

Facility: Limerick Generating Station

Date of Examination: 04/03/2000

Examination Level RO

Operating Test Number: \_\_\_\_\_

Administrative Topic/Subject Description		Describe method of evaluation: 1. ONE Administrative JPM, OR 2. TWO Administrative Questions	
A.1	Conduct of Operations	Temporary Relief	(OM-C-6.2)
		License Qualification Maintenance	(OM-L-5.5)
		JPM: Evaluate and Troubleshoot a faulty 3D Monicore P1 Edit	(RE-C-20)
A.2	Equipment Control	Surveillance Test Grace Period	(A-C-43)
		Troubleshooting Plant Equipment (TRT)	(A-C-41)
A.3	Radiation Control	High Radiation Area	(TS 6.12.1)
		Contamination Control	(HP-C-818)
A.4	Emergency Plan	Alternate Emergency Facilities	(ERP-200)
		Emergency Communicator	(ERP-110)

Facility: Limerick Generating Station

Date of Examination: 04/03/2000

Examination Level SRO

Operating Test Number: \_\_\_\_\_

Administrative Topic/Subject Description		Describe method of evaluation: 1. ONE Administrative JPM, OR 2. TWO Administrative Questions
A.1	Conduct of Operations	Actions for an incorrect Checkoff List (COL) step (OM-C-10.7)
		OPCON change requirements during Startup (GP-2)
		Discovery of a mispositioned Control Rod (ON-123)
		Working Hour Restrictions (A-C-40)
A.2	Equipment Control	Equipment Status Tag use (OM-L-10.1)
		Failed Surveillance Test (A-C-43)
A.3	Radiation Control	Emergency Dose Extension (HP-C-106)
		Locked High Rad Area Control (HP-C-215)
A.4	Emergency Plan	JPM: Classify the Emergency Action Level (EAL) (ERP-101)

NO.: 126 REV.: 2 TYPE: ES ENTERED BY: LOT DATE ENTERED: 02/11/00  
DIFFICULTY: 2 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:  
TASK NUMBER: G SKA NO.: 2.1.3 TAXONOMY NO.: 3.0  
LESSON PLANS: RO ADMIN #1 A.1 LOT1574.08  
: OM-C-6.2  
CATEGORY: 00 RO A  
SYSTEMS: OM

## QUESTION :

Five (5) hours into the shift, the Unit 1 RO must attend a Plant Evolution/Special Test (PEST) Briefing.

The briefing is expected to take 45 minutes.

The CRS has authorized the relief.

- a. Is the relief person required to have attended the Shift Turnover Meeting?
- b. What are the minimum items that must be discussed with the relief person before the RO can be relieved?
- c. Can the relief person be a Senior Reactor Operator?

## ANSWER :

- a. No (.25 pts)
- b. All of the following for full credit (.50 pts)
  - Events that have occurred since the Shift Turnover Meeting
  - Activities in progress
  - Walk down the applicable control panels

Additionally, if the relief did not attend the Shift Turnover Mtg,

- Unit conditions and ongoing evolutions that may be of impact during the relief
- c. Yes (.25 pts)

NO.: 127 REV.: 4 TYPE: ES ENTERED BY: LOT DATE ENTERED: 02/11/00  
DIFFICULTY: 2 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:  
TASK NUMBER: G SKA NO.: 2.1.1 TAXONOMY NO.: 3.7  
LESSON PLANS: RO ADMIN #2 A.1 LOT1570.08  
: OM-L-5.5 A-C-10  
CATEGORY: 00 RO A  
SYSTEMS: OM

## QUESTION :

Listed below is the on-shift time for a Licensed Reactor Operator since receiving an initial license on February 20th of this year.

<u>Date</u>	<u>Hours worked/duties</u>
March 31	12 as Unit 2 RO
April 3	12 as Unit 1 RO
April 18	12 as Plant Reactor Operator
June 25	12 as 4th RO supporting D12 Break-in run
June 26	12 as 4th RO supporting Unit 2 Startup
June 30	12 as Unit 2 RO

Today is July 18th

- What is the Operators License status today?
- Can the Operator assume Duty day shift 4th RO duties today?
- Briefly explain your answer to part b.

## ANSWER :

- Inactive (.25 pts)
- No (.25 pts)
- The requirements for maintaining an active license are not met because: (.50 pts)

The Operator must perform RO duties for five 12-hour shifts (60 hours) per calendar quarter.

The 4th RO position does not qualify as RO duties, unless supporting startup or shutdown activities, so only four (4) 12-hour shifts (48 hours) can be taken credit for and this does not meet the requirement for the April-June quarter.

NO.: 128 REV.: 2 TYPE: ES ENTERED BY: LOT DATE ENTERED: 02/10/00  
 DIFFICULTY: 2 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:  
 TASK NUMBER: G SKA NO.: 2.2.12 TAXONOMY NO.: 3.0/3.4  
 LESSON PLANS: RO ADMIN #3 A.2 LOT1570.10  
 : A-C-43 T.S.  
 CATEGORY: 00 RO A  
 SYSTEMS: A

QUESTION :

ST-6-078-301-0 was last performed on 03/20/00 at 1400 hours.

What is the latest date and time this ST must be performed by to keep the equipment in surveillance?

ANSWER :

04/28/00 at 0800 (1 pt)

ST-6-078-301-0 has a test frequency of monthly. T.S. 4.7.2.b specifies this as at least once per 31 days.

A-C-43, definition 4.2 for GRACE PERIOD, allows the test due date to be extended by 25% of the normal test interval.

$31 \text{ days} \times 1.25 = 38 \text{ days}, 16 \text{ hours}$

38 days, 16 hours after 03/20/00 at 1400 is 04/28/00 at 0800

NO.: 129 REV.: 4 TYPE: ES ENTERED BY: LOT DATE ENTERED: 02/11/00  
 DIFFICULTY: 2 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:  
 TASK NUMBER: G SKA NO.: 2.2.20 TAXONOMY NO.: 2.2  
 LESSON PLANS: RO ADMIN #4 A.2 PLANT PRIORITY  
 : A-C-41 AG-CG-41  
 CATEGORY: 00 RO A  
 SYSTEMS: A

QUESTION :

Plant conditions are as follows:

- 222 Bus cleaning activities are in progress
  - Unit 2 "Balance of Plant Battery Ground" alarm has alarmed
  - A hard ground on the Unit 2 BOP Battery is confirmed
  - 222 Bus transformer alarm light is lit with all alarm knife switches closed
  - No procedure exists for responding to a 222 Bus Transformer alarm
- a. Can the alarm knife switches be opened under S91.0.A, "Responding to a Unit Auxiliary Transformer Alarm"?
  - b. List five (5) generic attributes of a troubleshooting plan developed to investigate the BOP ground.
  - c. What process is available, other than developing a new procedure, to control and document the knife switch manipulations needed to identify the cause of the ground?

ANSWER :

- a. No (.25 pts)
- b. Any five (5) of the following (.10 pts each)
- Plant safety
  - Personal safety
  - Risk
  - Operational impact
  - Difficulty
  - Cost
  - Likelihood (most probable, similar problems, one failure)
  - Least intrusive first
  - Least impactful first
  - Most likely first
- c. Troubleshooting, Rework, and Testing (TRT) Control Process per A-C-41 or AG-CG-41 (.25 pts)

NOTE: This question is designated as a plant priority

Low K/A importance of 2.2 is justified due to recent plant event

Reference: PEP I001064, 1/8/00 reactor scram while troubleshooting

NO.: 130 REV.: 3 TYPE: ES ENTERED BY: LOT DATE ENTERED: 02/23/00  
 DIFFICULTY: 2 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:  
 TASK NUMBER: G SKA NO.: 2.3.10 TAXONOMY NO.: 2.9  
 LESSON PLANS: RO ADMIN #5 A.3 LOT1760.01  
 : TS 6.12.1 HP-C-215  
 CATEGORY: 00 RO A  
 SYSTEMS: HP TS

QUESTION :

Unit 2 conditions are as follows:

- The plant is operating at 100% power
  - An EHC leak is suspected on the actuator for ISV-1  
You are directed to inspect the valve
  - The current RWP indicates that the valve area rad level is 153 mrem/hr
- a. What radiological posting will be on the entrance to the inspection area?
  - b. How will you be protected from an unexpected increase in the radiation dose rate while performing the inspection?

ANSWER :

- a. High Radiation Area (0.5 pts)
- b. A radiation monitoring device (ED) which continuously integrates the radiation dose rate in the area and alarms when a preset integrated dose is received. (0.5 pts)

NO.: 131 REV.: 3 TYPE: ES ENTERED BY: LOT DATE ENTERED: 02/11/00  
 DIFFICULTY: 2 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:  
 TASK NUMBER: G SKA NO.: 2.3.4 TAXONOMY NO.: 2.5  
 LESSON PLANS: RO ADMIN #6 A.3 LOT  
 : HP-C-818  
 CATEGORY: 00 RO A  
 SYSTEMS: HP

QUESTION :

You are exiting the Drywell during an outage.

The Drywell exit portable frisker with an HP-210 probe is reading 315 cpm.

A sign above the meter reads "PLEASE FRISK PRIOR TO PROCEEDING".

While reaching for the probe, the meter indication rises to 450 cpm.

Briefly, describe the actions you would take.

ANSWER :

Any order: (1 pt)

- Frisk hands and feet to determine relative level of contamination.
- Notify HP of the high background and the suspected contamination.
- Take measures to reduce the spread of contamination and complete the frisk in an area of lower background levels.

NO.: 132 REV.: 5 TYPE: ES ENTERED BY: LOT DATE ENTERED: 02/10/00  
 DIFFICULTY: 2 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:  
 TASK NUMBER: G SKA NO.: 2.4.29 TAXONOMY NO.: 2.6/4.0  
 LESSON PLANS: RO ADMIN #7 A.4 LEPP-1205.11  
 : ERP-230  
 CATEGORY: 00 RO A  
 SYSTEMS: ERP

QUESTION :

- a. At what Emergency Classification Level is the Operations Support Center (OSC) activated?
- b. If the OSC is evacuated due to a fire, what location becomes the staging area for performing Fire Safe Shutdown procedures?

ANSWER :

a. ALERT (0.5 pts)

b. The Assistant Control Room Supervisors Office in the MCR (0.5 pts)

NO.: 133 REV.: 4 TYPE: ES ENTERED BY: LOT DATE ENTERED: 02/10/00  
 DIFFICULTY: 2 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:  
 TASK NUMBER: G SKA NO.: 2.4.43 TAXONOMY NO.: 2.8  
 LESSON PLANS: RO ADMIN #8 A.4 LEPP-1205.05  
 : ERP-110 ERP-200-1  
 CATEGORY: 00 RO A  
 SYSTEMS: ERP

QUESTION :

The Shift Manager has declared an "Unusual Event" at 0200 today. You are the NRC communicator.

- a. What is the latest time NRC notification must be made by?
- b. After contacting the NRC on the FTS-2000 line, it goes dead.  
How will you re-establish contact with the NRC?
- c. Under what circumstances can the communication link with the NRC be terminated?

ANSWER :

- a. 0215 today (.33 pts)
- b. Dial any one of the following telephone numbers: (.33 pts)  
 301-816-5100  
 301-951-0550  
 301-415-0550
- c. Either the NRC disconnects or authorizes securing the line  
 (.33 pts)

TITLE: TROUBLESHOOT AN OFFICIAL 3D MONICORE P1 CASE

TASK PERFORMED BY: \_\_\_\_\_ (RO ONLY) EVALUATOR: \_\_\_\_\_

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

DIRECTIONS TO EVALUATOR:

1. This JPM may be performed at any location with reference materials.

EVALUATION METHOD:

SIMULATE

EVALUATION LOCATION:

PLANT

APPROXIMATE COMPLETION TIME:

15 MINUTES

IMPORTANCE RATING(S):

SYSTEM NUMBER(S):

3.2/3.4

A1.15

294001

REFERENCES:

GP-14, Resolution of Thermal Limits Violation  
RE-C-20, Official 3D P-1 Troubleshooting  
Unit 1 Core Operating Limits Report

TASK STANDARD(S):

MCPRLIM determined incorrect causing MFLCPR to be greater than 1.0.

TASK CONDITIONS:

1. Unit 1 is at 100% power.
2. Power has been at 100% for the last 48 hours.

INITIATING CUES:

You are directed to evaluate the given official 3D P1 Case.

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

PERFORMANCE CHECKLIST:

STEP	STANDARD	SAT/UNSAT
1. Obtain official 3D P1 Case from Unit 1 PMS. (CUE: Provide "Exhibit A" to examinee.)	Enter "NSS 04" at PMS terminal keyboard on Unit 1 and press "ENTER" or press "↑" key and "ENTER" (if NSS 04 was last function requested.)	
*2 Review official 3D P1 Case and report thermal limit violation. (CUE: After report to CRS of MFLCPR greater than 1.0, direct RO to "Determine action to resolve problem with thermal limits.")	Check Thermal Limit Values less than 1.0 and FLLLP less than 1.0. Report to CRS that MFLCPR is exceeding 1.0.	
3. Enter GP-14.	Obtain copy of GP-14.	
4. If thermal limit <u>or</u> FLLLP violation occurred during steady-state power operation, <u>THEN</u> continue with this procedure in order to check the validity of the P1 edit <u>AND</u> determine the cause of the thermal limit <u>or</u> FLLLP violation.	N/A	N/A
5. EXAMINE the P1 edit containing the thermal limit <u>or</u> FLLLP violation for unexplained changes (using RE-C-20 for guidance) in the following parameters:	N/A	N/A
6. Enter RE-C-20 for official 3D P1 Case Output Suspect.	Obtain a copy of RE-C-20.	
<b>NOTE: If examinee requests previous official 3D P1 Case, provide "Exhibit B" to examinee.</b>	N/A	N/A
7. <u>IF</u> value of Power MWT is suspect, <u>THEN</u> perform the following:	Power determined not suspect.	

STEP	STANDARD	SAT/UNSAT
8. IF value of FLOW is suspect, THEN perform the following:	Flow determined not suspect.	
9. IF Control Rod Pattern is suspect, THEN perform the following:	Control Rod Pattern determined not suspect.	
10. IF an LPRM reading is suspect, THEN perform the following:	LPRM readings determined not suspect.	
11. IF maximum value of MFLCPR is suspect, THEN perform the following:	N/A	
11a. Check POWER MWT in accordance with step 5.2.1.	Power determined not suspect.	
11b. Check FLOW in accordance with step 5.2.2.	Flow determined not suspect.	
11c. Check Control Rod Pattern in accordance with step 5.2.3.	Determine Control Rod Pattern not suspect.	
11d. Check LPRM readings in accordance with step 5.2.4.	Determine LPRM readings not suspect.	
11e. Request BUNDLE DATA LOG for most limiting bundle AND verify bundle data reasonable. (CUE: Report as Reactor Engineer: "Bundle Data is reasonable".)	Contact RE.	
11f. Verify MFLCPR Correction Factor matches value in Core Operating Limits Report for current plant conditions.	MFLCPR correction factor matches current plant conditions.	
*11g. Verify MCPRLIM matches value in Core Operating Limits Report for current plant conditions.	MCPRLIM determined to be incorrect for current plant conditions.	
12. Report to CRS that the MCPRLIM is incorrect. (CRS: You have met the termination criteria for this JPM. You can stop here.)	Report MCPRLIM value on 3D P1 incorrect to CRS.	

Comments:

Note: Any grade of UNSAT requires a comment.

JPM Overall Rating: \_\_\_\_\_  
SAT/UNSAT

TASK CONDITIONS:

1. Unit 1 is at 100% power.
2. Power has been at 100% for the last 48 hours.

INITIATING CUE:

You are directed to evaluate the given official 3D P1 Case.

# EXHIBIT A

PAGE 1

LIMERICK-1 CYCLE 8  
3D MONICORE  
PERIODIC LOG  
CALC RESULTS  
Keff 1.0000  
XE WORTH % -2.35  
XE RATED 1.03  
FLLLP 0.954  
LOAD LINE SUMMARY  
CORE POWER 99.7%  
CORE FLOW 86.6%  
LOAD LINE 109.7%

SEQUENCE NO 6  
23-FEB-2000 07:50 CALCULATED  
23-FEB-2000 07:50 PRINTED  
CASE ID FMLS1980315102955  
RESTART FMLS1980315083000  
LPRM ABSOLUTE - FULL CORE

CORE PARAMETERS  
POWER MWT 3449.  
POWER MWE 1158.  
FLOW MLB/HR 86.563  
FPAPDR 0.835  
SUBC BTU/LB 26.49  
PR PSIA 1050.2  
CORE MWD/ST 50000.0  
CYCLE MWD/ST 22000.0  
MCPR 1.586

CORRECTION FACTOR: MFLCPR= 1.000 MFLPD= 1.000 MAPRAT= 1.000 ZBB= 2.23 ft  
OPTION: ARTS DUAL LOOP MANUAL FLOW MCPRLIM= 2.000 FCBB= N/A

MFLCPR	LOC	MFLPD	LOC	MAPRAT	LOC	PCRAT	LOC
1.261	31-2	0.793	15-18-5	0.776	45-16-5	0.845	33-16-4
1.256	31-46	0.792	17-16-5	0.774	15-18-5	0.833	53-14-5
1.253	33-32	0.785	47-20-5	0.773	17-16-5	0.828	57-28-4
1.249	31-38	0.783	45-14-5	0.771	47-20-5	0.822	47-8-5
1.237	45-32	0.781	47-16-5	0.771	29-30-5	0.778	15-18-5
1.234	23-32	0.776	31-46-12	0.768	31-46-12	0.777	17-16-5
1.232	27-36	0.773	29-48-12	0.768	17-18-5	0.777	31-46-12
1.228	47-38	0.772	19-18-5	0.765	45-14-5	0.777	47-20-5
1.220	25-34	0.772	17-20-5	0.763	19-18-5	0.774	45-14-5
1.228	37-48	0.771	29-38-8	0.762	47-22-5	0.771	29-38-8

SEQ. A-2 C=MFLCPR D=MFLPD M=MAPRAT P=PCRAT \*=MULTIPLE NOTCH REL PW LOC

59	L					00	0.420	25
55						02	0.480	24
51						04	0.540	23
47	L					06	0.645	22
43						08	0.820	21
39						10	0.855	20
35						12	0.898	19
31	L					14	0.984	17
27						16	1.017	16
23						18	1.071	15
19						20	1.082	13
15	L					22	1.121	13
11						24	1.185	12
07						26	1.198	11
03						28	1.236	10
						30	1.301	09
						32	1.314	08
						34	1.311	07
						36	1.307	06
						38	1.306	05
						40	1.111	04
						42	0.787	03
						44	0.722	02
						46	0.361	01

CORE AVERAGE RADIAL POWER DISTRIBUTION  
RING # 1 2 3 4 5 6 7 8  
REL PW 0.925 1.328 1.232 1.269 1.125 1.161 0.883 0.630

LIMERICK-1 CYCLE 8 INSTRUMENT READINGS/STATUS  
CALIBRATED LPRM READINGS

57D	19.9	26.9	25.9	24.7
C	26.7	32.8	36.7	29.7
B	35.3	37.2	43.4	35.5
A	33.1	32.9	39.2	35.5
49D	22.1	30.8	35.6	33.1
C	30.3	43.2	57.5	53.8
B	41.5	55.4	70.7	63.5
A	42.8	57.0	57.3	60.3
41D	32.5	36.8	39.8	40.8
C	43.5	58.4	58.7	66.6
B	52.3	73.6	69.3	79.1
A	51.9	57.3	58.0	63.0
33D	33.9	34.9	42.7	45.3
C	51.0	58.3	66.2	58.9
B	60.4	68.9	78.7	68.8
A	58.8	59.7	62.8	58.2
25D	34.8	37.3	41.5	43.2
C	47.2	61.3	60.1	66.4
B	54.9	75.5	70.5	78.8
A	51.7D	57.0	59.7	63.0
17D	26.8	33.8	37.5	35.3
C	38.0	49.2	61.3	58.5
B	49.4	62.0	75.5	69.0
A	51.8	57.9	56.9	59.6P
09D	26.7	33.7C	32.6	31.8
C	38.0	47.1	50.9	43.4
B	49.6	54.8	60.4	52.3
A	51.7	52.5	59.6	52.3
08	16	24	32	40
			48	56

CORE SUMMARY

CORE POWER	99.7%	CALC SUB FLOW	90.6%	DP MEAS PSI	10.89
CORE FLOW	86.6%	OPER SUB FLOW	-1.0%	DP CALC PSI	10.89
LOAD LINE	109.7%	FLOW BASIS	MEAS	FEEDWTR FLOW	14.98

APRM CALIBRATION

READING	1	2	3	4
AGAF	99.4	100.4	100.2	98.8
APRM - %CTP	0.997	0.997	0.997	0.998
	-0.4	0.6	0.4	-1.0

TIP RUNS RECOMMENDED  
STRINGS:

DRIVE FLOW	MLB/HR	27.14
FEEDWTR TEMP	DEG.F	430.2

SEQUENCE NO 6  
23-FEB-2000 07:50 CALCULATED  
23-FEB-2000 07:50 PRINTED  
CASE ID FMLSL980315102955  
LPRM ABSOLUTE - FULL CORE

# OF TIPS NOT SCANNED:

FAILED SENSORS:

LPRM ( NONE FAILED)

LPRM ( 0 PANACEA REJECTED)  
OTHER SENSORS ( 0 TOTAL)  
SUB RODS  
NONE

T = TIP RUN RECOMMENDED

C = MFLCPR LOCATION

M = MAPRAT LOCATION

D = MFLPD LOCATION

P = PCRAT LOCATION

\* = MULTIPLE LOCATION

# EXHIBIT B

PAGE 1

LIMERICK-1 CYCLE 8  
 3D MONICORE  
 PERIODIC LOG  
 CALC RESULTS  
 SEQUENCE NO 6  
 23-FEB-2000 07:37 CALCULATED  
 23-FEB-2000 07:37 PRINTED  
 CASE ID FMLS1980315102955  
 RESTART FMLS1980315083000  
 LPRM ABSOLUTE - FULL CORE

CORE PARAMETERS  
 POWER MWT 3452.  
 POWER MWE 1161.  
 FLOW MLE/HR 86.559  
 FPAPDR 0.835  
 SUBC BTU/LB 26.53  
 PR PSia 1050.5  
 CORE MWD/ST 50000.0  
 CYCLE MWD/ST 22000.0  
 MCPR 1.420

LOAD LINE SUMMARY  
 CORE POWER 99.8%  
 CORE FLOW 86.6%  
 LOAD LINE 109.8%

CORRECTION FACTOR: MFLCPR= 1.000 MFLPD= 1.000 MAPRAT= 1.000 ZBB= 2.23 ft  
 OPTION: ARTS DUAL LOOP MANUAL FLOW MCPRLIM= 1.310 FCBB= N/A  
 MOST LIMITING LOCATIONS (NON-SYMMETRIC)

MFLCPR	LOC	MFLPD	LOC	MAPRAT	LOC	PCRAT	LOC
0.931	31-2	0.793	15-18-5	0.776	45-16-5	0.845	33-16-4
0.928	31-46	0.792	17-16-5	0.774	15-18-5	0.833	53-14-5
0.925	33-32	0.785	47-20-5	0.773	17-16-5	0.828	57-28-4
0.922	31-38	0.783	45-14-5	0.771	47-20-5	0.822	47-8-5
0.913	45-32	0.781	47-16-5	0.771	29-30-5	0.778	15-18-5
0.911	23-32	0.776	31-46-12	0.768	31-46-12	0.777	17-16-5
0.910	27-36	0.773	29-48-12	0.768	17-18-5	0.777	31-46-12
0.906	47-38	0.772	19-18-5	0.765	45-14-5	0.777	47-20-5
0.901	25-34	0.772	17-20-5	0.763	19-18-5	0.774	45-14-5
0.906	37-48	0.771	29-38-8	0.762	47-22-5	0.771	29-38-8

SEQ. A-2 C=MFLCPR D=MFLPD M=MAPRAT P=PCRAT \*-MULTIPLE CORE AVE AXIAL  
 NOTCH REL PW LOC

59	L					00	0.420	25
55						02	0.480	24
51		16				04	0.540	23
47	L					06	0.645	22
43			16			08	0.820	21
39	16	08	00	08		10	0.854	20
35		36	08	08	36	12	0.898	19
31						14	0.970	18
27						16	0.984	17
23	16	36	08	08	36	18	1.017	16
19						20	1.071	15
15						22	1.082	13
11						24	1.121	13
07						26	1.185	12
03						28	1.198	11
						30	1.236	10
						32	1.301	09
						34	1.314	08
						36	1.311	07
						38	1.307	06
						40	1.306	05
						42	1.112	04
						44	0.787	03
						46	0.722	02
							0.361	01

CORE AVERAGE RADIAL POWER DISTRIBUTION

RING #	1	2	3	4	5	6	7	8
REL PW	0.925	1.328	1.232	1.269	1.125	1.161	0.883	0.630

EXHIBIT B

LIMERICK-1 CYCLE 8 INSTRUMENT READINGS/STATUS  
CALIBRATED LPRM READINGS

57D 19.9 26.9 25.9 24.7  
C 26.7 32.9 36.7 29.8  
B 35.3 37.2 43.5 35.5  
A 33.1 33.0 39.3 35.5

49D 22.1 30.8 35.6 33.1 34.3 26.6  
C 30.3 43.2 57.5 53.8 53.7 35.2  
B 41.5 55.5 70.7 63.6 68.0 47.1  
A 42.8 57.1 57.4 60.4 56.8 51.2

41D 32.5 36.8 39.8 40.8 38.6 34.7 25.2  
C 43.5 58.4 58.7 66.6 56.0 53.9 29.7  
B 52.4 73.7 69.4 79.2 67.8 68.0 35.4  
A 52.0 57.3 58.1 63.1 57.2 56.7 32.7

33D 33.9 34.9 42.7 45.3 40.1 33.7 26.7  
C 51.1 58.4 66.2 59.0 66.4 53.9 36.6  
B 60.5 69.0 78.8 68.8 79.1 63.7 43.2  
A 58.8 59.7 62.9 58.3 62.9 59.8 38.7

25D 34.8 37.3 41.5 43.2 39.5 36.1 27.7  
C 47.3 61.3 60.2 66.4 58.6 57.6 32.8  
B 54.9 75.5 70.5 78.8 69.4 70.8 37.1  
A 51.8D 57.0 59.7 63.1 57.9 56.9 32.4

17D 26.8 33.8 37.5 35.3 36.8 30.8 20.2  
C 38.0 49.3 61.4 58.6 58.3 43.2 26.6  
B 49.5 62.1 75.5 69.0 73.6 55.4 35.1  
A 51.8 58.0 56.9 59.6P 57.2M 57.3 33.1

09D 26.7 33.7C 32.6 31.9 22.2  
C 38.1 47.1 50.9 43.4 30.4  
B 49.6 54.8 60.4 52.4 41.6  
A 51.7 52.6 59.7 52.4 42.5

08 16 24 32 40 48 56

CORE SUMMARY  
CORE POWER 99.8% CALC SUB FLOW 85.8% DP MEAS PSI 10.89  
CORE FLOW 86.6% OPER SUB FLOW -1.0% DP CALC PSI 10.89  
LOAD LINE 109.8% FLOW BASIS MEAS FEEDWTR FLOW MLB/HR 15.00

APRM CALIBRATION  
READING 1 2 3 4  
AGAF 99.5 100.5 100.3 98.8  
APRM - %CTP 0.998 0.998 0.998 0.998  
APRM - %CTP -0.4 0.6 0.4 -1.0

TIP RUNS RECOMMENDED  
STRINGS: NONE

DRIVE FLOW MLB/HR 27.14  
FEEDWTR TEMP DEG.F 430.2

SEQUENCE NO 6  
23-FEB-2000 07:37 CALCULATED  
23-FEB-2000 07:37 PRINTED  
CASE ID FMLS1980315102955  
LPRM ABSOLUTE - FULL CORE

# OF TIPS NOT SCANNED:

FAILED SENSORS:  
LPRM ( NONE FAILED)

LPRM ( 0 PANACEA REJECTED)  
OTHER SENSORS ( 0 TOTAL)  
SUB RODS  
NONE

T = TIP RUN RECOMMENDED  
C = MFLCPR LOCATION  
M = MAPRAT LOCATION  
D = MFLPD LOCATION  
P = PCRAT LOCATION  
\* = MULTIPLE LOCATION

NO.: 134 REV.: 3 TYPE: ES ENTERED BY: LOT DATE ENTERED: 02/11/00  
DIFFICULTY: 2 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:  
TASK NUMBER: G SKA NO.: 2.1.29 TAXONOMY NO.: /3.3  
LESSON PLANS: SRO ADMIN #1 A.1 LOT1574.21  
: OM-C-10.7  
CATEGORY: 00 SRO A  
SYSTEMS: OM

## QUESTION :

An EO performing the attached Page 5 of 1S06.3.C, COL-1, EQUIPMENT ALIGNMENT FOR FILLING AND VENTING THE "A" RFP AND "6A" FEEDWATER HEATER AT POWER reports the following:

COL Step 36, valve 06-1047A is Danger tagged open under an active Clearance # 00000403.

- a. What action must be taken to allow continuation of the COL?
- b. What administrative action(s) must be performed to ensure Step 36 is completed?

## ANSWER :

- a. (0.33 each)
  - Enter 00000403 at step 36
  - Circle or otherwise flag step 36
  - Verify system line up will support completion of the COL
- b. Perform either a Temporary procedure change or a "Partial" COL (.25 pts)

NO.: 135 REV.: 3 TYPE: ES ENTERED BY: LOT DATE ENTERED: 02/23/00  
DIFFICULTY: 2 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:  
TASK NUMBER: G SKA NO.: 2.1.22 TAXONOMY NO.: /3.3  
LESSON PLANS: SRO ADMIN #2 A.1 LOT1530.03  
: GP-2, PG.44 PG 1 NOTE  
CATEGORY: 00 SRO A  
SYSTEMS: GP

## QUESTION :

- A Unit 2 Reactor Startup is in progress
- All IRMs are on range 9, between 9/125 - 13/125.
- All required surveillances are verified complete.
- a. How are required or Tech Spec required steps identified within the Startup procedure?
- b. What type of step should not be marked as N/A in the Startup procedure?
- c. Other than verifying plant indications, what action(s) must be performed to ensure plant conditions are acceptable in order to place the Mode Switch to RUN?

## ANSWER :

- a. Asterisk (\*) steps (0.25 pts)
- b. System Alignment steps (0.25 pts)
- c. (all of the following, 0.5 pts)
  - Review Equipment Status
  - Walkdown MCR panels
  - Ensure all previous asterick steps are signed off, valid and still current

NO.: 136 REV.: 3 TYPE: ES ENTERED BY: LOT DATE ENTERED: 02/10/00  
DIFFICULTY: 2 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:  
TASK NUMBER: G SKA NO.: 2.1.20 TAXONOMY NO.: 4.3/4.2  
LESSON PLANS: SRO ADMIN #3 A.1 LOT1550.03  
: ON-123  
CATEGORY: 00 SRO A  
SYSTEMS: ON

## QUESTION :

A reactor startup is in progress.

Reactor power is 13%.

Four (4) rods were moved to their target position 08 an hour ago.

The RO now reports the same rods are at position 10.

What action, if any, is required?

## ANSWER :

Contact Reactor Engineering for recovery. (1 pt)

## Note:

Step 2.4 states if power <RWM LPSP (18%), then go to Step 2.10.

Step 2.10 states if power <RWM LPSP, but greater than 10% RTP, then contact RE for recovery.

NO.: 137 REV.: 3 TYPE: ES ENTERED BY: LOT DATE ENTERED: 02/10/00  
DIFFICULTY: 2 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:  
TASK NUMBER: G SKA NO.: 2.1.5 TAXONOMY NO.: 3.4  
LESSON PLANS: SRO ADMIN #4 LOT1570.9A T.S. 6.2.2.F  
: A-C-40 A.1  
CATEGORY: 00 SRO A  
SYSTEMS:

## QUESTION :

The following events have occurred:

- You have just completed day shift as ACRS after 2 days off
- You then attend scheduled "Just in Time" simulator training from 1830 to 2130 hours
- At 0000 you receive a call-out to relieve the night shift CRS as soon as possible
- The call-out is not critical in nature

- a. What is the earliest time you can relieve the night shift CRS?
- b. What is the latest time that you must be relieved as the day shift CRS?

## ANSWER :

- a. 0530 (0.5 pts)
- b. 1430 (0.5 pts)

Per A-C-40:

Day shift = 12 hours (6:30 am to 6:30 pm)  
Training = 3 hours (6:30 pm to 9:30 pm)  
+ Minimum 8 hour break = 5:30 am  
5:30 am to 2:30 pm = 9 hours

$12 + 3 + 9 = \text{Maximum 24 hours worked in 48 hour period}$

NO.: 138 REV.: 2 TYPE: ES ENTERED BY: LOT DATE ENTERED: 02/11/00  
DIFFICULTY: 2 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:  
TASK NUMBER: G SKA NO.: 2.2.11 TAXONOMY NO.: /3.4  
LESSON PLANS: SRO ADMIN #5 A.2 LOT1574.18  
: OM-C-10.6  
CATEGORY: 00 SRO A  
SYSTEMS: OM

## QUESTION :

The Main Turbine Lube Oil Temperature Control valve has failed closed.

The Service Water Bypass valve is being throttled for temperature control.

- a. What method, if any, is provided for controlling and documenting Bypass valve position?
- b. When, if ever, must the Bypass valve status be entered into a plant tracking system?

## ANSWER :

- a. Apply an Equipment Status Tag to the valve (EST) (0.50 pts)
- b. If the Bypass is not closed by end of current shift (0.50 pts)

NO.: 139 REV.: 2 TYPE: ES ENTERED BY: LOT DATE ENTERED: 02/11/00  
DIFFICULTY: 2 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:  
TASK NUMBER: G SKA NO.: 2.2.12 TAXONOMY NO.: 3.4  
LESSON PLANS: SRO ADMIN #6 A.2 LOT1570.10  
: A-C-43  
CATEGORY: 00 SRO A  
SYSTEMS: A

## QUESTION :

Review ATTACHMENT 1 data of ST-6-052-231-2, A LOOP CORE SPRAY PUMP, VALVE AND FLOW TEST.

- a. What are the results of your review?
- b. What post-review action, if any, is required?

## ANSWER :

- a. HV-52-2F031A valve stroke time is greater than max allowable time (.25 pts)

✓ All of the following, in any order: (.75 pts)

- Valve declared Inoperable
- SSVN notified
- Sign off ST cover Unsat
- Document results in Comments Section
- Identify a Corrective Action, ETT or A/R

## Note:

Provide a completed copy of ST-6-052-231-2 with faulty Attachment 1 data on green paper.

NO.: 140 REV.: 2 TYPE: ES ENTERED BY: LOT DATE ENTERED: 02/10/00  
DIFFICULTY: 2 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:  
TASK NUMBER: G SKA NO.: 2.3.4 TAXONOMY NO.: 2.5/3.1  
LESSON PLANS: SRO ADMIN #7 A.3 LEPP-1200.15  
: ERP-650  
CATEGORY: 00 SRO A  
SYSTEMS: ERP

## QUESTION :

An ALERT has been declared on Unit 2 due to Spent Fuel Pool water level dropping below the top of the irradiated fuel in the Spent Fuel pool.

An HP Technician was severely injured while evacuating the Refuel Floor.

She is lying unconscious on the refueling platform in an estimated 600R/hr field.

HP has determined that a rescuer will be expected to receive a dose of approximately 20 Rem.

a. Whose authorization is required to proceed with the rescue?

b. Is it required that the rescuer be a volunteer?

## ANSWER :

a. Emergency Director (0.5 pts)

b. No (0.5 pts)

## Note:

Per ERP-650, Steps 2.1.3 (Note) and Appendix ERP-650-1.

NO.: 141 REV.: 2 TYPE: ES ENTERED BY: LOT DATE ENTERED: 02/10/00  
DIFFICULTY: 2 POINT VALUE: 1.0 RESPONSE TIME: 0 DRAWING:  
TASK NUMBER: G SKA NO.: 2.3.1 TAXONOMY NO.:  
LESSON PLANS: SRO ADMIN #8 A.3 LOT1760.01  
: HP-C-215 HP-C-202  
CATEGORY: 00 SRO A  
SYSTEMS: HP

## QUESTION :

The "2B" Reactor feed pump turbine area access door has been posted as a "LOCKED HIGH RADIATION AREA"

The Turbine Enclosure Equipment Operator (EO) has been issued a key to the locked door by Health Physics Department to hang a clearance in the room

- a. What is the maximum expected dose rate the EO could be exposed to by entering this room?
- b. Can you perform a "Peer Check" on the locked door after the EO returns the key?
- c. If so, how? If not, why?

## ANSWER :

- a. Less than 10 rem/hr (.33 pts)
- b. Yes

Note: Anyone can perform a "Peer Check: of a LHR door

- c. Twist door knob and push, verify door does not open

Note: Physically challenge the "locked door" as well as the opening device to ensure it is locked

TITLE: ERP CLASSIFICATION - ATWS

TASK PERFORMED BY: \_\_\_\_\_ (SRO ONLY) EVALUATOR: \_\_\_\_\_

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

DIRECTIONS TO EVALUATOR:

1. This JPM may be performed at any location with ERP reference materials .
2. Provide blank copies of the following to the candidate:
  - Appendix ERP-200-1, pg 1
  - Appendix ERP-200-1, Form 4, pg 4
  - Appendix ERP-200-1, Form 6, pg 7

EVALUATION METHOD :

**PERFORM**

EVALUATION LOCATION:

**SIMULATOR / PLANT / REFERENCE AREA**

APPROXIMATE COMPLETION TIME:

15 MINUTES

IMPORTANCE RATING(S):

4.1

2.4.41

SYSTEM NUMBER(S):

Generic

REFERENCES:

ERP-101, Rev. 11  
ERP-200, Rev. 12  
ERP-200-1, Rev. 10

TASK STANDARD(S):

Identification and classification of a Site Area Emergency.

## TASK CONDITIONS:

The following station events and conditions exist on Unit 1:

1. A Rapid Plant Shutdown of Unit 1 Reactor was performed per GP-4, due to unidentified Drywell leakage of 60 gpm.
2. No control rod movement occurred when both RPS and RRCS were manually initiated.
3. Mode Switch is in Shutdown.
4. SBLC was manually initiated and is injecting to the RPV.
5. RWCU failed to isolate, pumps are tripped.
6. Reactor power is 38%.
7. Main Turbine is on line.
8. RPV level was deliberately lowered and is being maintained at -52".
9. Drywell pressure is 3.5 psig and rising.
10. Drywell Rad Monitor reading 21,100 R/hr and steady.
11. Suppression Pool pressure is 0.3 psig and steady.
12. Suppression Pool Temperature is 90° F. and steady.
13. SJAЕ Radiation (Offgas Monitor) is reading 25,000 mR/hr and steady.
14. All other plant systems response is "as expected".

## INITIATING CUE:

You are required to make the initial ERP classification for the given station events and conditions including any required procedure(s) as the acting Emergency Director.

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

PERFORMANCE CHECKLIST:

STEP	STANDARD	SAT/UNSAT
1. Obtain current revision of ERP-101	Current revision of ERP-101 obtained	
*2. Classify event based on selected categories <u>AND</u> most severe EALs.	Site Area Emergency declared	
3. Implement ERP-200, Emergency Director Response	Current revision of ERP-200 obtained	
4. Shift Manager shall ensure emergency notifications and staffing augmentation are completed by performing the following:	N/A	N/A
5. Immediately upon verification of Alert or higher classification instruct SAS Operator (extension 5164 or Prelude 181) to perform staffing augmentation per ERP-140.  (CUE: When SAS is called report SAS is performing staffing augmentation per ERP-140.)	SAS instructed to perform staffing augmentation per ERP-140	
6. Complete Appendix ERP-200-1.	N/A	N/A
6a. Appendix ERP-200-1, Form 1, step 1 filled out.	Name entered	
	Phone Number entered	
	Time entered	
*6b. Appendix ERP-200-1, Form 1, step 2 filled out.	Site Area Emergency box checked	
	Unit, Time, Date entered	
	Initial Declaration box checked	
6c. Appendix ERP-200-1, Form 1, step 3 filled out.	Brief description of the event entered (i.e. ATWS)	

STEP	STANDARD	SAT/UNSAT
6d. Appendix ERP-200-1, Form 1 step 4 filled out.	No box checked	
6e. Appendix ERP-200-1, Form 1 step 5 filled out.	N/A	N/A
6f. Appendix ERP-200-1, Form 1 step 6 filled out.  (CUE: If asked report wind speed is 19 mph and direction is 170°)	Wind direction entered	
	Wind speed entered	
	Date, Time and Signature entered	
7. Fax the completed form to the SAS operator (Fax extension 2029), <u>THEN</u> forward to the designated NRC communicator.  (CUE: If asked, report SAS has received your Fax)	Completed ERP-200, Form 1 Faxed to SAS.	
8. ERP-200-1, Form 6, filled out.	Copy of ERP-200-1, Form 6, obtained	
*8a. Communicator start phone notification per ERP-110.	SAS directed to start phone notifications per ERP-110	
*8b. Direct NRC Communicator (Licensed) contact NRC per ERP-110.  (CUE: When requested, report that Steve Belitsky has reported to the MCR to be the NRC communicator.)	Direct Licensed Operator to act as NRC Communicator and provide ERP-200-1, Form 1	
9. Announce Emergency Classification utilizing Appendix ERP-200-1, Form 4.	Site Area Emergency station announcement made.	
(CUE: You may stop here, you have met the termination criteria for this JPM.)	N/A	N/A

Comments:

Note: Any grade of UNSAT requires a comment.

JPM Overall Rating: \_\_\_\_\_  
SAT/UNSAT

## TASK CONDITIONS:

The following station events and conditions exist on Unit 1:

1. A Rapid Plant Shutdown of Unit 1 Reactor was performed per GP-4, due to unidentified Drywell leakage of 60 gpm.
2. No control rod movement occurred when both RPS and RRCS were manually initiated.
3. Mode Switch is in Shutdown.
4. SBLC was manually initiated and is injecting to the RPV.
5. RWCU failed to isolate, pumps are tripped.
6. Reactor power is 38%.
7. Main Turbine is on line.
8. RPV level was deliberately lowered and is being maintained at -52".
9. Drywell pressure is 3.5 psig and rising.
10. Drywell Rad Monitor reading 21,100 R/hr and steady.
11. Suppression Pool pressure is 0.3 psig and steady.
12. Suppression Pool Temperature is 90° F. and steady.
13. SJAE Radiation (Offgas Monitor) is reading 25,000 mR/hr and steady.
14. All other plant systems response is "as expected".

## INITIATING CUE:

You are required to make the initial ERP classification for the given station events and conditions including any required procedure(s) as the acting Emergency Director.

APPENDIX ERP-200-1  
EMERGENCY DIRECTOR FORMS

Form 1: EMERGENCY NOTIFICATION MESSAGE FORM

☐ This is a Drill

☐ This is not a Drill

1. This is : \_\_\_\_\_ at Limerick Generating Station

My phone number is: \_\_\_\_\_. The time is \_\_\_\_\_

2. EMERGENCY CLASSIFICATION:

☐ Unusual Event

☐ Site Area Emergency

☐ Alert

☐ General Emergency

☐ The Event has been Terminated

UNIT: \_\_\_\_\_ TIME: \_\_\_\_\_ DATE: \_\_\_\_\_

THIS REPRESENTS A/AN: ☐ Initial Declaration )

☐ Escalation )

☐ No Change )

☐ Reduction )

IN CLASSIFICATION STATUS

3. BRIEF NON-TECHNICAL DESCRIPTION OF THE EVENT:

Relay this information to State/Local Agencies only

4. THERE IS: ☐ No )

☐ An Airborne )

☐ A Liquid )

NON-ROUTINE RADIOLOGICAL RELEASE  
IN PROGRESS

5. WHEN GENERAL EMERGENCY IS THE INITIAL EVENT, PROVIDE PROTECTIVE ACTION  
RECOMMENDATION BELOW: (ONLY THE EMERGENCY DIRECTOR SHALL FURNISH THIS INFORMATION  
TO THE STATE AND COUNTIES)

6. WIND DIRECTION IS FROM: \_\_\_\_\_ WIND SPEED IS: \_\_\_\_\_

☐ This is a Drill

☐ This is not a Drill

DATE: \_\_\_\_\_ TIME: \_\_\_\_\_ SHIFT MANAGER/ED APPROVAL: \_\_\_\_\_ (Ref. 6.5.2)

APPENDIX ERP-200-1

Form 4: SITE AREA EMERGENCY - STATION ANNOUNCEMENTS

NOTE: FOR ALTERNATIVE INSTRUCTIONS, CIRCLE THE APPROPRIATE PHRASE(S) TO BE ANNOUNCED.

DECLARATION MESSAGE

ATTENTION ALL PERSONNEL. ATTENTION ALL PERSONNEL.

THIS (IS) (IS NOT) A DRILL. REPEAT, THIS (IS) (IS NOT) A DRILL.

THE EMERGENCY DIRECTOR HAS DECLARED A SITE AREA EMERGENCY DUE TO

---

(REASON)

ALL MEMBERS OF THE EMERGENCY RESPONSE ORGANIZATION REPORT TO YOUR EMERGENCY ASSEMBLY AREA.

ALL NON-ESSENTIAL PERSONNEL PREPARE FOR A SITE EVACUATION.

ALL VISITORS WILL REPORT WITH THEIR ESCORTS TO THE TECHNICAL SUPPORT CENTER EXIT. (Ref 6.5.6)

THIS (IS) (IS NOT) A DRILL. REPEAT, THIS (IS) (IS NOT) A DRILL.

DE-ESCALATION MESSAGE

ATTENTION ALL PERSONNEL. ATTENTION ALL PERSONNEL.

THIS (IS) (IS NOT) A DRILL. REPEAT, THIS (IS) (IS NOT) A DRILL.

THE SITE AREA EMERGENCY CLASSIFICATION HAS BEEN (DE-ESCALATED TO AN UNUSUAL EVENT/ALERT) (TERMINATED).

ALL PERSONNEL SHALL AWAIT INSTRUCTIONS FROM THEIR TEAM LEADERS OR SUPERVISORS.

THIS (IS) (IS NOT) A DRILL. REPEAT, THIS (IS) (IS NOT) A DRILL.

**Appendix ERP-200-1**  
**Form 6: EMERGENCY DIRECTOR CHECK-OFF LIST**  
(Ref. ERP-200, Section 6.5.1)  
(Page 2 of 5)

INITIAL ACTIONS	UNUSUAL EVENT	ALERT	SITE AREA	GENERAL
Implement ERP-140 Staffing Augmentation	Opt			
Start accident assessment log in MCR; event log in TSC (Ref. ERP-200 Sect. 6.5.3)				
Verify classification				
* Obtain wind direction and speed				
Consider performing analysis of release to determine isotopic mix for input into Mesorem, Jr. Obtain updates on dose projections and field survey data from DATL.				
Recommend PAR to Senior State Official (Prelude Ext. 116)	N/A	N/A	N/A	
IF General without prior classif. THEN include PAR on notification form	N/A	N/A	N/A	
If PEMA does not answer, just evacuate full EPZ	N/A	N/A	N/A	
* Fill out and sign Notification Form (ERP-200-1, Form 1)				
* Communicator start phone notification (except NRC) (ERP-110)				
* Direct NRC Communicator (licensed) contact NRC per ERP-110				
IF General with prior classifications THEN provide PAR to the Senior State Official (Prelude ext. 116) based on ERP-101 and ERP-300	N/A	N/A	N/A	
If the Senior State Official is not available contact counties and recommend shelter or evacuate full EPZ	N/A	N/A	N/A	
* Announce Emergency classification utilizing Appendix ERP-200-1, Form 2-5				
Implement Station Evacuation if deemed appropriate (ERP-120)				