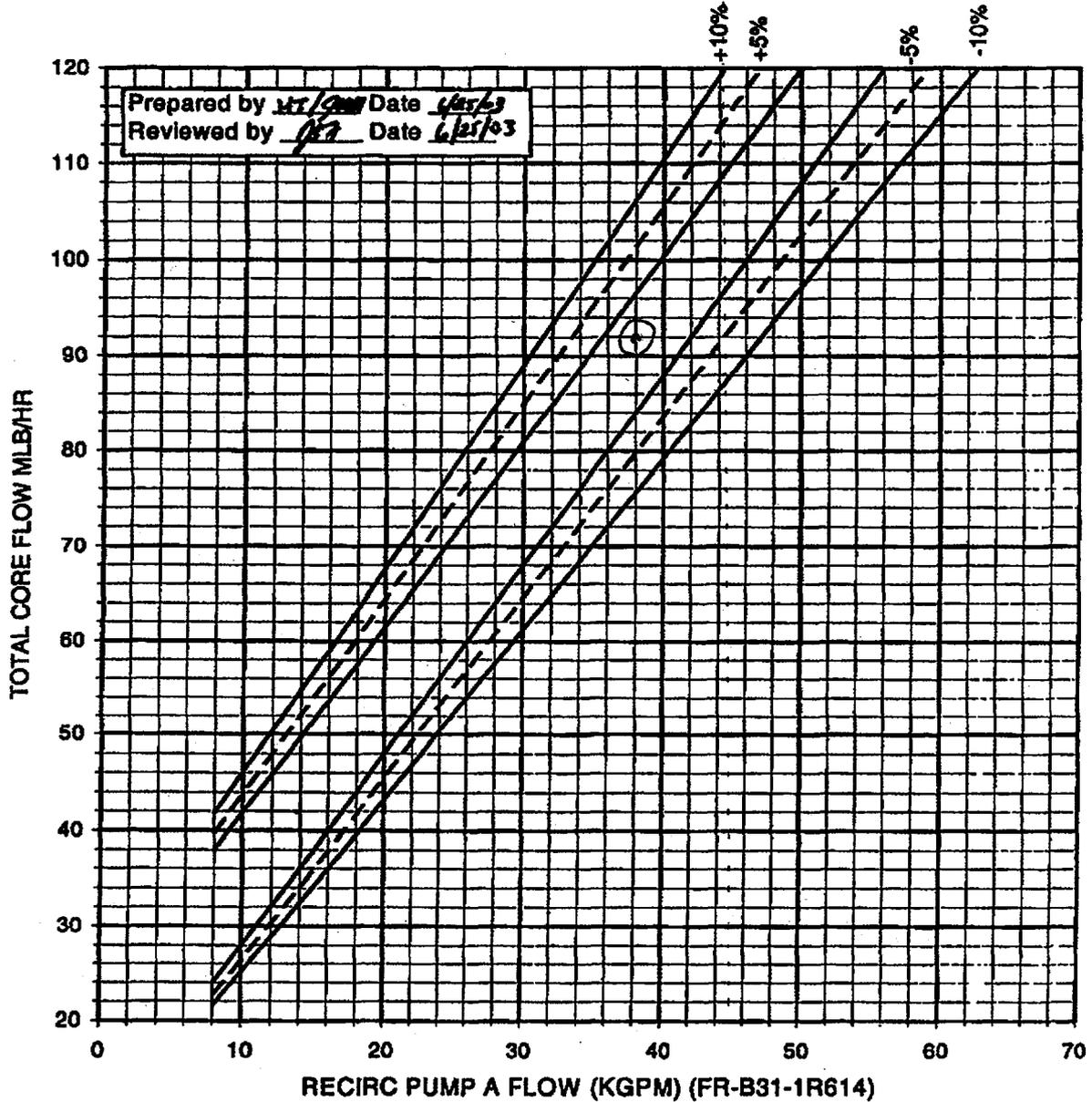
FIGURE - 2
RECIRC PUMP B FLOW VS. SPEED
TWO LOOP OPERATION



ANSWER KEY

Attachment C
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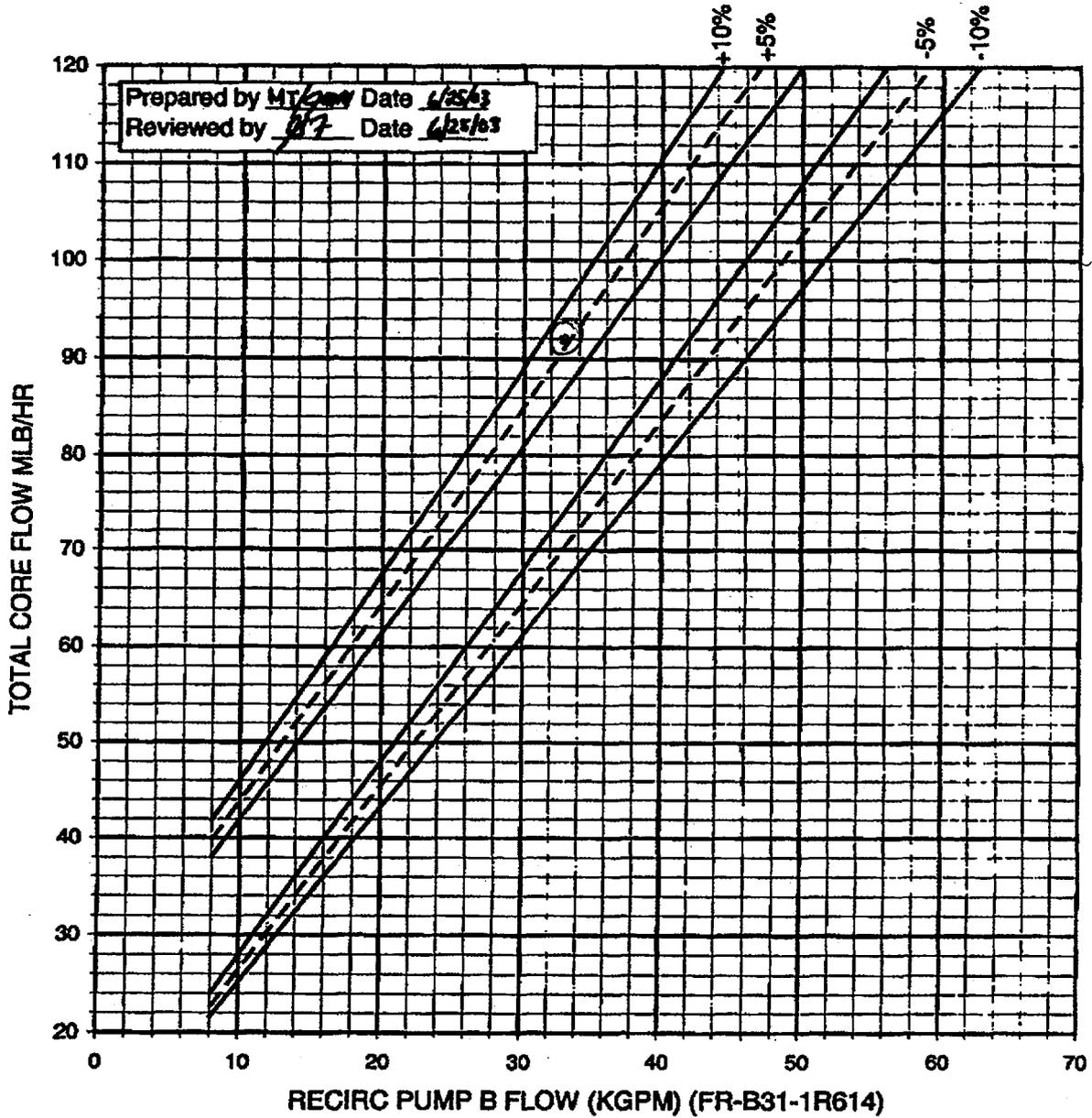
FIGURE - 3
TOTAL CORE FLOW VS. RECIRC PUMP A FLOW
TWO LOOP OPERATION



ANSWER KEY

Attachment C
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FIGURE - 4
TOTAL CORE FLOW VS. RECIRC PUMP B FLOW
TWO LOOP OPERATION

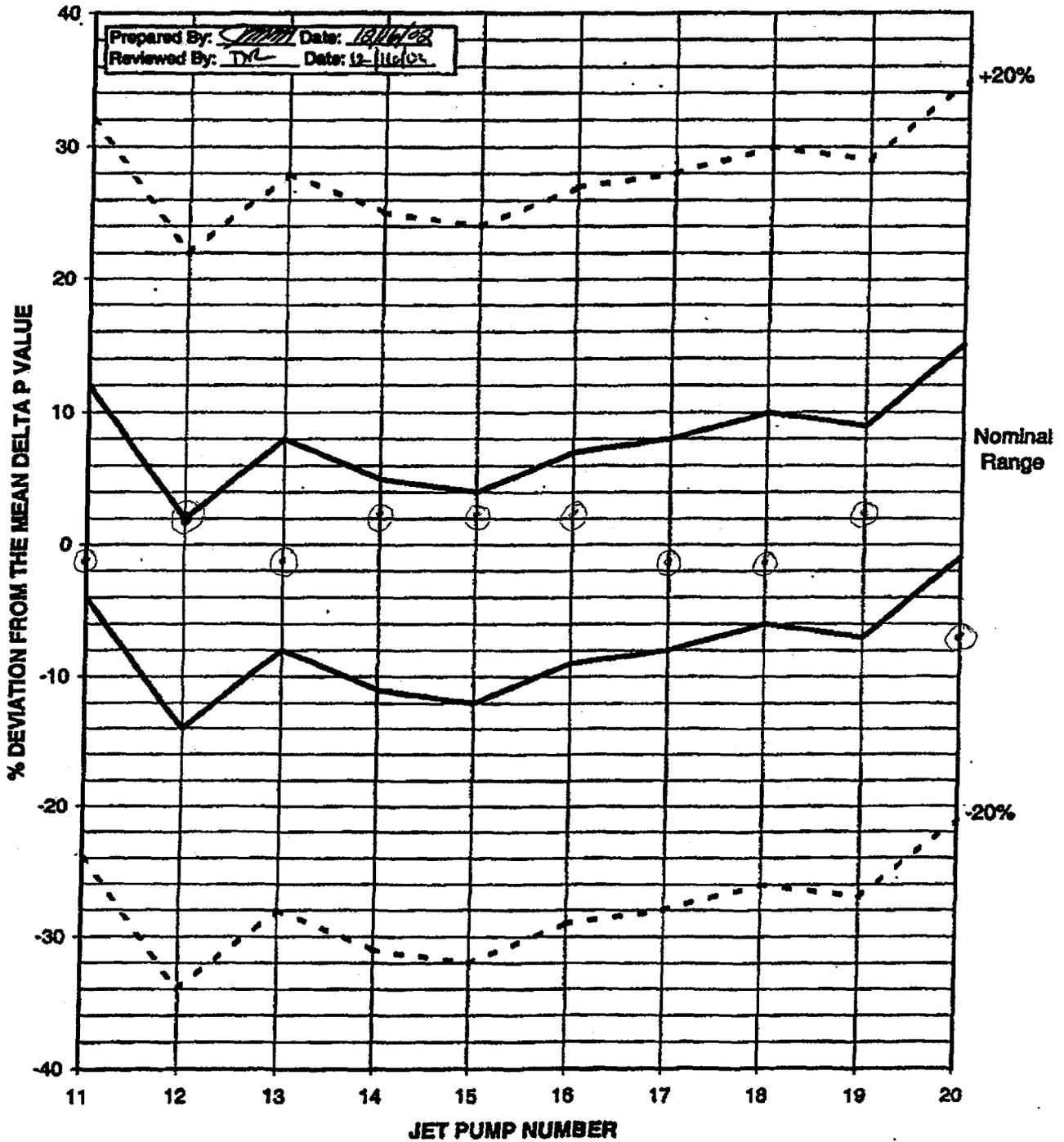


ANSWER KEY

Attachment I
SO-100-007
Revision 37
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FIGURE 1

TWO LOOP JET PUMP DISTRIBUTION LOOP A

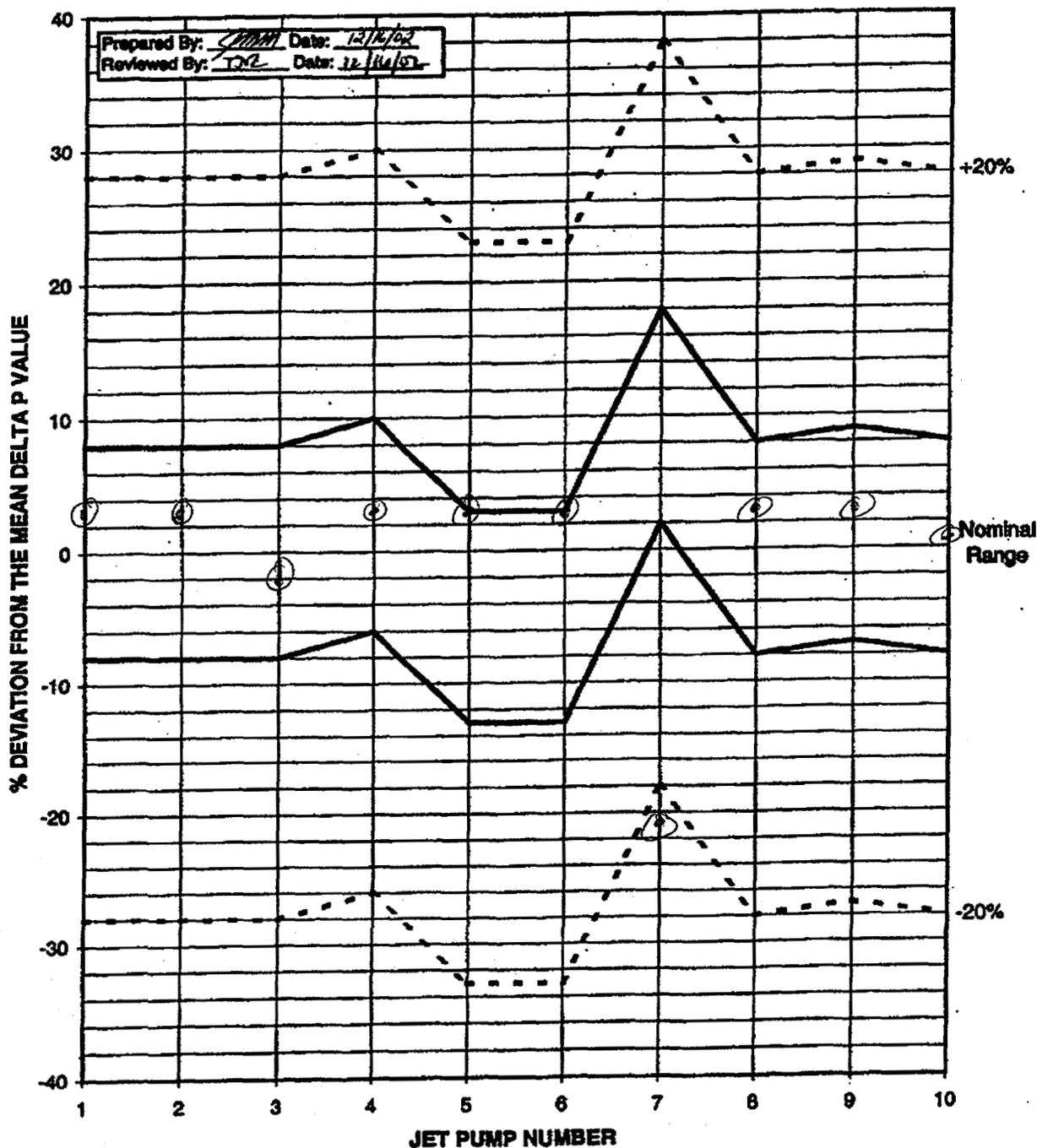


ANSWER KEY

Attachment I
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FIGURE 2

TWO LOOP JET PUMP DISTRIBUTION LOOP B



TASK CONDITIONS

- A. Unit 1 is operating at 100% power.
- B. Both Reactor Recirc pumps and Loops are in operation.
- C. The necessary data to perform the daily surveillance for Recirc pump and jet pump operability has been taken and recorded on Attachment C "PERFORMANCE DATA SHEET RECIRCULATION SYSTEM DUAL LOOP" of SO-100-007, "DAILY SURVEILLANCE LOG".

INITIATING CUE

Using the data provided on Attachment C "PERFORMANCE DATA SHEET RECIRCULATION SYSTEM DUAL LOOP" of SO-100-007, "DAILY SURVEILLANCE LOG", complete the remaining items in Attachment C "PERFORMANCE DATA SHEET RECIRCULATION SYSTEM DUAL LOOP" of SO-100-007, "DAILY SURVEILLANCE LOG" and determine Recirc pump and jet pump operability IAW Item 1 of SO-100-007, "DAILY SURVEILLANCE LOG". Report the results of the surveillance to your supervisor.

TASK CONDITIONS

- A. Unit 1 is operating at 100% power.
- B. Both Reactor Recirc pumps and Loops are in operation.
- C. The necessary data to perform the daily surveillance for Recirc pump and jet pump operability has been taken and recorded on Attachment C "PERFORMANCE DATA SHEET RECIRCULATION SYSTEM DUAL LOOP" of SO-100-007, "DAILY SURVEILLANCE LOG".

INITIATING CUE

Using the data provided on Attachment C "PERFORMANCE DATA SHEET RECIRCULATION SYSTEM DUAL LOOP" of SO-100-007, "DAILY SURVEILLANCE LOG", complete the remaining items in Attachment C "PERFORMANCE DATA SHEET RECIRCULATION SYSTEM DUAL LOOP" of SO-100-007, "DAILY SURVEILLANCE LOG" and determine Recirc pump and jet pump operability IAW Item 1 of SO-100-007, "DAILY SURVEILLANCE LOG". Report the results of the surveillance to your supervisor.

**PERFORMANCE DATA SHEET
 RECIRCULATION SYSTEM DUAL LOOP**

Record following data:

PARAMETER/INSTRUMENT	PANEL	READING
a. GEN 1A SPEED SI-14032A	1C651	<u>87</u> %
b. GEN 1B SPEED SI-14032B	1C651	<u>88</u> %
c. RECIRC DRIVE FLOW A Primary: FR-B31-1R614 (Red) Alternate: FI-B31-1R617	1C652	<u>38</u> Kgpm
d. RECIRC DRIVE FLOW B Primary: FR-B31-1R614 (Blue) Alternate: FI-B31-1R613	1C652	<u>33</u> Kgpm
e. TOTAL CORE FLOW XR-B21-1R613 (Red)	1C652	<u>92</u> Mlb/hr
f. CORE PLATE DP XR-B21-1R613 (Blue)	1C652	<u>59</u> %
g. LOOP A JET PP FLOW FI-B21-1R611A	1C652	<u>48</u> Mlb/hr
h. LOOP B JET PP FLOW FI-B21-1R611B	1C652	<u>49</u> Mlb/hr

I. JET PUMP DELTA P'S JET PUMP INST PANEL 1C619
UPPER RELAY ROOM

JP1 <u>39</u> %	JP2 <u>39</u> %	JP3 <u>37</u> %	JP4 <u>39</u> %	JP5 <u>39</u> %
JP6 <u>39</u> %	JP7 <u>30</u> %	JP8 <u>39</u> %	JP9 <u>39</u> %	JP10 <u>38</u> %
JP11 <u>34</u> %	JP12 <u>35</u> %	JP13 <u>34</u> %	JP14 <u>35</u> %	JP15 <u>35</u> %
JP16 <u>35</u> %	JP17 <u>34</u> %	JP18 <u>34</u> %	JP19 <u>35</u> %	JP20 <u>32</u> %

Continue Recirc Pump/Jet Pump OPERABILITY determination on page 2 of this Form using data above.

PENNSYLVANIA POWER & LIGHT COMPANY

JOB PERFORMANCE MEASURE

APPROVAL AND ADMINISTRATIVE DATA SHEET

<u>SRO</u>	<u>99.OP.002.001</u>	<u>0</u>	<u>03/01/04</u>	<u>2.1.25</u>	<u>2.8/3.1</u>
Appl. To	JPM Number	Rev. No.	Date	NUREG 1123 Sys. No.	K/A

Task Title: Respond to Seismic Monitor System Triggered

Completed By: _____ Reviews: _____

<u>Russ Halm</u>	_____	_____	_____
Writer	Date	Instructor/Writer	Date

Approval:

_____	_____	_____	_____
Requesting Supv./C.A. Head	Date	Nuclear Trng. Supv.	Date

_____	<u>15</u>	_____
Date of Performance:	Allowed Time (Min.)	Time Taken (Min.)

JPM Performed By:

Student Name: _____

_____	_____	_____	_____
Last	First	M.I.	Employee #/S.S. #

Performance Evaluation: () Satisfactory () Unsatisfactory

Evaluator Name: _____

_____	_____
Signature	Typed or Printed

Comments: _____

**REQUIRED TASK INFORMATION
JOB PERFORMANCE MEASURE
S/RO 99.OP.002.001**

I. SAFETY CONSIDERATIONS

- A. All Operations personnel are responsible for maintaining their radiation exposure As Low As Reasonably Achievable in accordance with OP-AD-002, Standards for Shift Operations.
- B. All applicable safety precautions shall be taken in accordance with established PPL safety policies and the Safety Rule Book, for example:
 - 1. Whenever any electrical panel is opened for inspection during JPM performance.
 - 2. Whenever entering any plant area where specific safety equipment; such as hearing or eye protection, safety shoes, hardhats, etc; is required and/or posted as being necessary.
- C. If in the judgement of the evaluator any safety issue occurs during the performance of a JPM, the JPM will be terminated until the issue is resolved.

II. REFERENCES

- 1. AR-016-001, Seismic Mon System Triggered (G06) (Revision 35)
- 2. OP-099-002, Seismic Monitoring System (Revision 11)
- 3. ON-000-002, Natural Phenomena (Revision 17)
- 4. EP-PS-100, Emergency Director Control Room, REV. 18

III. REACTIVITY MANIPULATIONS

This JPM satisfies the requirements of Operational Activity(s):

NONE

IV. TASK CONDITIONS

- A. Both Units are operating at 100% power.
- B. AR-016-G06, "Seismic Mon System Triggered" Alarm has been received.
- C. The printout of channel information has been obtained
- D. There is NO ongoing work in either Rx Building basements (Elev. 645') OR in the ESW pumphouse.
- E. Ground motion can be felt in the control room.

V. INITIATING CUE

You are the Shift Manager.

Given the following Channel 1 Seismic Monitor printer information and panel indicating light status:

Evaluate/Validate the event trigger IAW appropriate procedure, and REPORT any required actions (Base the evaluation/validation on Channel 1 ONLY) to the evaluator.

VI. TASK STANDARD

Determines:

- 1. The Seismic event trigger to be valid at the SSE level
- 2. Both Units will require shutdowns
- 3. Classifies the event as an Alert Emergency

PERFORMANCE CHECKLIST

Appl. To/JPM No.: 99.OP.002.001

Student Name: _____

Step	Action	Standard	Eval	Comments
	<p><u>EVALUATOR NOTE:</u></p> <ul style="list-style-type: none"> Provide the candidate with seismic monitor printout and the panel indicating light status. <p><u>EVALUATOR NOTE:</u></p> <p>Candidate may refer to the Alarm response procedure first, before referring to OP-099-002, Seismic Monitoring System. This is acceptable.</p>			
1	Obtain a controlled copy of OP-099-002 Seismic Monitoring System	Controlled copy obtained.		
2	Selects the correct section to perform.	Selects section 3.2		
3	Review the prerequisites.	Ensures all prerequisites have been met.		
	<p><u>EVALUATOR CUE:</u></p> <p>If necessary, Remind the candidate that the evaluation is to be limited to channel 1 ONLY.</p>			
4	Review all precautions.	Follows all precautions as applicable.		

*Critical Step

#Critical Sequence

PERFORMANCE CHECKLIST

Appl. To/JPM No.: 99.OP.002.001

Student Name: _____

Step	Action	Standard	Eval	Comments
*5	<p>REVIEW printer output and panel indicating lights to determine type of event.</p> <p>Use Attachment A and B to classify and validate the trigger.</p> <p>Attachment C provides example printouts for further assistance.</p>	<p>Compares the Seismic Monitor printer information and panel indicating light status Attachments A, B, and C</p> <p>Determines that a Safe Shutdown Earthquake (SSE) has occurred</p>		
6	<p>CONTACT one of the agencies in Attachment D to confirm the cause of the event was seismic activity.</p>	<p>Simulates contacting one of the following agencies:</p> <ul style="list-style-type: none"> • National Earthquake Information Center Golden, Colorado • PA Bureau of Topographic & Geologic Survey • Penn State University (PSU) Geosciences Office • University of Delaware • Delaware Geological Survey • Columbia University 		

*Critical Step

#Critical Sequence

PERFORMANCE CHECKLIST

Appl. To/JPM No.: 99.OP.002.001

Student Name: _____

Step	Action	Standard	Eval	Comments
7	<p><u>EVALUATOR CUE:</u> Role-play the contacted agency, and inform the candidate: There is confirmed seismic activity along the East coast of the United States from South Carolina to New York.</p> <p>If cause of the event was seismic activity, perform ON-000-002, Natural Phenomena in parallel with this section.</p> <p><u>EVALUATOR CUE:</u> Role-play shift supervision and inform the candidate that another operator will complete the remaining steps of OP-099-002. You are to perform the appropriate steps of ON-000-002 Natural Phenomena.</p>	<p>Determines that ON-000-002 Natural Phenomena performance will be required in parallel with completing this procedure.</p>		
8	<p>Obtain a controlled copy of ON-000-002 Natural Phenomena</p>	<p>Controlled copy obtained.</p>		

*Critical Step

#Critical Sequence

PERFORMANCE CHECKLIST

Appl. To/JPM No.: 99.OP.002.001

Student Name: _____

Step	Action	Standard	Eval	Comments
9	Record date and time of event.	Has shift supervision authorize the use of this procedure by signing the appropriate space provided in the procedure. Records; Date and time in the space provided		
10	Notify Security of event. <u>EVALUATOR CUE:</u> Role-play Plant Security and acknowledge the report.	Simulates a call to Plant security.		
11	Based on event occurrence, Perform following as applicable: IF seismic triggering event occurred, Perform section 3.7 <u>EVALUATOR NOTE:</u> Earthquakes of this magnitude are expected to be felt by personnel. Building vibration and rattling of objects is typical.	Refers to section 3.7		

*Critical Step

#Critical Sequence

PERFORMANCE CHECKLIST

Appl. To/JPM No.: 99.OP.002.001

Student Name: _____

Step	Action	Standard	Eval	Comments
	<p><u>EVALUATOR NOTE:</u> Due to the nature of the JPM it may be necessary to ask the candidate to verbalize his/her intentions with regard to the plant status in the next step</p>			
*12	<p><u>IF OBE OR SSE</u> earthquake occurred: Commence shutdown in accordance with GO-100-004 (GO-200-004), Plant Shutdown to Minimum Power.</p>	<p>Determines both Units need to be shutdown in accordance with GO-100-004 (GO-200-004), Plant Shutdown to Minimum Power. Directs control room crew to make preparations to begin shutdown of both Units</p>		
13	Classify Plant status in accordance with EP-PS-100, Emergency Director, Control Room.	Controlled copy obtained.		
14	Evaluates information.	Identifies SSE as Emergency Plan entry.		
15	Refers to classification matrix.	Selects OA3.		
16	Reviews the table of contents for Natural Phenomena.	Reviews all of Category OA3.		

*Critical Step

#Critical Sequence

TASK CONDITIONS

- A. Both Units are operating at 100% power.
- B. AR-016-G06, "Seismic Mon System Triggered" Alarm has been received.
- C. The printout of channel information has been obtained
- D. There is NO ongoing work in either Rx Building basements (Elev. 645') OR in the ESW pumphouse.
- E. Ground motion can be felt in the control room.

V. INITIATING CUE

You are the shift manager.

Given the following Channel 1 Seismic Monitor printer information and panel indicating light status:

Evaluate/Validate the event trigger IAW appropriate procedure, and REPORT any required actions (Base the evaluation/validation on Channel 1 ONLY) to the evaluator.

TASK CONDITIONS

- A. Both Units are operating at 100% power.
- B. AR-016-G06, "Seismic Mon System Triggered" Alarm has been received.
- C. The printout of channel information has been obtained
- D. There is NO ongoing work in either Rx Building basements (Elev. 645') OR in the ESW pumphouse.
- E. Ground motion can be felt in the control room.

V. INITIATING CUE

You are the shift manager.

Given the following Channel 1 Seismic Monitor printer information and panel indicating light status:

Evaluate/Validate the event trigger IAW appropriate procedure, and REPORT any required actions (Base the evaluation/validation on Channel 1 ONLY) to the evaluator.

SEISMIC MONITOR PANEL INDICATING LIGHT STATUS
(JPM 99.OP.002.001)

VRS-05703 Status	Red
Strong Motion Accelerograph System Trigger	Green
RSA-50 Data light	Was Red for approximately 15 seconds, Now it is OFF
Cassette Tapes	Recorded for approximately 15 seconds, Now they are idle.
VAH-15701 and VAH-05701 OBE Lights	Green
VAH-15701 and VAH-05701 SSE Lights	Green
Inner Analog Light	Red
Outer Analog Light	Red

Indicators		EVENT CLASSIFICATION		
		less than OBE	OBE	SSE
VRS-05703 Status	Red	X	X	X
Strong Motion Accelerograph System Trigger	Green	X	X	X
RSA-50 Data light (on approximately 15 sec)	Red	X	X	X
Cassette Tapes	Recording (Approximately 15 sec)	X	X	X
Printing 51 frequencies with values in two columns		X		
VAH-15701 and VAH-05701 OBE Lights	Green		X	X
VAH-15701 and VAH-05701 SSE Lights	Green			X
Inner Analog Light	Red		X	X
Outer Analog Light	Red			X
Printing 3 columns (freq, value, setpoint) * in 3rd column			X	X
Printing 3 columns (freq, value, setpoint) ** in 3rd column				X

Each event classification should receive all of the above list indicators. Omissions or additions of indicators are a means of validating or discrediting the response.

VALIDATION OF A SYSTEM TRIGGER AND CLASSIFICATION

1. System triggers are initiated from VT-05701 (ESW pumphouse), VT-15701 (Unit 1 Containment Foundation), and VT-25701 (Unit 2 Containment Foundation). Only the data from VT-05701 and VT-15701 will printout. The printout will list frequencies, measured values and in the case of an OBE or SSE, the setpoints and flags. Each detector (VT) will supply x, y, and z directional data.
2. To validate a trigger, all of the indications listed in the table of Attachment A should be seen for the given classification. Channels 1, 2, and 3 of the printout corresponded to the x, y, and z direction of VT-15701 while channels 4, 5, and 6 corresponded to x, y, and z of VT-05701. Since both detectors are separated from each other, a seismic event will appear similar at each location. Both the affected frequencies and directions will be similar, however, the measured values may differ.
3. When comparing events less than the OBE, all 51 frequencies will print with their measured values. For OBE or SSE events, only the frequency exceeding its setpoint will be printed. See Attachment C for examples. Compare the x direction (Channels 1 and 4), y direction (Channels 2 to 5) and the z direction (Channels 3 to 6) data from the two detectors. Similar responses in direction and affected frequencies is indicative of a valid seismic event.
4. Invalid seismic events typically show a response from a single detector which is indicative of the detector being bumped, or equipment induced vibration. An initiation of a trigger from VT-25701 with no response measured on VT-05701 or VT-15701 may indicate the source is induced from a local evolution in Unit 2 Rx Bldg.
5. Earthquakes of OBE or SSE strength are expected to be felt by personnel onsite.
6. If the event trigger is declared valid, IMMEDIATELY enter ON-000-002.
7. If validity is uncertain, outside organization should be contacted to confirm or dismiss the event. Attachment D lists agencies and phone numbers.
8. If event is invalid NOTIFY I&C to determine cause or need to PERFORM SI-099-201.
9. Review TR 3.3.2 for applicability.

32.0	.06	.03*
30.4	.06	.03*
28.8	.05	.03*
27.2	.06	.04*
25.6	.07	.04*
24.0	.08	.04*
22.4	.07	.04*
20.8	.08	.05*
19.2	.09	.05*
17.6	.11	.11**
16.0	.12	.12**
15.2	.11	.06*
14.4	.11	.06*
13.6	.12	.07*
12.8	.13	.07*
12.0	.14	.07*
11.2	.14	.08*
10.4	.15	.08*
9.6	.18	.17**
8.8	.19	.18**
8.0	.18	.10*
7.6	.19	.11*
7.2	.19	.11*
6.8	.20	.12*
6.4	.20	.12*
6.0	.23	.23**
5.6	.21	.12*
5.2	.20	.12*
4.8	.20	.12*
4.4	.21	.12*
4.0	.22	.12*
3.8	.22	.12*
3.6	.21	.12*
3.4	.22	.12*
3.2	.22	.12*
3.0	.23	.23**
2.8	.22	.12*
2.6	.21	.12*
2.4	.21	.12*
2.2	.20	.12*
2.0	.21	.12*
1.9	.20	.12*
1.8	.19	.11*
1.7	.18	.11*
1.6	.19	.11*
1.5	.20	.20**
1.4	.18	.10*
1.3	.17	.10*
1.2	.17	.09*
1.1	.16	.09*
1.0	.14	.08*

CHANNEL 1

UT-15701 CONT. FND.

006 04 06 20 FF3FF02

000 00 00 00 FF3FF02

DIRECT - 2%

SEISMIC MONITOR PANEL INDICATING LIGHT STATUS
(JPM 99.OP.002.001)

VRS-05703 Status	Red
Strong Motion Accelerograph System Trigger	Green
RSA-50 Data light	Was Red for approximately 15 seconds, Now it is OFF
Cassette Tapes	Recorded for approximately 15 seconds, Now they are idle.
VAH-15701 and VAH-05701 OBE Lights	Green
VAH-15701 and VAH-05701 SSE Lights	Green
Inner Analog Light	Red
Outer Analog Light	Red

PENNSYLVANIA POWER & LIGHT COMPANY

JOB PERFORMANCE MEASURE

APPROVAL AND ADMINISTRATIVE DATA SHEET

S/RO	00.AD.269.001	0	03/02/04	2.3.10	2.9/3.3
Appl. To	JPM Number	Rev. No.	Date	NUREG 1123 Sys. No.	K/A

Task Title: Identify The Blocking Points For A Primary Containment Entry While At Power/Additional power restrictions/controls required by NDAP-QA-0309, Primary Containment Access And Control.

Completed By: Russ Halm Date: _____ Instructor/Writer: _____ Date: _____
 Writer

Approval: _____ Date: _____ Nuclear Trng. Supv. _____ Date: _____
 Requesting Supv./C.A. Head

Date of Performance: _____ Allowed Time (Min.): 15/20 Time Taken (Min.): _____

JPM Performed By: _____

Student Name: _____
 Last First M.I. Employee #/S.S. #

Performance Evaluation: () Satisfactory () Unsatisfactory

Evaluator Name: _____
 Signature Typed or Printed

Comments: _____

REQUIRED TASK INFORMATION
JOB PERFORMANCE MEASURE
S/RO 00.AD.269.001

I. SAFETY CONSIDERATIONS

- A. All Operations personnel are responsible for maintaining their radiation exposure As Low As Reasonably Achievable in accordance with OP-AD-002, Standards for Shift Operations.
- B. All applicable safety precautions shall be taken in accordance with established PPL safety policies and the Safety Rule Book, for example:
 - 1. Whenever any electrical panel is opened for inspection during JPM performance.
 - 2. Whenever entering any plant area where specific safety equipment; such as hearing or eye protection, safety shoes, hardhats, etc; is required and/or posted as being necessary.
- C. If in the judgement of the evaluator any safety issue occurs during the performance of a JPM, the JPM will be terminated until the issue is resolved.

II. REFERENCES

NDAP-QA-0323, Standard Blocking Practices (Revision 20)
NDAP-QA-0309, Primary Containment Access And Control (Revision 14)

III. REACTIVITY MANIPULATIONS

This JPM satisfies the requirements of Operational Activity(s):
NONE

IV. TASK CONDITIONS

- A. Unit 1 is performing a plant startup.
- B. Reactor power is 10%
- C. Both reactor recirc pumps are in operation at minimum speed
- D. A reactor coolant leak exists inside the primary containment.
- E. A Primary Containment entry is being planned to investigate the reactor coolant leak.
- F. Containment has NOT been inerted.
- G. The entry will be limited to elevations 704' and 719' only.
- H. NDAP-QA-0309, Primary Containment Access And Control is being used to control this entry.
- I. Step 6 of Attachment Q Primary Containment Initial Entry Checklist - Modes 1 Or 2 of NDAP-QA-0309, Primary Containment Access And Control requires the necessary blocking points to be applied in support of this entry.

V. INITIATING CUE

Your supervisor directs you to prepare a Containment Entry clearance order, IAW NDAP-QA-0309, Primary Containment Access And Control, to support this primary containment entry at Unit 1. Be sure to include the required position and type of tag that will be applied. (Use the attached sheet to document your blocking points).

VI. TASK STANDARD

The "Critical" components listed in the answer key are in the stated position with the stated type tag identified. SROs identify additional power restrictions/controls required by NDAP-QA-0309, Primary Containment Access And Control

PERFORMANCE CHECKLIST

Appl. To/JPM No.: 00.AD.269.001

Student Name: _____

Step	Action	Standard	Eval	Comments
	<p><u>EVALUATOR NOTE:</u></p> <ul style="list-style-type: none"> Candidate may refer to NDAP-QA-0309, Primary Containment Access And Control to locate the step referenced in the initiating cue. 			
1	Obtain a controlled copy of NDAP-QA-0323, Standard Blocking Practices	Controlled copy obtained.		
2	Selects the correct section to perform.	Selects section 8.8.1		
*3	Using the table in NDAP-QA-0323, Standard Blocking Practices section 8.8.1 identifies the required blocking points, positions, and type of tag to be used. (steps 3 - 10 of this JPM)	Identifies the need to: Ensure all tips withdrawn to 'IN SHIELD' position with ball valves closed prior to applying blocking. Position N/A No tag required Records on attached form		
*4		Identifies the need to OPEN breaker 1Y21927 Tip Drive Mechanisms 1S215A-E and RED TAG Records on attached form		

*Critical Step

#Critical Sequence

PERFORMANCE CHECKLIST

Appl. To/JPM No.: 00.AD.269.001

Student Name: _____

Step	Action	Standard	Eval	Comments
*5		Identifies the need to install a spectacle flange at 1S2104 N2 Purge Line To U1 Containment and RED TAG Records on attached form		
*6		Identifies the need to CLOSE valve 157026 Contrn N2 Makeup Supply Hdr Iso Vlv and RED TAG Records on attached form		
7		Identifies the need to: Notify HP At X3371 When Drywell Access Door Lock Is Unlocked/Removed And When Re-Installed/Locked NO TAG required Records on attached form		

*Critical Step

#Critical Sequence

PERFORMANCE CHECKLIST

Appl. To/JPM No.: 00.AD.269.001

Student Name: _____

Step	Action	Standard	Eval	Comments
8	<p>EVALUATOR NOTE: The next two items will be required since the reactor is at 10% power.</p>	<p>Identifies the need to track the status of the OPS VERY HIGH Rad Door Lock, Drywell Access Door, To Ensure Relocked When Clearance Removed.</p> <p>NO TAG required</p> <p>Records on attached form</p>		
*9		<p>Identifies the need to:</p> <p>Apply A Cover Over Control Rod "CONT INSERT ROD" AND "CONT W/DRAW" Pushbuttons On 1C651 To Prevent Rod Movement</p> <p>And PINK TAG</p> <p>Records on attached form</p>		

*Critical Step

#Critical Sequence

PERFORMANCE CHECKLIST

Appl. To/JPM No.: 00.AD.269.001

Student Name: _____

Step	Action	Standard	Eval	Comments
*10	<p><u>EVALUATOR CUE:</u> That completes this JPM <i>FOR the RO candidates</i></p> <p><u>EVALUATOR CUE:</u> <u>FOR SRO CANDIDATES ONLY</u> Give the SRO candidate the second cue sheet that addresses additional power restrictions/controls.</p>	<p>Identifies the need to: Apply A Cover Over Control Rod "INSERT ROD" AND "W/DRAW ROD" Pushbuttons On 1C651 To Prevent Rod Movement And PINK TAG Records on attached form</p>		
11	Obtain a controlled copy of NDAP-QA-0309, Primary Containment Access And Control	Controlled copy obtained.		
12	References appropriate section	References section 6.5		

*Critical Step

#Critical Sequence

PERFORMANCE CHECKLIST

Appl. To/JPM No.: 00.AD.269.001

Student Name: _____

Step	Action	Standard	Eval	Comments
	<p><u>EVALUATOR NOTE:</u> Due to the nature of the initiating cue, it is acceptable for the candidate to paraphrase the responses.</p>			
*13	<p>For entries at power, a Reactor Operator shall be stationed at the reactor console to monitor reactor power while personnel are in the drywell. Upon observing any unexpected power increase, the operator shall immediately place the reactor mode switch in shutdown and notify the drywell entry personnel.</p>	<p>Reports to the Shift Manager the following: A Reactor Operator shall be stationed at the reactor console to monitor reactor power while personnel are in the drywell. Upon observing any unexpected power increase, the operator shall immediately place the reactor mode switch in shutdown and notify the drywell entry personnel.</p>		
*14	<p>Initially, primary containment entries are limited to 10% power for elevations 704' and 719' and 3% power for elevation 738' and above. Entries at power levels higher than 10% shall be allowed only after sufficient radiological information has been obtained as determined by the Radiation Protection Manager.</p>	<p>Reports to the Shift Manager the following: Reactor power is restricted to 10% for this entry</p>		

*Critical Step

#Critical Sequence

PERFORMANCE CHECKLIST

Appl. To/JPM No.: 00.AD.269.001

Student Name: _____

Step	Action	Standard	Eval	Comments
*15	No action shall be taken to change Reactor power levels (e.g., no control rod movements, steady recirc pump speed, steady EHC pressure setpoints, etc.) during power entries.	Reports to the Shift Manager the following: No action shall be taken to change Reactor power levels		
*16	If some action is necessary to control Reactor Power (e.g., control rod movement, recirc pump speed or EHC pressure setpoint change), confirm with containment Health Physics Supervision that all individuals have exited the drywell before implementing the action.	Reports to the Shift Manager the following: If some action is necessary to control Reactor Power (e.g., control rod movement, recirc pump speed or EHC pressure setpoint change), confirm with containment Health Physics Supervision that all individuals have exited the drywell before implementing the action.		
17	Following any rod position changes, provide Health Physics with a new Attachment S or OD-7 printout to identify the changes. <u>EVALUATOR CUE:</u> That completes this JPM.	Reports to the Shift Manager the following: Following any rod position changes, provide Health Physics with a new Attachment S or OD-7 printout to identify the changes.		

*Critical Step

#Critical Sequence

ANSWER KEY

DO NOT GIVE TO CANDIDATES

(JPM 00.AD.269.001)

Critical components are identified with an asterisk (*)

COMPONENT ID	NAME	POSITION	TAG
*	ENSURE ALL TIPS WITHDRAWN TO 'IN SHIELD' POSITION WITH BALL VALVES CLOSED PRIOR TO APPLYING BLOCKING.	NA	NO TAG
*1Y21927	TIP DRIVE MECHANISMS 1S215A-E	OPEN	RED TAG
*1S2104	N2 PURGE LINE TO U1 CONTAINMENT SPECTACLE FLANGE	BLANKED	RED TAG
*157026	CONTN N2 MAKEUP SUPPLY HDR ISO VLV	CLOSE	RED TAG
DRYWELL ACCESS DOOR	OPERATIONS TO NOTIFY HP AT X3371 WHEN DOOR LOCK IS UNLOCKED/REMOVED AND WHEN RE-INSTALLED/LOCKED	N/A	NO TAG
	OPS VERY HIGH RAD DOOR LOCK, DRYWELL ACCESS DOOR, TRACKED TO ENSURE RELOCKED WHEN CLEARANCE REMOVED.	N/A	NO TAG
*	APPLY COVER OVER CONTROL ROD "CONT INSERT ROD" AND "CONT W/DRAW" PUSHBUTTONS ON 1C651 TO PREVENT ROD MOVEMENT IAW NDAP-QA-0309	N/A	PINK TAG
*	APPLY COVER OVER CONTROL ROD "INSERT ROD" AND "W/DRAW ROD" PUSHBUTTONS ON 1C651 TO PREVENT ROD MOVEMENT IAW NDAP-QA-0309	N/A	PINK TAG

SRO ONLY

TASK CONDITIONS

- A. Unit 1 is performing a plant startup.
- B. Reactor power is 10%
- C. Both reactor recirc pumps are in operation at minimum speed.
- D. A reactor coolant leak exists inside the primary containment.
- E. A Primary Containment entry is being planned to investigate the reactor coolant leak.
- F. Containment has NOT been inerted.
- G. The entry will be limited to elevations 704' and 719' only.
- H. NDAP-QA-0309, Primary Containment Access And Control is being used to control this entry.
- I. The necessary blocking points to support this entry have been applied.

INITIATING CUE

As the Unit Supervisor, what additional power restrictions/controls are you required to implement, per NDAP-QA-0309, Primary Containment Access And Control, during this entry. Report these additional power restrictions/controls to the Shift Manager.

SRO ONLY

TASK CONDITIONS

- A. Unit 1 is performing a plant startup.
- B. Reactor power is 10%
- C. Both reactor recirc pumps are in operation at minimum speed.
- D. A reactor coolant leak exists inside the primary containment.
- E. A Primary Containment entry is being planned to investigate the reactor coolant leak.
- F. Containment has NOT been inerted.
- G. The entry will be limited to elevations 704' and 719' only.
- H. NDAP-QA-0309, Primary Containment Access And Control is being used to control this entry.
- I. The necessary blocking points to support this entry have been applied.

INITIATING CUE

As the Unit Supervisor, what additional power restrictions/controls are you required to implement, per NDAP-QA-0309, Primary Containment Access And Control, during this entry. Report these additional power restrictions/controls to the Shift Manager.

TASK CONDITIONS

- A. Unit 1 is performing a plant startup.
- B. Reactor power is 10%
- C. Both reactor recirc pumps are in operation at minimum speed
- D. A reactor coolant leak exists inside the primary containment.
- E. A Primary Containment entry is being planned to investigate the reactor coolant leak.
- F. Containment has NOT been inerted.
- G. The entry will be limited to elevations 704' and 719' only.
- H. NDAP-QA-0309, Primary Containment Access And Control is being used to control this entry.
- I. Step 6 of Attachment Q Primary Containment Initial Entry Checklist - Modes 1 Or 2 of NDAP-QA-0309, Primary Containment Access And Control requires the necessary blocking points to be applied in support of this entry.

INITIATING CUE

Your supervisor directs you to prepare a Containment Entry clearance order, IAW NDAP-QA-0309, Primary Containment Access And Control, to support this primary containment entry at Unit 1. Be sure to include the required position and type of tag that will be applied. (Use the attached sheet to document your blocking points).

TASK CONDITIONS

- A. Unit 1 is performing a plant startup.
- B. Reactor power is 10%
- C. Both reactor recirc pumps are in operation at minimum speed
- D. A reactor coolant leak exists inside the primary containment.
- E. A Primary Containment entry is being planned to investigate the reactor coolant leak.
- F. Containment has NOT been inerted.
- G. The entry will be limited to elevations 704' and 719' only.
- H. NDAP-QA-0309, Primary Containment Access And Control is being used to control this entry.
- I. Step 6 of Attachment Q Primary Containment Initial Entry Checklist - Modes 1 Or 2 of NDAP-QA-0309, Primary Containment Access And Control requires the necessary blocking points to be applied in support of this entry.

INITIATING CUE

Your supervisor directs you to prepare a Containment Entry clearance order, IAW NDAP-QA-0309, Primary Containment Access And Control, to support this primary containment entry at Unit 1. Be sure to include the required position and type of tag that will be applied. (Use the attached sheet to document your blocking points).

PENNSYLVANIA POWER & LIGHT COMPANY

JOB PERFORMANCE MEASURE

APPROVAL AND ADMINISTRATIVE DATA SHEET

SRO	00.AD.268.001	0	03/03/04	2.2.22	3.4/4.1
Appl. To	JPM Number	Rev. No.	Date	NUREG 1123 Sys. No.	K/A

Task Title: Determine required Tech Spec actions for Single loop operations, including any additional actions or surveillances required for increasing power during single loop operation.

Completed By: _____ Date _____

Reviews: _____ Date _____

Russ Halm
Writer _____ Date _____

Instructor/Writer _____ Date _____

Approval:

Requesting Supv./C.A. _____ Date _____

Head _____ Nuclear Trng. Supv. _____ Date _____

Date of Performance: _____

Allowed Time (Min.) 15 Time Taken (Min.) _____

JPM Performed By:

Student Name: _____

Last First M.I. Employee #/S.S. #

Performance Evaluation: () Satisfactory () Unsatisfactory

Evaluator Name: _____

Signature Typed or Printed

Comments:

**REQUIRED TASK INFORMATION
JOB PERFORMANCE MEASURE
S/RO 00.AD.268.001**

I. SAFETY CONSIDERATIONS

- A. All Operations personnel are responsible for maintaining their radiation exposure As Low As Reasonably Achievable in accordance with OP-AD-002, Standards for Shift Operations.
- B. All applicable safety precautions shall be taken in accordance with established PPL safety policies and the Safety Rule Book, for example:
- C. If in the judgement of the evaluator any safety issue occurs during the performance of a JPM, the JPM will be terminated until the issue is resolved.

II. REFERENCES

Tech Specs

- 3.4.1 Recirc Loops operating (Amend 178)
- 3.2.1 APLHGR (Amend 178)
- 3.2.2 MCPR (Amend 178)
- 3.2.3 LHGR (Amend 178)
- 3.3.1.1 Instrumentation (Amend 178)
- 3.4.10 RCS Pressure Temperature Limits (Amend 178)

III. REACTIVITY MANIPULATIONS

This JPM satisfies the requirements of Operational Activity(s):

NONE

IV. TASK CONDITIONS

- A. Unit 1 was performing a power ascension following a refueling outage with Reactor power at ~ 49% when the 1A Reactor Recirc pump tripped.
- B. The 1A Reactor Recirc Pump is not isolated and has been declared NOT in Operation IAW Technical Specifications.
- C. Maintenance has determined the problem is with the 1A Recirc MG set and it will take a minimum of 24 hours to repair the problem.
- D. Direction has been given to raise reactor power while the 1A Recirc MG is being repaired.
- E. ON-164-002, LOSS OF REACTOR RECIRCULATION FLOW has been entered with some portions completed.
- F. The following plant conditions exist:

Reactor power	36%
PICSY Core Flow	41.14 mlbm/hr
PICSY Core dP (NJP51)	1.87 psid
Core Flow dP (XR-B21-1R613)	7.2 %
A Recirc Loop Flow	0.2 mlbm/hr
A Recirc Drive Flow	0 gpm
A Recirc Jet Pump Flow	0 mlbm/hr
1B Reactor Recirc pump speed	45%
B Recirc Loop Flow	4.07 mlbm/hr
B Recirc Drive Flow	24299 gpm
B Recirc Jet Pump Flow	41.1 mlbm/hr

V. INITIATING CUE

Review and complete as required, ON-164-002, LOSS OF REACTOR RECIRCULATION FLOW.

Report to the Shift Manager if Reactor Power can be raised and the Tech Spec actions and or surveillances that will be required to support the present plant conditions and the recommendation.

VI. TASK STANDARD

All Tech Spec required actions identified and reported to the Shift Manager.

PERFORMANCE CHECKLIST

Appl. To/JPM No.: 00.AD.268.001

Student Name: _____

Step	Action	Standard	Eval	Comments
3	Determines GO-100-009 Single Recirculation Loop Operation must be entered. <u>EVALUATOR CUE:</u> Provide the candidate with a copy of GO-100-009 Single Recirculation Loop Operation.	Obtains Controlled copy of GO-100-009 Single Recirculation Loop Operation.		

*Critical Step

#Critical Sequence

PERFORMANCE CHECKLIST

Appl. To/JPM No.: 00.AD.268.001

Student Name: _____

Step	Action	Standard	Eval	Comments
4	Enters GO-100-009 Single Recirculation Loop Operation.	<p>Checks/Completes the following in GO-100-009 Single Recirculation Loop Operation:</p> <p>Comply with COLR Section 8.0 in TRM</p> <p>Record Recirculation Pump and date and time of pump trip.</p> <p>Determine actual core flow.</p> <p>Plot position and all power changes on Power/Flow Map</p> <p>Maintain Reactor operation conditions below the 80% rod line and outside Region II of the Power/Flow Map.</p> <p>Maintain OPERATING loop flow > 40 x 10⁶ lbm/hr to keep idle loop warm, if possible.</p> <p>Verifies the following initiated/complete:</p> <p>SI-178-321,</p> <p>SI-178-209,</p> <p>SI-178-225,</p> <p>SI-178-327.</p>		

*Critical Step

#Critical Sequence

PERFORMANCE CHECKLIST

Appl. To/JPM No.: 00.AD.268.001

Student Name: _____

Step	Action	Standard	Eval	Comments
5	<p><u>EVALUATOR CUE:</u> Role play as required and report the I&C Surveillances (SIs) have been completed.</p> <p>Continues with GO-100-009 Single Recirculation Loop Operation.</p>	<p>Initiates/Verifies complete: SO-178-002 Verification of APRM Scram and Rod Block Settings AND, Verify Core Thermal Limits SO-100-007.</p>		
*6	<p><u>EVALUATOR CUE:</u> Role play as required and report the Surveillances have been completed.</p> <p>Determines Attachment A , Reactor Power Increase During Single Loop Operation of GO-100-009 Single Recirculation Loop Operation must be performed.</p>	<p>Determines Tech Spec Surveillance SR 3.4.10.5 required actions: Within 15 minutes PRIOR to increasing THERMAL POWER: Verify the difference between the bottom head coolant temperature and the RPV coolant temperature is \leq 145°F Reports this to the Shift manager</p>		

*Critical Step

#Critical Sequence

TASK CONDITIONS

- A. Unit 1 was performing a power ascension following a refueling outage with Reactor power at ~ 49% when the 1A Reactor Recirc pump tripped.
- B. The 1A Reactor Recirc Pump is not isolated and has been declared NOT in Operation IAW Technical Specifications.
- C. Maintenance has determined the problem is with the 1A Recirc MG set and it will take a minimum of 24 hours to repair the problem.
- D. Direction has been given to raise reactor power while the 1A Recirc MG is being repaired.
- G. ON-164-002, LOSS OF REACTOR RECIRCULATION FLOW has been entered with some portions completed.
- E. The following plant conditions exist:

Reactor power	36%
PICSY Core Flow	41.14 mlbm/hr
PICSY Core dP (NJP51)	1.87 psid
Core Flow dP (XR-B21-1R613)	7.2 %
A Recirc Loop Flow	0.2 mlbm/hr
A Recirc Drive Flow	0 gpm
A Recirc Jet Pump Flow	0 mlbm/hr
1B Reactor Recirc pump speed	45%
B Recirc Loop Flow	4.07 mlbm/hr
B Recirc Drive Flow	24299 gpm
B Recirc Jet Pump Flow	41.1 mlbm/hr

INITIATING CUE

Review and complete as required, ON-164-002, LOSS OF REACTOR RECIRCULATION FLOW.

Report to the Shift Manager if Reactor Power can be raised and the Tech Spec actions and or surveillances that will be required to support the present plant conditions and the recommendation.

TASK CONDITIONS

- A. Unit 1 was performing a power ascension following a refueling outage with Reactor power at ~ 49% when the 1A Reactor Recirc pump tripped.
- B. The 1A Reactor Recirc Pump is not isolated and has been declared NOT in Operation IAW Technical Specifications.
- C. Maintenance has determined the problem is with the 1A Recirc MG set and it will take a minimum of 24 hours to repair the problem.
- D. Direction has been given to raise reactor power while the 1A Recirc MG is being repaired.
- H. ON-164-002, LOSS OF REACTOR RECIRCULATION FLOW has been entered with some portions completed.
- E. The following plant conditions exist:

Reactor power	36%
PICSY Core Flow	41.14 mlbm/hr
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Core Flow dP (XR-B21-1R613)	7.2 %
A Recirc Loop Flow	0.2 mlbm/hr
A Recirc Drive Flow	0 gpm
A Recirc Jet Pump Flow	0 mlbm/hr
1B Reactor Recirc pump speed	45%
B Recirc Loop Flow	4.07 mlbm/hr
B Recirc Drive Flow	24299 gpm
B Recirc Jet Pump Flow	41.1 mlbm/hr

INITIATING CUE

Review and complete as required, ON-164-002, LOSS OF REACTOR RECIRCULATION FLOW.

Report to the Shift Manager if Reactor Power can be raised and the Tech Spec actions and or surveillances that will be required to support the present plant conditions and the recommendation.

PENNSYLVANIA POWER & LIGHT COMPANY

JOB PERFORMANCE MEASURE

APPROVAL AND ADMINISTRATIVE DATA SHEET

SRO	00.EP.003.082	1	02/17/04	2.4.44	4.0
Appl. To	JPM Number	Rev. No.	Date	NUREG 1123 Sys. No.	K/A

Task Title: Complete the Emergency Notification Report and the PAR State Notification Form IAW EP-PS-100

Completed By:

Reviews:

Russ Halm

Writer

Date

Instructor/Writer

Date

Approval:

Requesting Supv./C.A. Head

Date

Nuclear Trng. Supv.

Date

15 Min Time Critical

Date of Performance:

Allowed Time (Min.)

Time Taken (Min.)

JPM Performed By:

Student Name:

Last

First

M.I.

Employee #/S.S. #

Performance Evaluation:

()

Satisfactory

()

Unsatisfactory

Evaluator Name:

Signature

Typed or Printed

Comments:

REQUIRED TASK INFORMATION
JOB PERFORMANCE MEASURE
SRO 00.EP.003.082

I. SAFETY CONSIDERATIONS

- A. All Operations personnel are responsible for maintaining their radiation exposure As Low As Reasonably Achievable in accordance with OP-AD-002, Standards for Shift Operations.
- B. All applicable safety precautions shall be taken in accordance with established PPL safety policies and the Safety Rule Book, for example:
 - 1. Whenever any electrical panel is opened for inspection during JPM performance.
 - 2. Whenever entering any plant area where specific safety equipment; such as hearing or eye protection, safety shoes, hardhats, etc; is required and/or posted as being necessary.
- C. If in the judgement of the evaluator any safety issue occurs during the performance of a JPM, the JPM will be terminated until the issue is resolved.

II. REFERENCES

- A. EP-PS-100 Emergency Director, Control Room (Rev. 19).
- B. EP-PS-100-E Manage the General Emergency (Tab E) (Revision 17)
- C. Blank copies of Emergency Notification Report.
- D. Blank copies of PAR State Notification Form.

III. REACTIVITY MANIPULATIONS

This JPM satisfies the following Operational Activity(s):

None

IV. TASK CONDITIONS

- A. A LOCA has occurred on Unit 1, Unit 2 is in Refueling Mode.
- B. You are the Shift Manager and Emergency Director in the control room.
- C. You have just made the INITIAL emergency classification as General Emergency based on Fission Product barrier Degradation FG1 "Loss Of ANY Two Barriers AND Loss Or Potential Loss Of The Third Barrier".
- D. The Health Physics supervisor has informed you that the first offsite dose projection will not be available for 30 minutes.
- E. Wind direction is 10° and speed is 5 mph.
- F. There is no offsite release in progress.

V. INITIATING CUE

Perform the duties of the Emergency Director and complete the Emergency Notification Report and the PAR State Notification Form in accordance with the appropriate procedure.

VI. TASK STANDARD

Emergency Notification Report approved with a general emergency classification. PAR of EVACUATING 0-2 MILES AND SHELTERING 2-10 MILES made to the Senior State Official.

PERFORMANCE CHECKLIST

Appl. To/JPM No.: SRO 00.EP.003.082

Student Name: _____

Step	Action	Standard	Eval	Comments
	<p><u>EVALUATOR NOTE:</u></p> <ul style="list-style-type: none"> • This is a Time Critical JPM. • This JPM should be performed in a location where the student will not be interrupted. • Ensure that a copy of EP-PS-100 is available for use by the student. • Ensure a blank PAR State Notification Form and Emergency Notification Report Form is available to be completed by the student. <p><u>EVALUATOR CUE:</u></p> <p>After student reviews Task/Conditions/Initiating Cue Sheet:</p> <ul style="list-style-type: none"> • Ask if the student is ready to begin the JPM. • When the student is ready to begin the JPM, inform the student that this is a Time Critical JPM. <p>Record Start Time _____</p>			
1	Obtains copy of EP-PS-100 Emergency Director, Control Room.	Obtains copy of EP-PS-100 Emergency Director, Control Room		

*Critical Step

#Critical Sequence

PERFORMANCE CHECKLIST

Appl. To/JPM No.: SRO 00.EP.003.082

Student Name: _____

Step	Action	Standard	Eval	Comments
2	Determines appropriate procedure section.	Determines TAB E Manage the General Emergency is the appropriate TAB.		
3	Document and communicate the Emergency Classification.	Announces to Control Room Personnel: I am assuming duties of the Emergency Director. General Emergency Classification declared based on Fission Product barrier Degradation FG1 "Loss Of ANY Two Barriers AND Loss Or Potential Loss Of The Third Barrier". Time and Date of Classification.		
4	If not performed earlier appoint an Emergency Plan Communicator	Appoints an Emergency Plan Communicator and instruct him/her to immediately perform EP-PS-126 E Plan Communicator.		
5	If not performed earlier, appoint an NRC communicator.	Appoints an NRC Communicator and instruct him/her to perform EP-PS-135 NRC Communicator		
6	Generate and approve an ENR form to be transmitted by the Emergency Plan Communicator.	Refers to ENR Form under Tab 9.		

*Critical Step

#Critical Sequence

PERFORMANCE CHECKLIST

Appl. To/JPM No.: SRO 00.EP.003.082

Student Name: _____

Step	Action	Standard	Eval	Comments
7	<p>Fill out and approve the Emergency Notification Report Form.</p> <p><u>EVALUATOR NOTE:</u></p> <p>The communicator will fill out the communicator name, callback telephone number, and time notification is initiated. (Line 2 of the Emergency Notification Report Form).</p> <p><u>EVALUATOR NOTE:</u></p> <p>JPM start time should be used as the Declaration time on line 3 in the next step.</p>	<p>Fills out and approves the Emergency Notification Report Form as follows:</p> <p>LINE 1.</p> <p>Call Status:</p> <p>Places checkmark in This is a drill box</p>		

*Critical Step

#Critical Sequence

PERFORMANCE CHECKLIST

Appl. To/JPM No.: SRO 00.EP.003.082

Student Name: _____

Step	Action	Standard	Eval	Comments
8	<p><u>EVALUATOR NOTE:</u></p> <p>FG1 alone is sufficient for the Brief Non-Technical Description for the initial notification.</p> <p>Candidate may paraphrase this description</p>	<p>LINE 3:</p> <p>Emergency Classification:</p> <p>Places checkmark in General Emergency box</p> <p>Places checkmark in Unit one box</p> <p>Records the JPM start time and date as the Declaration time and date.</p> <p>Places a checkmark in this represents A/AN initial declaration box in classification status.</p>		

*Critical Step

#Critical Sequence

PERFORMANCE CHECKLIST

Appl. To/JPM No.: SRO 00.EP.003.082

Student Name: _____

Step	Action	Standard	Eval	Comments
9		LINE 4. The Emergency action level (EAL) number is: Records EAL # FG1 Brief non –technical description of the event: Fission Product barrier Degradation FG1 “Loss Of ANY Two Barriers AND Loss Or Potential Loss Of The Third Barrier”.		
10		LINE 5. Places a checkmark in the No non-routine radiological release box		
11		LINE 6 Records Wind Direction is from: 10° Wind Speed is: 5 mph		
12		LINE 7. Conclusion: Places a checkmark in this is a drill box.		

*Critical Step

#Critical Sequence

PERFORMANCE CHECKLIST

Appl. To/JPM No.: SRO 00.EP.003.082

Student Name: _____

Step	Action	Standard	Eval	Comments
*13	Approves the Emergency Notification Report Form <u>EVALUATOR NOTE:</u> Candidate may review the filled out ENR form with the E Plan Communicator.	Records the following on space provided: Approved: - His/Her name Time: - Current time Date: - Current Date		
14	Give the approved ENR form to the E Plan Communicator. <u>EVALUATOR CUE:</u> If necessary, Role-play the communicator and accept the filled out form. <u>EVALUATOR NOTE:</u> It is acceptable to use either the PAR Airborne Releases flowchart OR the Public Protective Action Recommendation Guide to make the PAR determination in the following step.	Provides the filled out ENR form to the E Plan Communicator.		

*Critical Step

#Critical Sequence

PERFORMANCE CHECKLIST

Appl. To/JPM No.: SRO 00.EP.003.082

Student Name: _____

Step	Action	Standard	Eval	Comments
15	Make a Protective Action Recommendation (PAR) within 15 minutes. Refers to Tab 5 Public PAR Guide	Refers to Tab 5 Public PAR Guide		

*Critical Step

#Critical Sequence

PERFORMANCE CHECKLIST

Appl. To/JPM No.: SRO 00.EP.003.082

Student Name: _____

Step	Action	Standard	Eval	Comments
*16	Choose appropriate PAR .	<p>Determines PAR by answering the questions posed in either the flowchart OR the Public Protective Action Recommendation Guide as follows:</p> <p>(PA-2) Has a General Emergency been declared? Answers YES</p> <p>(PA-3) Is there a valid dose projection indicating doses of ≥ 1 REM TEDE or ≥ 5 REM CDE child thyroid at a distance of > 2 miles? Answers UNKNOWN</p> <p>(PA-4) Recommend EVACUATING 0-2 MILES</p> <p style="text-align: center;">AND</p> <p>SHELTERING 2-10 MILES</p>		

*Critical Step

#Critical Sequence

PERFORMANCE CHECKLIST

Appl. To/JPM No.: SRO 00.EP.003.082

Student Name: _____

Step	Action	Standard	Eval	Comments
17	Shift Manager/ED shall notify the senior state official using the PAR state notification form at 717-651-2148	Refers to Tab 9 for PAR State Notification Form.		
18	Complete PAR State Notification Form.	Completes PAR State Notification Form as follows: Places a checkmark in This Is A Drill box.		
19		LINE 1 This is _____ of the Susquehanna Steam Electric Station. Records their name		
20	<p><u>EVALUATOR NOTE:</u></p> <p>Line 3 of the PAR State Notification Form is left blank until the actual notification is being made.</p>	LINE 2 Places a checkmark in I am the: Emergency Director at the Susquehanna SES Control Room box.		

*Critical Step

#Critical Sequence

PERFORMANCE CHECKLIST

Appl. To/JPM No.: SRO 00.EP.003.082

Student Name: _____

Step	Action	Standard	Eval	Comments
21	<p><u>EVALUATOR NOTE:</u></p> <p>JPM start time should be used as the declaration time on line 4 in the next step.</p>	<p>LINE 4</p> <p>A General Emergency has been declared as of _____</p> <p>Records the JPM start time</p>		
22	<p><u>EVALUATOR NOTE:</u></p> <p>Candidate may paraphrase the reason for declaring a General Emergency.</p>	<p>LINE 5</p> <p>This declaration was made due to:</p> <p>Fission Product barrier Degradation FG1 "Loss Of ANY Two Barriers AND Loss Or Potential Loss Of The Third Barrier".</p>		

*Critical Step

#Critical Sequence

PERFORMANCE CHECKLIST

Appl. To/JPM No.: SRO 00.EP.003.082

Student Name: _____

Step	Action	Standard	Eval	Comments
*23	<p>Enters the PAR on the State Notification Form.</p> <p><u>EVALUATOR CUE:</u></p> <p>Once the candidate simulates/indicates dialing the number to notify the senior state official, inform the candidate the JPM is complete.</p> <p>Note the time of completion. This will be used to determine if the "Time Critical" portion of the JPM was completed satisfactorily.</p> <p>COMPLETION TIME: _____</p> <p><u>EVALUATOR NOTE:</u></p> <p>Determine the total time the candidate took to make the PAR. This time must be within 15 minutes of beginning the JPM to satisfactorily complete the JPM.</p>	<p>LINE 6</p> <p>The PPL Susquehanna Protective Action Recommendation is:</p> <p>Places a checkmark in Evacuate 0-2 miles and shelter 2-10 miles and advise citizens to take KI in accordance with the state's emergency plans box.</p>		

*Critical Step

#Critical Sequence

TASK CONDITIONS

- A. A LOCA has occurred on Unit 1, Unit 2 is in Refueling Mode.
- B. You are the Shift Manager and Emergency Director in the control room.
- C. You have just made the INITIAL emergency classification as General Emergency based on Fission Product barrier Degradation FG1 "Loss Of ANY Two Barriers AND Loss Or Potential Loss Of The Third Barrier".
- D. The Health Physics supervisor has informed you that the first offsite dose projection will not be available for 30 minutes.
- E. Wind direction is 10° and speed is 5 mph.
- F. There is no offsite release in progress.

INITIATING CUE

Perform the duties of the Emergency Director and complete the Emergency Notification Report and the PAR State Notification Form in accordance with the appropriate procedure.

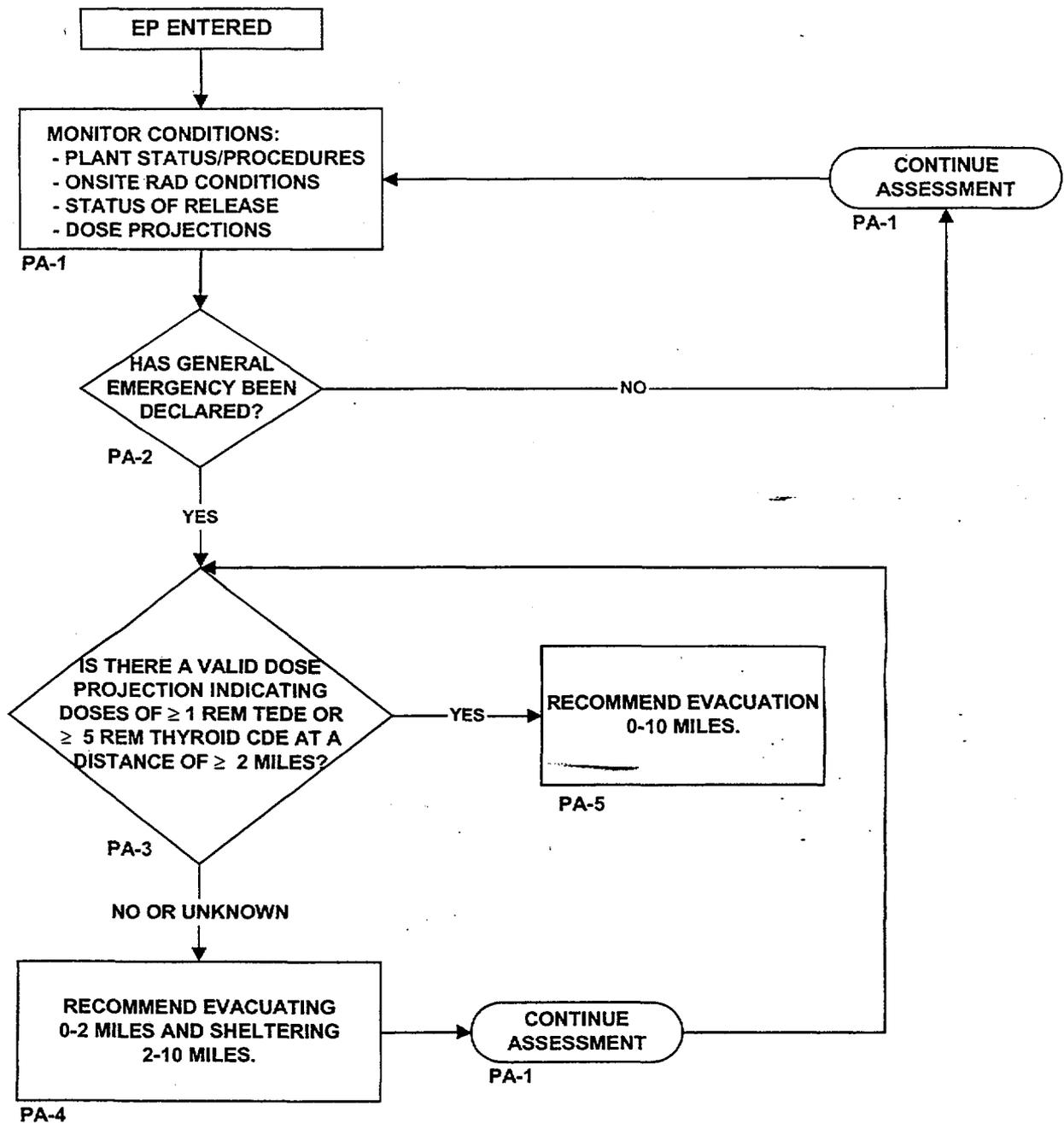
TASK CONDITIONS

- A. A LOCA has occurred on Unit 1, Unit 2 is in Refueling Mode.
- B. You are the Shift Manager and Emergency Director in the control room.
- C. You have just made the INITIAL emergency classification as General Emergency based on Fission Product barrier Degradation FG1 "Loss Of ANY Two Barriers AND Loss Or Potential Loss Of The Third Barrier".
- D. The Health Physics supervisor has informed you that the first offsite dose projection will not be available for 30 minutes.
- E. Wind direction is 10° and speed is 5 mph.
- F. There is no offsite release in progress.

INITIATING CUE

Perform the duties of the Emergency Director and complete the Emergency Notification Report and the PAR State Notification Form in accordance with the appropriate procedure.

PAR AIRBORNE RELEASES



NOTES:

1. PA-# CAN BE USED TO REFER TO PROCEDURE STEPS FOR MORE DETAILED INFORMATION ON THE ACTION TO BE TAKEN.
2. DOSE PROJECTIONS DO NOT INCLUDE DOSE ALREADY RECEIVED.
3. TEDE - WHOLE BODY (TEDE) IS THE SUM OF EFFECTIVE DOSE EQUIVALENT RESULTING FROM EXPOSURE TO EXTERNAL SOURCES. THE COMMITTED EFFECTIVE DOSE EQUIVALENT (CEDE) FROM ALL SIGNIFICANT INHALATION PATHWAYS AND THE DOSE DUE TO GROUND DEPOSITION.
4. CDE - COMMITTED DOSE EQUIVALENT TO THE CHILD THYROID.

PAR LIQUID RELEASES

ENTRY:
INDICATIONS OF A POTENTIAL LIQUID RELEASE
- UNISOLABLE RADWASTE TANK RELEASE
- LEAK TO COOLING TOWER BASIN
- LEAK TO SPRAY POND

PL-1

ENSURE CHEM/ESD
TAKES AND ANALYZES
SAMPLES

PL-2

IS THERE AN
UNPLANNED RELEASE
TO THE RIVER
ATTRIBUTABLE TO THE
EVENT?

No

NO ACTION
REQUIRED

CONTINUE
MONITORING

PL-3

Yes

RAD PERSONNEL NOTIFY
DEP/BRP THAT A RELEASE
HAS OCCURRED

PL-4

IS RELEASE > OR =
TECH REQUIREMENTS (AT
RELEASE POINT)?

No

PL-5

Yes

RAD PERSONNEL NOTIFY
DANVILLE THAT A RELEASE
HAS OCCURRED

PL-6

CHEM/FTD EVALUATES
RELEASE vs PAG

PL-7

DOES RELEASE EXCEED
ANY OF THE SINGLE-NUCLIDE
EC VALUES OR DOES THE
SUM OF EC FRACTIONS
EXCEED 0.85
AT DANVILLE?

No

RAD PERSONNEL
NOTIFY DEP/BRP
THAT NO PAR IS
REQUIRED

PL-10

PL-8

Yes

RAD PERSONNEL NOTIFY DEP/BRP
FOR DOWNSTREAM USERS TO DIVERT
WATER SUPPLY & ESTIMATED TIME OF
ARRIVAL OF RELEASE AT DANVILLE

PL-9

RADIONUCLIDE	EC Values ($\mu\text{Ci/ml}$)
Co-60	3E^{-6}
Sr-91	2E^{-5}
Mo-99	2E^{-5}
Te-132	9E^{-6}
I-131	1E^{-6}
I-133	7E^{-6}
I-134	4E^{-4}
I-135	3E^{-5}
Cs-134	9E^{-7}
Cs-136	6E^{-6}
Cs-137	1E^{-6}
Ba-139	2E^{-4}
Ba-140	8E^{-6}
Ba-141	3E^{-4}
Np-239	2E^{-5}

NOTES:

1. PL-# CAN BE USED TO REFER TO PROCEDURE STEPS FOR MORE DETAILED INFORMATION ON THE ACTION TO BE TAKEN.
2. CALLS TO DANVILLE ARE COURTESY INFORMATION CALLS ONLY. PROTECTIVE ACTION RECOMMENDATION CALLS MUST BE MADE BY DEP/BRP.

PUBLIC PROTECTIVE ACTION RECOMMENDATION GUIDE

AIRBORNE RELEASES

PA-1 MONITOR CONDITIONS FOR PAR APPLICATION

The following conditions should be continuously evaluated to determine if a PAR should be implemented or changed:

- Plant status and prognosis for changes in conditions
- Onsite radiological conditions
- Status of actual or potential radioactive releases
- Offsite dose projections or actual offsite radiological conditions
- Escalation in Emergency Classification (i.e., General)

(Go to PA-2)

PA-2 HAS A GENERAL EMERGENCY BEEN DECLARED?

- YES — If a GENERAL EMERGENCY has been declared, a PAR must be made within 15 minutes of the emergency declaration. The PAR requirement is found in NUREG-0654. (Go to PA-3)
 - NO — If a GENERAL EMERGENCY has not been declared, continue to monitor plant status, parameter trends, and prognosis for termination or escalation of the event. (Go to PA-1)
-

PA-3 IS THERE A VALID DOSE PROJECTION INDICATING DOSES OF ≥ 1 REM TEDE OR ≥ 5 REM CDE CHILD THYROID AT A DISTANCE OF > 2 MILES?

- YES — If the projected doses at 2 miles are ≥ 1 REM TEDE or ≥ 5 REM CDE child thyroid, then full evacuation (0-10 miles) is recommended. (Go to PA-5)
 - NO/UNKNOWN — (Go to PA-4)
-

PA-4 RECOMMEND EVACUATION 0-2 MILES; SHELTER 2-10 MILES

Limited Evacuation (0-2 miles) and sheltering is appropriate for events that are significant enough to cause a General Emergency classification and dose projections are low, unknown, or below full evacuation guidelines.

PA-5 EVACUATE 0-10 MILES

Full evacuation of members of the general public is recommended at this point based on the emergency classification and dose projections.

LIQUID

PL-1 ENTRY

This section is entered when there are indications of a potential unplanned radioactive liquid release.

Indications of potential unplanned releases include:

- an unisolable radwaste tank release
- leaks to cooling tower basin
- leak to spray pond

(Go to PL-2)

PL-2 CHEMISTRY/ENVIRONMENTAL SAMPLING DIRECTOR (ESD) TAKES AND ANALYZES SAMPLE

(Go to PL-3)

PL-3 IS THERE AN UNPLANNED RELEASE TO THE RIVER?

- YES** — An unplanned release to the river has occurred when event-related radioactive materials are released to the river that are not controlled by the release methodologies described in the ODCM and applicable Chemistry procedures.

(Go to PL-4)

- NO** — If there is no unplanned release to the river, then no notifications are required and monitoring should continue.
-

PL-4 RAD PERSONNEL NOTIFY DEP/BRP THAT A RELEASE HAS OCCURRED

Depending on which facility is activated, the notification to BRP will be made by the RPC (TSC), Dose Assessment Supervisor, or Radiological Liaison at the EOF.

DO NOT MAKE ANY PROTECTIVE ACTION RECOMMENDATIONS AT THIS TIME.

(Go to PL-5)

LIQUID (CONT'D)

PL-5 IS RELEASE \geq TECHNICAL REQUIREMENTS LIMITS (AT THE RELEASE POINT)?

- YES** — Releases are at or greater than Technical Requirements limits when Chemistry determines that the limits are exceeded based on methodologies described in the ODCM and applicable Chemistry procedures.

(Go to PL-6)

- NO** — If the release is $<$ Technical Requirements limits, then no further notifications are required and monitoring should continue.

PL-6 RAD PERSONNEL NOTIFY DANVILLE THAT A RELEASE HAS OCCURRED

Depending on which facility is activated, the notification to Danville will be made by the RPC (TSC), Dose Assessment Supervisor, or Radiological Liaison at the EOF.

DO NOT MAKE ANY PROTECTIVE ACTION RECOMMENDATIONS AT THIS TIME.

(Go to PL-7)

PL-7 CHEM/FTD EVALUATES RELEASE VERSUS PAGs

The results of the sample analysis are compared to the PAGs for radionuclides in drinking water. The analysis calculates the expected concentration at Danville, taking into account the dilution afforded by the river.

PL-8 DOES RELEASE EXCEED PAGs (AT DANVILLE)?

- YES** — If a single isotope exceeds its effluent concentration (EC) value or the sum of EC fractions exceeds 0.85, then a protective action recommendation should be made for downstream water users (e.g., Danville) to **DIVERT DRINKING WATER** supply to a backup supply or terminate user intake until the release has passed.

(Go to PL-9)

- NO** — If the PAGs are not exceeded, monitoring should continue and the State should be notified that no PAR for the liquid release is required.

(Go to PL-10)

LIQUID (CONT'D)

PL-9 RAD PERSONNEL NOTIFY DEP/BRP OF PAR

Depending on which facility is activated, the PAR notification to DEP/BRP will be made by the RPC (TSC), Dose Assessment Supervisor, or Radiological Liaison at the EOF. **The PAR FORM shall be used to document the PAR.**

DO NOT COMMUNICATE THE PROTECTIVE ACTION RECOMMENDATION TO DANVILLE. THE DEP/BRP IS RESPONSIBLE FOR THIS COMMUNICATION AND ANY COMMUNICATION TO OTHER DRINKING WATER SUPPLIERS OR WATER USERS.

PL-10 RAD PERSONNEL NOTIFY DEP/BRP

No PAR is required. Depending on which facility is activated, the RPC (TSC), Dose Assessment Supervisor, or Radiological Liaison at the EOF shall notify DEP/BRP that no PAR is required.

Control # _____

EMERGENCY NOTIFICATION REPORT

1. Call Status: THIS IS A DRILL THIS IS AN ACTUAL EVENT

2. This is: _____ at Susquehanna Steam Electric Station.
(Communicator's Name)

My telephone number is: _____ Notification time is: _____
(Callback telephone number) (Time notification initiated)

3. EMERGENCY CLASSIFICATION:

- UNUSUAL EVENT SITE AREA EMERGENCY
 ALERT GENERAL EMERGENCY
 The event has been terminated.

UNIT: ONE TWO ONE & TWO
Declaration Time: _____ DATE: _____
(Time classification/ termination declared) (Date classification/ termination declared)

THIS REPRESENTS A/AN: INITIAL DECLARATION ESCALATION NO CHANGE } IN CLASSIFICATION STATUS

4. The Emergency Action Level (EAL) Number is: _____

BRIEF NON-TECHNICAL DESCRIPTION OF THE EVENT:

- For initial declaration, static update, or escalation, provide current classification EAL number only.
- For significant events, or when directed by the ED, RM, or EOFSS, provide a brief description.
- For termination, write emergency has been terminated.

5. THERE IS: No AN AIRBORNE A LIQUID } NON-ROUTINE RADIOLOGICAL RELEASE IN PROGRESS

6. WIND DIRECTION IS FROM: _____ WIND SPEED IS: _____ mph.
(Data from 10 meter meteorological tower, available on PICSY.)

7. Conclusion: THIS IS A DRILL THIS IS AN ACTUAL EVENT

APPROVED: _____ Time: _____ Date: _____
(ED, RM, or EOFSS) (Time form approved) (Date form approved)

PROTECTIVE ACTION RECOMMENDATION STATE NOTIFICATION FORM

- THIS IS A DRILL THIS IS AN ACTUAL EVENT

(This form is to be used to communicate PPL's Protective Action to the senior state official at 717-651-2148.)

1. This is _____ of the Susquehanna Steam Electric Station.
(Fill in your name)

2. I am the: Emergency Director at the Susquehanna SES Control Room
 Emergency Director at the Technical Support Center
 Recovery Manager at the Emergency Operations Facility

3. I am about to provide a Protective Action Recommendation. Do I have the Senior State Official on the line?

Name _____

4. A General Emergency has been declared as of _____.

5. This declaration was made due to:

6. The PPL Susquehanna Protective Action Recommendation is:

- Evacuate 0-10 miles and advise citizens to take KI in accordance with the state's emergency plans.
 Evacuate 0-2 miles and shelter 2-10 miles and advise citizens to take KI in accordance with the state's emergency plans.
 Divert Danville drinking water supply from the Susquehanna River
 Evacuate beyond 10 miles (specify distance _____) and advise citizens to take KI in accordance with the state's emergency plans.

7. Date/Time: _____