

EXELON NUCLEAR

TITLE: Working Hour Limitations

TASK PERFORMED BY: _____ EVALUATOR: _____

EVALUATOR SIGNATURE: _____ DATE: _____

DIRECTIONS TO EVALUATOR:

EVALUATION METHOD :

PERFORM

A1-1

EVALUATION LOCATION:

ANY

APPROXIMATE COMPLETION TIME:

Completion Time: 10 minutes

IMPORTANCE RATING(S):

3.4

SYSTEM NUMBER(S):

2.1.5

REFERENCES:

1. A-C-40 Rev 1, WORKING HOUR LIMITATIONS (Common)

TASK STANDARD(S):

RPO determined to not be able to stand watch.

FHD determined to need working hour limit deviation form to permit helping with surveillance

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TASK CONDITIONS:

1. The following Limerick Unit 1 outage working hour history is given for an on-coming Fuel Handling Director (FHD) and a Refuel Platform Operator (RPO). The hours worked are on the Unit 2 Refueling Platform performing core alterations

Date	FHD	RPO
5/28 (Day 1)	12 hrs (DS)	12 hrs (NS)
5/29	12 hrs (DS)	OFF
5/30	12 hrs (DS)	OFF
5/31	OFF	12 hrs (DS)
6/1	12 hrs (DS)	12 hrs (DS)
6/2	12 hrs (DS)	12 hrs (DS)
6/3	12 hrs (DS)	12 hrs (DS)
6/4	12 hrs (DS)	12 hrs (DS)
6/5	12 hrs (DS)	12 hrs (DS)

DS=Dayshift

NS=Nightshift

The RPO and FHD are scheduled to work dayshift today, 6/6

INITIATING CUES:

You are directed to evaluate the working hour history for the FHD and the RPO and determine whether one or both individuals can work a full dayshift of 12 hours

EXELON NUCLEAR

Critical Element(s) indicated by "*" in Performance Checklist.

PERFORMANCE CHECKLIST:

STEP	STANDARD	SAT/UNSAT
Assess working hour limitations in A-C-40		
<p>Note: The JPM steps below are excerpts from A-C-40 that represent the most likely steps the candidate will cite when performing the JPM. The entire procedure is not duplicated.</p> <p>Fuel Handling comes under the control of Nuclear Safety Related work under the definitions section 4.2.2</p>		
1. Obtain A-C-40	A-C-40 obtained	
2. The number of hours worked shall be controlled in accordance with the limitations set in Working Hour Limitation Deviation Form (Exhibit A-C-40-1)	<p>Assess hours worked and conclude the following:</p> <p>The FHD may work the entire 12 hour dayshift</p>	
3. *The number of hours worked shall be controlled in accordance with the limitations set in Working Hour Limitation Deviation Form (Exhibit A-C-40-1)	<p>Assess hours worked and conclude the following:</p> <p>The RPO may not take the shift because the next hour worked will result in the RPO exceeding 72 hours in a 168 hour period</p>	
<p>4. CUE: Assume you have completed a 12 hour shift as FHD and are in the NMD office. You have just received a call one hour after turnover from the refuel bridge that your help is needed in performing a partial ST on the bridge for about 2 hours.</p> <p>Assess whether you can assist with the ST</p>	N/A	
5. *The number of hours worked shall be controlled in accordance with the limitations set in Working Hour Limitation Deviation Form (Exhibit A-C-40-1)	<p>Assess the conditions and conclude that a working hour limitations deviation form would need to be filled out and approved to permit helping with the ST.</p> <p>Performance of the ST would violate:</p> <ul style="list-style-type: none"> • 24 in 48 hrs, and • 72 in 168 hrs 	

EXELON NUCLEAR

STEP	STANDARD	SAT/UNSAT
6. CUE: You have reached the termination point for this JPM. You may stop here.	N/A	

EXELON NUCLEAR

Comments:

Note: Any grade of UNSAT requires a comment.

JPM Overall Rating: _____
SAT/UNSAT

EXELON NUCLEAR

TASK CONDITIONS:

1. The following Limerick Unit 1 outage working hour history is given for an on-coming Fuel Handling Director (FHD) and a Refuel Platform Operator (RPO). The hours worked are on the Unit 2 Refueling Platform performing core alterations

Date	FHD	RPO
5/28 (Day 1)	12 hrs (DS)	12 hrs (NS)
5/29	12 hrs (DS)	OFF
5/30	12 hrs (DS)	OFF
5/31	OFF	12 hrs (DS)
6/1	12 hrs (DS)	12 hrs (DS)
6/2	12 hrs (DS)	12 hrs (DS)
6/3	12 hrs (DS)	12 hrs (DS)
6/4	12 hrs (DS)	12 hrs (DS)
6/5	12 hrs (DS)	12 hrs (DS)

DS=Dayshift

NS=Nightshift

The RPO and FHD are scheduled to work dayshift today, 6/6

INITIATING CUES:

You are directed to evaluate the working hour history for the FHD and the RPO and determine whether one or both individuals can work a full dayshift of 12 hours

CANDIDATE

EXELON NUCLEAR

TITLE: Fuel Handling Director Turnover Conditions Plant Differences

TASK PERFORMED BY: _____ EVALUATOR: _____

EVALUATOR SIGNATURE: _____ DATE: _____

DIRECTIONS TO EVALUATOR:

EVALUATION METHOD :

A1-2

PERFORM

EVALUATION LOCATION:

ANY

APPROXIMATE COMPLETION TIME:

Completion Time: 10 minutes

IMPORTANCE RATING(S):

3.5

SYSTEM NUMBER(S):

2.2.28 Generic

REFERENCES:

1. Exhibit NOM-L-4.1:13, Rev 0, FUEL HANDLING DIRECTOR SHIFT TURNOVER CHECKLIST

TASK STANDARD(S):

Turnover conditions assessed with consideration of the different administrative limits. Determine that core alterations may proceed at PBAPS and may NOT proceed at LGS.

EXELON NUCLEAR

TASK CONDITIONS:

The following plant conditions for Limerick Unit 2 and Peach Bottom Unit 2 are provided

Plant Condition	Limerick Unit 2	Peach Bottom Unit 2
Plant Operating Condition	OPCON 5	Mode 5
Activities	Shuffle Part 2 to start	Shuffle Part 2 to Start
Core Status	Per the Attached Map	Per the Attached Map
Recirc Pumps	A and B Secured	A and B Secured
RHR	"A" SDC 6200 gpm	"A" SDC 6200 gpm
Coolant Temp	110 degrees F	110 degrees F
RPV Water Level	483 " LR42-1R608	460 " PR/FR-2-06-097
Fuel Pool Gates	Removed	Removed
Control Rods	All inserted	All inserted

INITIATING CUES:

Evaluate turnover conditions and determine whether core alterations are permitted and the basis for any discrepancy on Both Units

EXELON NUCLEAR

Critical Element(s) indicated by "*" in Performance Checklist.

PERFORMANCE CHECKLIST:

STEP	STANDARD	SAT/UNSAT
1. Obtain Exhibit NOM-L-4.1:13	Exhibit NOM-L-4.1:13 obtained	
2. Assess plant conditions against requirements		
a. *RHR SDC flow \leq 6000 gpm at LGS or \leq 6500 gpm at PBAPS or all in-core instruments supported	Determine RHR flow is too high at Limerick. Determine from the map that numerous instruments are not supported, and the flow limits apply Conclude that core alterations may not commence at Limerick	
b. RHR SDC flow \leq 6000 gpm at LGS or \leq 6500 gpm at PBAPS or all in-core instruments supported	All conditions are satisfactory at Peach Bottom Conclude that core alterations may commence at Peach Bottom	
CUE: You have reached the termination point for this JPM. You may stop here.	N/A	N/A

EXELON NUCLEAR

Comments:

Note: Any grade of UNSAT requires a comment.

JPM Overall Rating: _____
SAT/UNSAT

EXELON NUCLEAR

TASK CONDITIONS:

The following plant conditions for Limerick Unit 2 and Peach Bottom Unit 2 are provided

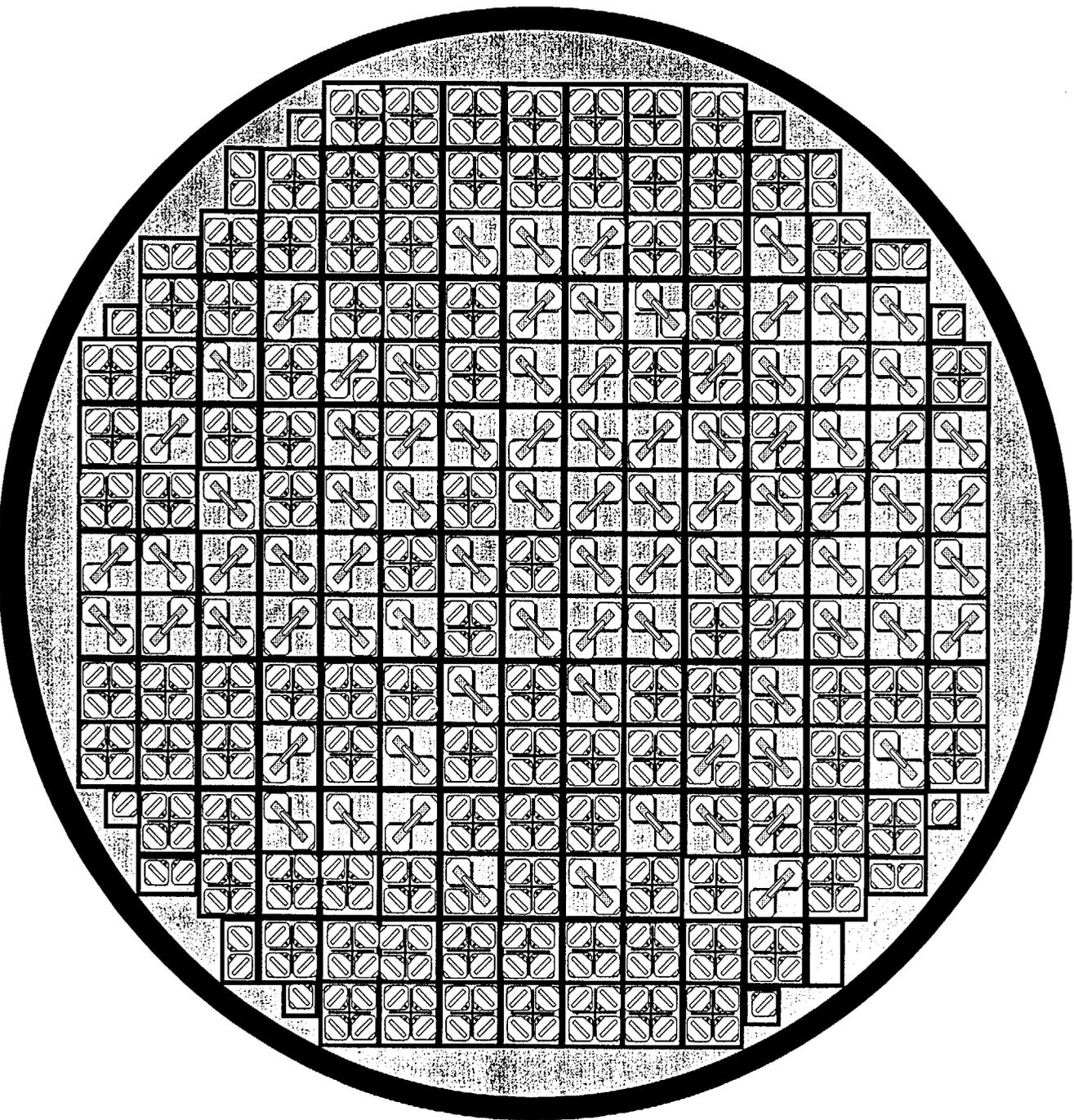
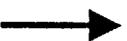
Plant Condition	Limerick Unit 2	Peach Bottom Unit 2
Plant Operating Condition	OPCON 5	Mode 5
Activities	Shuffle Part 2 to start	Shuffle Part 2 to Start
Core Status	Per the Attached Map	Per the Attached Map
Recirc Pumps	A and B Secured	A and B Secured
RHR	"A" SDC 6200 gpm	"A" SDC 6200 gpm
Coolant Temp	110 degrees F	110 degrees F
RPV Water Level	483 " LR42-1R608	460 " PR/FR-2-06-097
Fuel Pool Gates	Removed	Removed
Control Rods	All inserted	All inserted

INITIATING CUES:

Evaluate turnover conditions and determine whether core alterations are permitted and the basis for any discrepancy on Both Units

CANDIDATE

0 Deg Azimuth



Peach Bottom Unit 2

Limerick Unit 2

JPM A1-2

CANDIDATE

EXELON NUCLEAR

TITLE: Core Counting Locations at Limerick and Peach Bottom

TASK PERFORMED BY: _____ EVALUATOR: _____

EVALUATOR SIGNATURE: _____ DATE: _____

DIRECTIONS TO EVALUATOR:

EVALUATION METHOD :

PERFORM

A.2

EVALUATION LOCATION:

ANY

APPROXIMATE COMPLETION TIME:

Completion Time: 10 minutes

IMPORTANCE RATING(S):

3.3

SYSTEM NUMBER(S):

2.2.3 Generic

REFERENCES:

1. RE-C-40 Rev 90, CORE COMPONENT TRANSFER AUTHORIZATION SHEET GENERATION AND ADMINISTRATION

TASK STANDARD(S):

Component locations identified per the attached grading keys

TASK CONDITIONS:

1. Overhead views of Peach Bottom and Limerick vessels are provided

INITIATING CUES:

Circle the location of the following instruments and label with the respective core location:

Limerick – “A” Source Range Monitor (SRM)

Peach Bottom – “A” Wide Range Nuclear Monitor (WRNM)

EXELON NUCLEAR

Critical Element(s) indicated by "*" in Performance Checklist.

PERFORMANCE CHECKLIST:

STEP	STANDARD	SAT/UNSAT
1. CUE: Provide the candidate with two blank core diagrams. Note that the answer keys are attached to the JPM and are labeled. LGS and PBAPS cores are rotated 90 degrees from each other. LGS does not have WRNMs		
2. *Mark the Limerick map at location 16-45	16-45 marked	
3. *Mark the Peach Bottom map at location 16-53	16-53 marked	
CUE: You have reached the termination point for this JPM. You may stop here.	N/A	N/A

EXELON NUCLEAR

Comments:

Note: Any grade of UNSAT requires a comment.

JPM Overall Rating: _____
SAT/UNSAT

EXELON NUCLEAR

TASK CONDITIONS:

1. Overhead views of Peach Bottom and Limerick vessels are provided

INITIATING CUES:

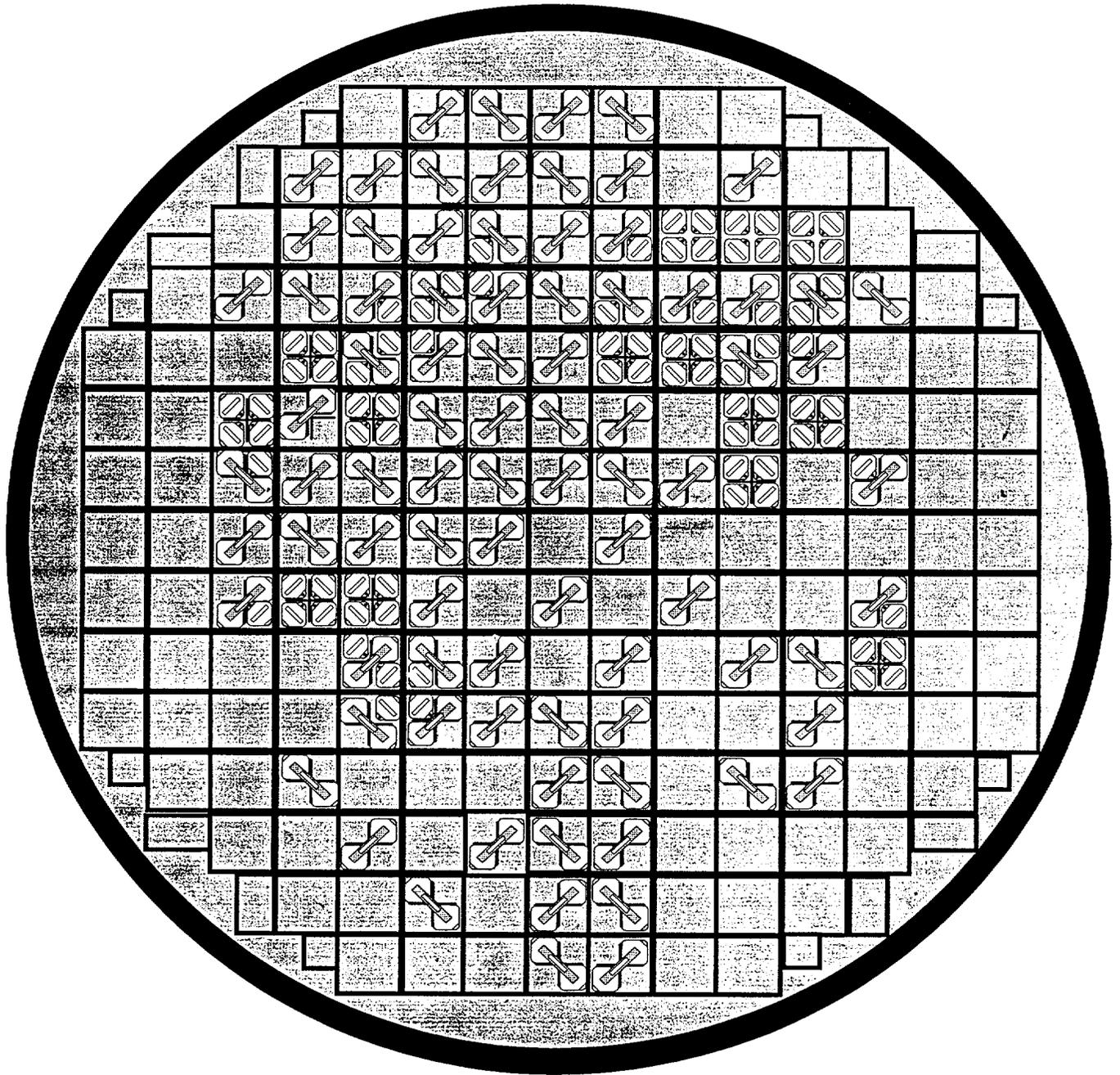
Circle the location of the following instruments and label with the respective core location:

Limerick – “A” Source Range Monitor (SRM)

Peach Bottom – “A” Wide Range Nuclear Monitor (WRNM)

CANDIDATE

W ↑

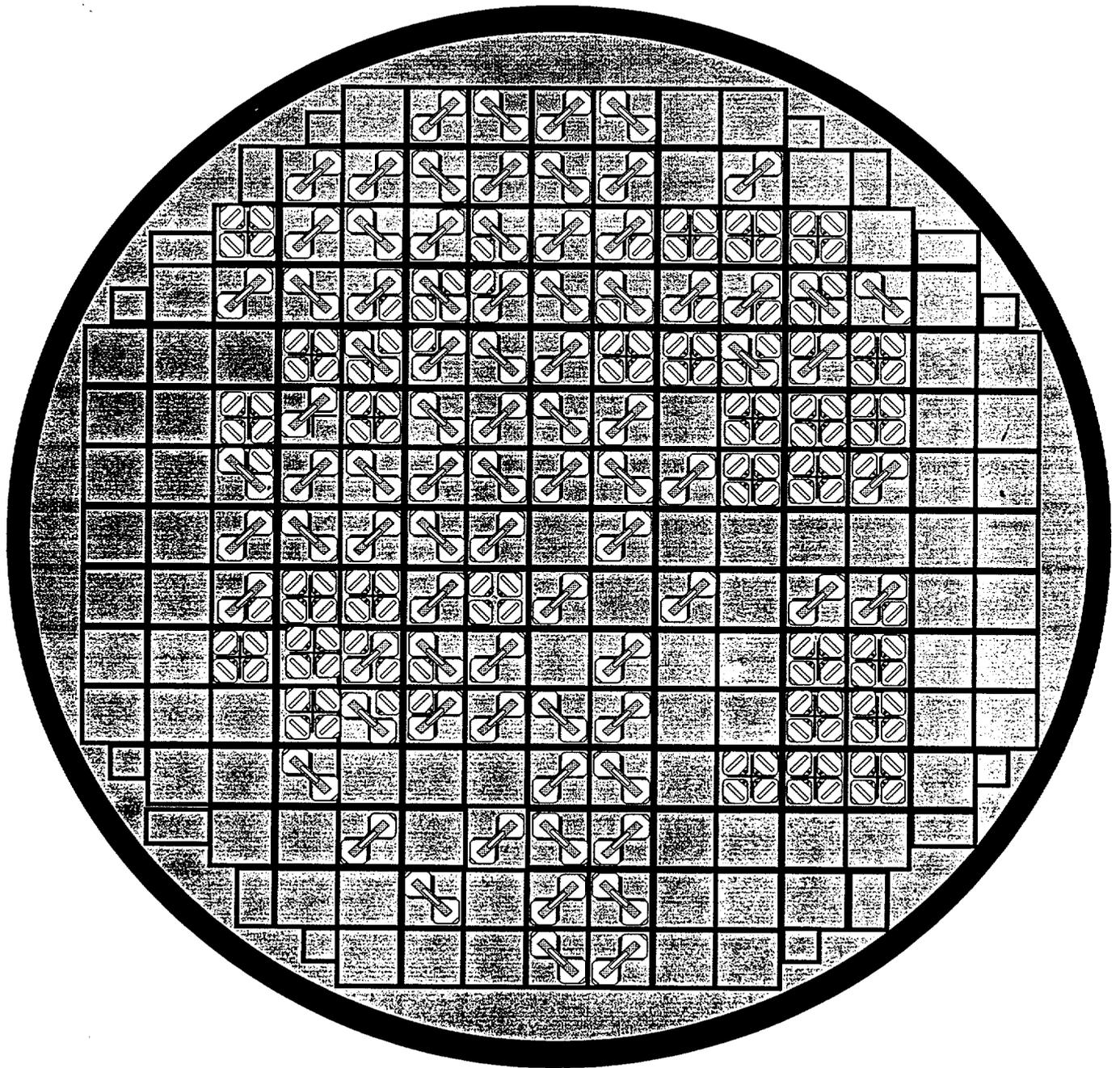


Peach Bottom Unit 3

CANDIDATE

JPM A2

N ↑



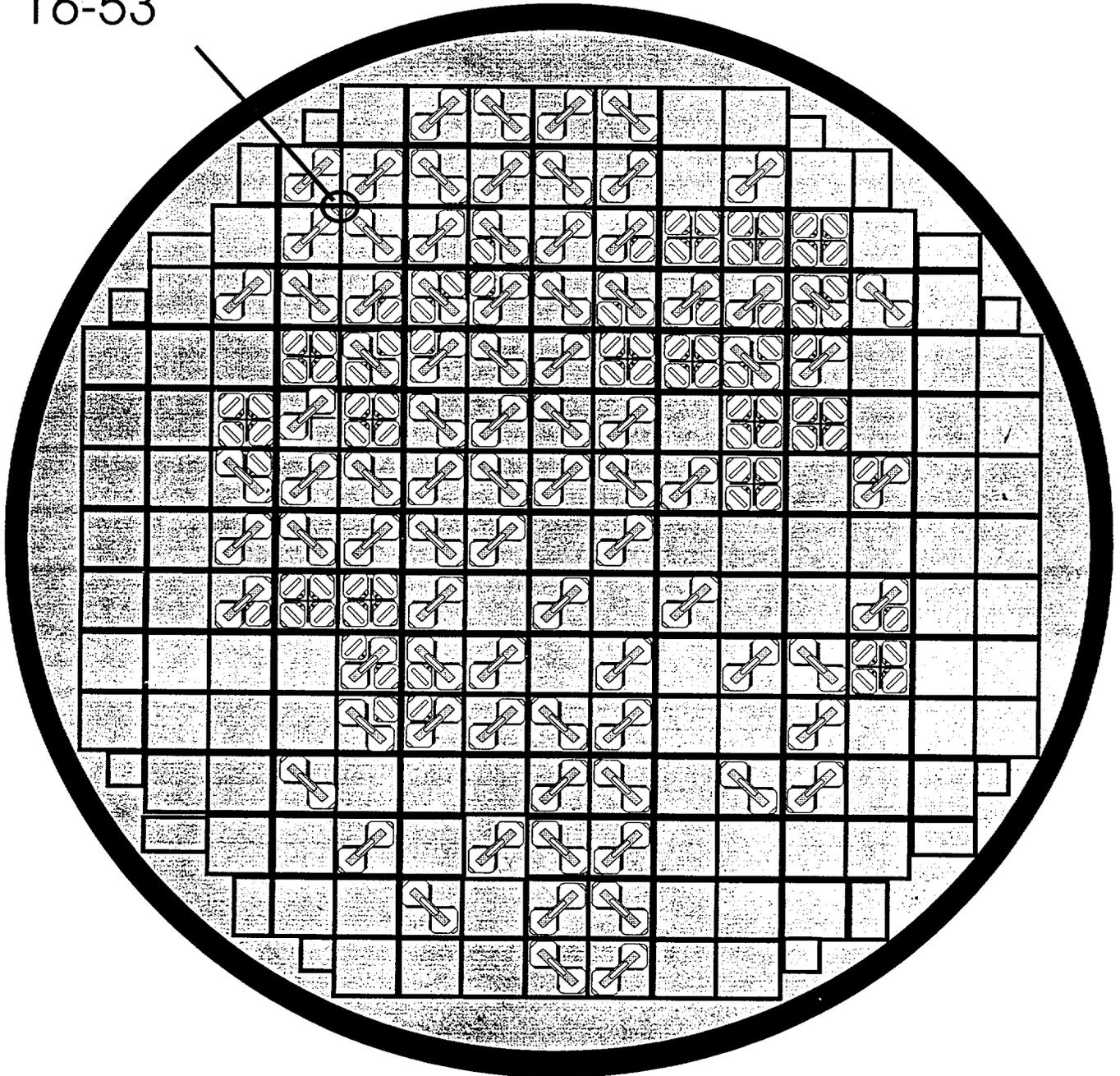
Limerick Unit 1

CANDIDATE

JPM A2

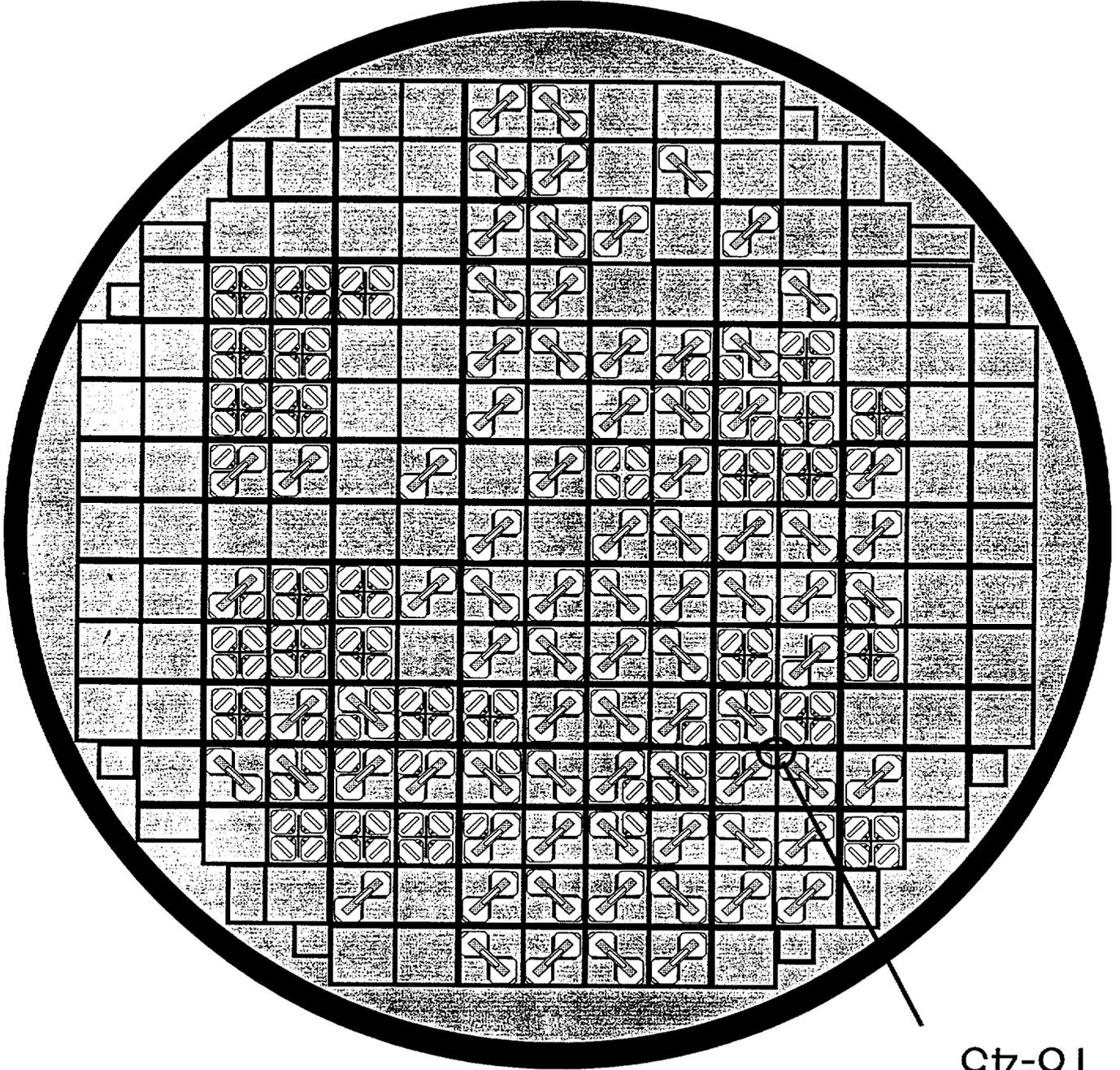
JPM A2

"A" WRNM
16-53



ANSWER KEY - PB

ANSWER KEY - LGS



"A" SRM
16-45



JPM A2

Administrative Questions for PBAPS Cat A.3 Radiation Control

A.3

Question A3-1 Candidate Copy

Given the following conditions:

- An Maintenance Technician has just exited the refueling platform and walked to the Personal Contamination Monitor (PCM)
- The individual was handling poles and cables that were submerged in the spent fuel pool
- The operator alarmed the PCM one time

1. What are the operator's required actions?

(Wait for Part 1 answer)

2. If the monitor alarms a second time, what are the required actions?

CANDIDATE

Question A3-1 GRADING KEY

Given the following conditions:

- An Maintenance Technician has just exited the refueling platform and walked to the Personal Contamination Monitor (PCM)
- The individual was handling poles and cables that were submerged in the spent fuel pool
- The operator alarmed the PCM one time

1. What are the operator's required actions?

(Wait for Part 1 answer)

2. If the monitor alarms a second time, what are the required actions?

Answer:

1. Re-monitor one time
2. If the monitor alarms for a second time, then
 - a. Remain in the area
 - b. Minimize contact with personnel, tools, or equipment
 - c. Contact Health Physics*

*Minimum required answer

K/A 2.3.2 (2.9) Knowledge of Facility ALARA program
Source: New

ANSWER KEY

Question A3-2 Candidate Copy

Question:

Peach Bottom Unit 2 conditions are as follows:

- LPRM exchange is scheduled to begin within the next 15 minutes
- Work is in progress in the drywell on Elevation 135'

Assuming the drywell work must continue, what protective measures are taken by Health Physics to prevent those individuals from receiving excessive dose as the result of LPRM removal?

CANDIDATE

Question A3-2 GRADING KEY

Peach Bottom Unit 2 conditions are as follows:

- LPRM exchange is scheduled to begin within the next 15 minutes
- Work is in progress in the drywell on Elevation 135'

Assuming the drywell work must continue, what protective measures are taken by Health Physics to prevent those individuals from receiving excessive dose as the result of LPRM removal?

1. *Access must be restricted to prevent access to the upper drywell elevations (194' and above and 184' inside the bioshield)
2. A radiological monitoring system must be installed and monitoring the upper drywell and bioshield access points with local alarms
3. Drywell workers must be briefed prior to entering the drywell

How will the FHD be informed that the actions have been taken?

*The drywell control point will contact the FHD

*Minimum required answer

K/A 2.3.10 (3.3)

Source: New

Reference: HP-321

ANSWER KEY

EXELON NUCLEAR

TITLE: Determine EAL for refueling accident conditions

TASK PERFORMED BY: _____ EVALUATOR: _____

EVALUATOR SIGNATURE: _____ DATE: _____

DIRECTIONS TO EVALUATOR:

EVALUATION METHOD :

PERFORM

EVALUATION LOCATION:

ANY

APPROXIMATE COMPLETION TIME:

Completion Time: 10 minutes

A.4

IMPORTANCE RATING(S):

4.1

SYSTEM NUMBER(S):

2.4.41

REFERENCES:

1. ERP-101 Rev.23, CLASSIFICATION OF EMERGENCIES

TASK STANDARD(S):

Event is Classified as an Alert per ERP-101

TASK CONDITIONS:

1. Peach Bottom Unit 3 is in Mode 5
2. A breach of the bottom of the spent fuel pool liner has resulted in a loss of level in the reactor cavity and spent fuel pool
3. The spent fuel pool gates have been installed
4. RPV level is 430 inches above instrument zero and rising slowly due to ECCS manual initiation
5. Fuel pool level is at the 222' elevation and still lowering with maximum available emergency makeup injecting

INITIATING CUES:

Determine the minimum required Emergency Action Level based on the above conditions

EXELON NUCLEAR

Critical Element(s) indicated by "*" in Performance Checklist.

PERFORMANCE CHECKLIST:

STEP	STANDARD	SAT/UNSAT
1. Obtain ERP-101	ERP-101 obtained	
2. Locate Section 1.2, Irradiated or New Fuel	Section 1.2 located	
3. *Classify the Event per Section 1.2 of ERP-101 (Evaluator copy is attached)	EAL determined to be an ALERT	
CUE: You have reached the termination point for this JPM. You may stop here.	N/A	N/A

EXELON NUCLEAR

Comments:

Note: Any grade of UNSAT requires a comment.

JPM Overall Rating: _____
SAT/UNSAT

EXELON NUCLEAR

TASK CONDITIONS:

1. Peach Bottom Unit 3 is in Mode 5
2. A breach of the bottom of the spent fuel pool liner has resulted in a loss of level in the reactor cavity and spent fuel pool
3. The spent fuel pool gates have been installed
4. RPV level is 430 inches above instrument zero and rising slowly due to ECCS manual initiation
5. Fuel pool level is at the 222' elevation and still lowering with maximum available emergency makeup injecting

INITIATING CUES:

Determine the minimum required Emergency Action Level based on the above conditions

CANDIDATE

EXELON NUCLEAR

**1.0 Reactor Fuel
1.2 Irradiated Fuel or New Fuel**

CLASSIFICATION	EMERGENCY ACTION LEVEL
UNUSUAL EVENT	<p>IC Unexpected Rise in Plant Radiation or Airborne Concentration.</p> <p>1.2.1.a Applicable Modes: ALL Uncontrolled water level drop in the spent fuel pool with all irradiated fuel assemblies remaining covered by water</p> <p>1.2.1.b Applicable Modes: ALL Unexpected Skimmer Surge Tank low level alarm AND Visual observation of an uncontrolled water level drop below the fuel pool skimmer surge tank inlet</p> <p>IC Unexpected Rise in Plant Radiation</p> <p>1.2.1.c Applicable Modes: ALL Radiological readings exceed 600 mR/hr one foot away OR 1200 mR/hr at the external surface of any dry storage system</p>
ALERT	<p>IC Major Damage to Irradiated Fuel, or Loss of Water Level that Has or Will Result in the Uncovering of Irradiated Fuel Outside the Reactor Vessel</p> <p>1.2.2.a Applicable Modes: ALL Unplanned general area radiation > 500 mR/hr on the refuel floor (Table 1-1)</p> <p>1.2.2.b Applicable Modes: ALL Report of visual observation of irradiated fuel uncovered</p> <p>1.2.2.c Applicable Modes: 5 (With Reactor Refueling Cavity Flooded) Water Level < 458" above RPV instrument zero for the Reactor Refueling Cavity that will result in Irradiated Fuel uncovering</p> <p>1.2.2.d Applicable Modes: ALL Water Level < 232ft 3 inches plant elevation for the Spent Fuel Pool that will result in Irradiated Fuel uncovering</p>
SITE AREA EMERGENCY	None
GENERAL EMERGENCY	None

ANSWER KEY

Table 1-1 Refuel Floor ARMs

3-7 (7-9)	Steam Separator Pool
3-8 (7-10)	Refuel Slot
3-9(7-11)	Fuel Pool
3-10(7-12)	Refueling Bridge