

FINAL AS-ADMINISTERED OPERATING TEST

FOR THE FERMI INITIAL EXAMINATION - JUNE 2001

FINAL AS-ADMINISTERED ADMINISTRATIVE JPMS
FOR THE FERMI INITIAL EXAMINATION - JUNE 2001

Facility: Fermi 2

Task No: 02A0006016

Task Title: Perform Core Thermal Limit Verification

Job Performance Measure No: RO/SRO Admin A.1.a

K/A Reference: Generic 2.1.19, Ability to use plant computer to obtain and evaluate parametric information on system or component status.
{RO 3.0 / SRO 3.0}

Examinee: _____

NRC Examiner: _____

Facility Evaluator: _____

Date: _____

Method of testing:

Simulated Performance X Actual Performance _____

Classroom X Simulator _____ Plant X

READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

Initial Conditions:

You are an extra licensed operator assigned to the shift.
It is Sunday Night Shift.
The plant is in MODE 1 at 100% power and has been operating at 100% power for the past 24 hours.

Task Standard:

Core Monitor edit is reviewed and NSS is immediately notified because MAPRAT data exceeds its acceptance criteria.

Required Materials:

24.000.02, Attachment 2, SHIFTLY/DAILY -- MODE 1, 2, 3 -- CONTROL ROOM
3D Monicore Core Monitor edit.

General References:

24.000.02, Attachment 2, SHIFTLY/DAILY -- MODE 1, 2, 3 -- CONTROL ROOM
3D Monicore Core Monitor edit.

Initiating Cue:

You are directed to complete step 17.0 Core Thermal Limit Verification of 24.000.02,
Attachment 2, SHIFTLY/DAILY -- MODE 1, 2, 3 -- CONTROL ROOM

The STA/SNE indicates that 3D Monicore MCPR and MAPLHGR limits are reflective of
the status of Moisture Separator Reheater and Turbine Bypass Valve operability, and no
TAU changes have been made that have not been updated in the computer.

Time Critical Task: YES/NO

Validation Time: 10 minutes

JPM Setup:

Copy of 24.000.02, Attachment 2, SHIFTLY/DAILY -- MODE 1, 2, 3 -- CONTROL ROOM
with step 17.0 a. {On Sunday, record last Core Monitor Date and Time, and Reactor
Power from the previous week's log} completed.

CM Date = 06/02/2001
CM Time = 1500
Reactor Power = 3431 MWT / 100.0%

START TIME: _____

_____ Performance step:

- b. If the STA/SNE has indicated that 3D Monicore MCPR and MAPLHGR limits are not reflective of the status of Moisture Separator Reheater or Turbine Bypass Valve operability, or a TAU change has not been updated in the computer, inform the SNE/STA to perform 54.000.07, "Core Performance Parameter Check," in accordance with Step 17.0 c, and NA Step 17.0 b.

Otherwise, record Core Monitor Data in Step 17.0 b as follows:

Standard:

Applicant recognizes information given in initial conditions.

Applicant proceeds to step 17.0 b. 1)

Comment:

SAT or UNSAT

NOTE: Do not demand a new Core Monitor without consulting with the SNE or STA.

____ Performance step:

- 1) Obtain the latest Core Monitor edit from terminal behind Main Control Room panels (type 17, then press ENTER), **OR** review the latest Core Monitor edit on the reports Logging Printer (C95 - P709 in the computer room).

Examiners Note:

If performed in classroom, have applicant describe the location and process for obtaining the Core Monitor edit.

Otherwise, give the following CUE's on location:

CUE: When requested, as STA inform applicant that it is OK to obtain a new Core Monitor edit.

CUE: When applicant starts to request a new Core Monitor edit, direct applicant to simulate obtaining new edit. Then present the applicant with the attached Core Monitor edit and state "this is an official case."

Standard:

Applicant either proceeds to 3D Monicore terminal to obtain a new Core Monitor edit or describes the process to obtain the edit

Comment:

SAT or UNSAT

____ Performance step:

2) Review Failed Sensor List and:

- a) Verify LPRMs are not failed (except for Bypassed LPRMs) and no other sensors are failed which affect the Heat Balance.
- b) Verify Flow basis is "MEAS."
- c) If failed sensors exist (other than Bypassed or PANACEA rejected LPRMs) or the flow basis is not "MEAS," consult with the STA/SNE for appropriate action before continuing.

Standard:

Applicant reviews the LPRM Failed sensors on page 2 of the Core Monitor edit and determines listed LPRMs are bypassed.

Applicant reviews the Flow Basis on page 2 of the Core Monitor edit and determines Flow Basis is MEAS.

Applicant reviews the Panacea Rejected LPRMs on page 2 of the Core Monitor edit and determines no Panacea Rejected LPRMs.

Applicant reviews the Other Failed sensors on page 2 of the Core Monitor edit and determines A & B TOT CU FLW is failed sensor.

Comment:

SAT or UNSAT

Performance step:

- 3) Place a check in items **a.** and **b.** when the review is satisfactory or when discrepancies are resolved and logged by the STA/SNE.

Standard:

Applicant notes A & B TOT CU FLW is failed sensor in item **a.**

Applicant places a check in item **b.**

Comment:

SAT or UNSAT

Performance step:

- 4) Record Calculated Date and Time (items c and d) of the Core Monitor Periodic Log and verify complete in last 24 hours.

Standard:

- (✓) Applicant, from the Core Monitor edit, locates and records the Calculated Date and Calculated Time.

Applicant verifies this Core Thermal Limit Verification completed within 24 hours of previous Core Thermal Limit Verification, from supplied copy of 24.000.02.

Comment:

SAT or UNSAT

Performance step: 5) Record the listed parameters (items e – h) as they appear on the Core Monitor Periodic Log.

Standard:

Applicant locates and records items e-h from page 1 of the Core Monitor edit.

Applicant records item e. Reactor Power = 100%

Applicant records item f. Max MFLCPR = 0.939

Applicant records item g. Max MFLPD = 0.868

Applicant records item h. Max MAPRAT = 1.001

Applicant recognizes item g. exceeds acceptance criteria {<1.000} and notifies the NSS immediately if any step cannot be completed or fails to meet its acceptance criteria.

Comment:

SAT or UNSAT

Terminating cue:

Recognizes Max MFLCPR exceeds acceptance criteria {<1.000} and notifies the NSS immediately if any step fails to meet its acceptance criteria.

STOP TIME: _____

VERIFICATION OF COMPLETION

Job Performance Measure No. RO/SRO Admin JPM A.1.a

Examinee's Name:

Examiner's Name:

Date performed:

Facility Evaluator:

Number of attempts:

Time to complete:

Question Documentation:

Question: _____

Response: _____

Result: SAT or UNSAT

Examiner's signature and date: _____

APPLICANT PAGE - INITIAL CONDITIONS AND INITIATING QUE

Initial Conditions:

You are an extra licensed operator assigned to the shift.

It is Sunday Night Shift.

The plant is in MODE 1 at 100% power and has been operating at 100% power for the past 24 hours.

Initiating Cue:

You are directed to complete step 17.0 Core Thermal Limit Verification of 24.000.02, Attachment 2, SHIFTLY/DAILY -- MODE 1, 2, 3 -- CONTROL ROOM

The STA/SNE indicates that 3D Monicore MCPR and MAPLHGR limits are reflective of the status of Moisture Separator Reheater and Turbine Bypass Valve operability, and no TAU changes have been made that have not been updated in the computer.

APPLICANT PAGE - INITIAL CONDITIONS AND INITIATING QUE

Initial Conditions:

You are an extra licensed operator assigned to the shift.

It is Sunday Night Shift.

The plant is in MODE 1 at 100% power and has been operating at 100% power for the past 24 hours.

Initiating Cue:

You are directed to complete step 17.0 Core Thermal Limit Verification of 24.000.02, Attachment 2, SHIFTLY/DAILY -- MODE 1, 2, 3 -- CONTROL ROOM

The STA/SNE indicates that 3D Monicore MCPR and MAPLHGR limits are reflective of the status of Moisture Separator Reheater and Turbine Bypass Valve operability, and no TAU changes have been made that have not been updated in the computer.

SEQUENCE NO 9
26-APR-2001 07:58 CALCULATED
26-APR-2001 08:38 PRINTED
CASE ID FMLD1010426075851
LPRM SHAPE - FULL CORE

57D	23.2	28.2	28.9	26.1			
C	28.7	37.7	0.0	34.5			
B	25.0	43.2	43.2	39.5			
A	17.7	43.1	35.8	35.4			
49D	24.6	32.7	37.9	41.8	36.6	29.9	
C	27.0	42.6	53.7P	52.3	53.1	35.3	
B	26.0	51.5	63.2	0.0	63.2	39.6	
A	20.6	55.0	65.4	59.4	64.1	35.3	
41D	32.8	36.7	37.1	39.3	35.6	35.4	25.5
C	46.3	53.4	53.7	55.1	52.4	51.3	35.5
B	56.2	63.3	62.6	0.0	62.1	63.1	39.5
A	63.8	0.0	59.1	58.4	61.6	66.9	35.3
33D	36.2	42.8	37.9	34.9	39.9C	40.9	29.0
C	50.0	0.0	56.2	51.9	56.9	52.4	38.0
B	59.7	62.6	64.9	60.1	63.4	61.4	42.6
A	59.9	57.3	57.2	56.7	58.7	59.7	38.3
25D	35.1	39.9	36.6	36.9	36.5	37.0	26.5
C	49.3	55.3	51.8	54.9	52.7	53.4	38.6
B	60.8	65.9	60.9	62.8	62.4	64.1	44.0
A	67.4*	62.7	59.4	58.1	59.5	68.4	42.8
17D	28.8	35.4	38.3	40.9	36.0	32.6	23.5
C	38.1	47.9	54.7	52.7	53.0	42.4	25.8
B	44.8	58.3	65.4	62.5	62.7	51.5	24.7
A	46.7	60.4	62.4	57.5	65.1	56.2	20.6
09D	28.0	33.6	33.9	31.6	24.9		
C	37.9	49.2	50.6	45.8	27.4		
B	45.2	60.3	59.9	55.9	26.0		
A	47.3	67.2	61.1	64.1	20.4		
	08	16	24	32	40	48	56

FAILED SENSORS:
LPRM (5 SIGNAL FAILED)
1633C 1641A 3241B 3249B
3257C
LPRM (0 PANACEA REJECTED)
OTHER SENSORS (1 TOTAL)

A&B TOT CU FLW mlb/hr
SUB RODS
NONE

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

CORE SUMMARY

CORE POWER	100.0%	CALC SUB FLOW	89.1%	DP MEAS PSI	12.74
CORE FLOW	88.4%	OPER SUB FLOW	-1.0%	DP CALC PSI	17.12
LOAD LINE	107.7%	FLOW BASIS	MEAS	FEEDWTR FLOW MLB/HR	14.81

APRM CALIBRATION

READING	1	2	3	4
AGAF	99.7	99.7	99.9	99.8
	1.003	1.004	1.001	1.003
APRM - %CTP	-0.3	-0.4	-0.1	-0.3

TIP RUNS RECOMMENDED

STRINGS: NONE

CORE PARAMETERS
 POWER MWT 3431.
 POWER MWE 1173.
 FLOW MLB/HR 88.441
 FPAPDR 0.868
 SUBC BTU/LB 23.29
 PR PSia 1045.2
 CORE MWD/sT 25247.0
 CYCLE MWD/sT 8017.9
 MCPR 1.373

FERMI CYCLE 8
 3D MONICORE
 PERIODIC LOG
 CALC RESULTS
 Keff 1.0000
 XE WORTH % -2.48
 XE/RATED 1.00

SEQUENCE NO 9
 26-APR-2001 07:58, CALCULATED
 26-APR-2001 08:38 PRINTED
 CASE ID FMLD1010426075851
 RESTART FMLD1010426073736
 LPRM SHAPE - FULL CORE
 LOAD LINE SUMMARY
 CORE POWER 100.0%
 CORE FLOW 88.4%
 LOAD LINE 107.7%

CORRECTION FACTOR: MFLCPR= 1.000 MFLPD= 1.000 MAPRAT= 1.000
 OPTION: ARTS DUAL LOOP MANUAL FLOW MCPRLIM= 1.290

MOST LIMITING LOCATIONS (NON-SYMMETRIC)

MFLCPR	LOC	MFLPD	LOC	MAPRAT	LOC	PCRAT	LOC
0.939	43-26	0.868	9-22- 5	1.001	9-22- 5	1.003	25-44-13
0.939	25-44	0.866	7-24- 5	1.000	11-26- 5	1.003	43-26-13
0.922	25-48	0.860	11-26- 5	0.999	21-10- 5	1.003	25-30-12
0.920	23-50	0.860	23- 8- 5	0.940	23- 8- 5	1.003	35-10-10
0.917	41-28	0.852	21-10- 5	0.939	53-24- 5	1.003	33-12-10
0.917	13-26	0.851	9-26- 5	0.922	11-24- 5	1.002	27-20-11
0.914	27-42	0.848	11-24- 5	0.921	9-26- 5	1.002	35-48-10
0.913	11-24	0.833	25-10- 5	0.917	25-12- 5	1.002	41-28-12
0.903	27-50	0.825	25-12- 5	0.917	25-10- 5	1.002	37-12-10
0.900	25-52	0.811	13-26- 5	0.914	9-24- 5	1.001	9-22- 9

SEQ. A002 C=MFLCPR D=MFLPD M=MAPRAT P=PCRAT *=MULTIPLE CORE AVE AXIAL

	NOTCH	REL PW	LOC
		0.050	25
	00	0.230	24
59	02	0.570	23
L	04	0.804	22
55	06	0.894	21
51	08	0.986	20
L	10	1.037	19
47	06	1.037	19
43	P	1.059	18
L	14	1.064	17
39	04	1.151	16
35	04	1.152	15
L	20	1.163	14
31	10	1.207	13
27	00	1.224	12
L	C	1.229	11
23	*	1.240	10
19	04	1.265	09
L	30	1.265	09
15	06	1.290	08
11	10	1.281	07
L	34	1.281	07
07	06	1.299	06
03	38	1.295	05
L	40	1.226	04
02	42	1.127	03
06	44	0.910	02
10	46	0.247	01
14			
18			
22			
26			
30			
34			
38			
42			
46			
50			
54			
58			

CORE AVERAGE RADIAL POWER DISTRIBUTION

RING #	1	2	3	4	5	6	7	8
REL PW	0.745	1.261	1.207	1.254	1.210	1.252	1.049	0.447

Facility: Fermi 2

Task No: _____

Task Title: Determine the effect of relay G33A-K3B failure.

Job Performance Measure No: RO/SRO Admin JPM A.1.b

K/A Reference: 2.1.24, Ability to obtain and interpret station electrical and mechanical drawings. {RO 2.8 / SRO 3.1}

Examinee: _____

NRC Examiner: _____

Facility Evaluator: _____

Date: _____

Method of testing:

Simulated Performance _____ Actual Performance X

Classroom X Simulator X Plant X

{This Admin JPM may be performed in either the plant, classroom or simulator, provided the required 2261 and 2265 series electrical prints are available.}

READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

Initial Conditions:

The plant is in MODE 1, at 100% power. An I&C Technician working in H11P613, reports a strong odor of overheated insulation coming from relay G33A-K3B. Upon further visual inspection, he determined the relay shows signs of potential to fail at any moment.

Task Standard:

Failure of relay G33A-K3B {relay de-energizes} results in the closure of valves G3352-F004 and G3352F220 and the tripping of G3303C001A and G3303C001B if running, as determined from plant electrical drawings.

Required Materials:

- 6I721-2265-02, Schematic Dia. Reactor Water Clean-up System Instrumentation
- 6I721-2265-03, Schematic Dia. Reactor Water Cln. Up System Isol Vlv G3352-F001;
F004, F119 & F220 Control Circuits
- 6I721-2261-10, Schematic Dia. Rx – Wtr Cln-Up System Supp Inbd and Outbd Isol Vlvs
G3352F001 and G3352F004
- 6I721-2261-11, Schematic Dia. RWCU Sys Recirc Pump Suction Isol Vlv G3352F119 &
RWCU to FW Outbd CNMT Isol Vlv G3352F220
- 6I721-2095-14, Schematic Dia. Nuclear Steam Supply Shut Off System Trip System A
- 6I721-2095-15, Schematic Dia. Nuclear Steam Supply Shut Off System Trip System B

General References:

- 6I721-2265-02, Schematic Dia. Reactor Water Clean-up System Instrumentation
- 6I721-2265-03, Schematic Dia. Reactor Water Cln. Up System Isol Vlv G3352-F001;
F004, F119 & F220 Control Circuits
- 6I721-2261-10, Schematic Dia. Rx – Wtr Cln-Up System Supp Inbd and Outbd Isol Vlvs
G3352F001 and G3352F004
- 6I721-2261-11, Schematic Dia. RWCU Sys Recirc Pump Suction Isol Vlv G3352F119 &
RWCU to FW Outbd CNMT Isol Vlv G3352F220
- 6I721-2095-14, Schematic Dia. Nuclear Steam Supply Shut Off System Trip System A
- 6I721-2095-15, Schematic Dia. Nuclear Steam Supply Shut Off System Trip System B

Initiating Cue:

You are an extra licensed operator assigned to the shift crew.
The NASS directs you to research the plant electrical drawings and determine the
component(s) affected if relay G33A-K3B were to fail.

Time Critical Task: YES/NO

Validation Time: 30 minutes

START TIME: _____

 Performance step:

Using plant electrical drawings 2261 and 2265 series, determine that failure of relay G33A-K3B {relay de-energizes} results in the closure of valve G3352-F004 and the tripping of G3303C001A and G3303C001B, pumps if running.

Standard:

Applicant refers to 2265-02, determines from relay tabulation that G33A-K3B is located on 2265-03 in the RWCU Sys Isol valves G3352F004 and G3352F220 control.

Applicant determines failure of G33A-K3B results in contact 1-2 {D-6} opening, thus de-energizing relay A71B-K64 {B-7}

Applicant refers to relay A71B-K64, relay tabulation {H-4}, and determines the following:
Contact 3-5 {C-7} opens, de-energizing relay A71B-K27. {Examiners note: A71-K1C and K1D contacts are closed if RPV level \geq L-2 as shown on 2095-14/15}

Applicant refers to relay A71B-K27, relay tabulation {G-2}, and determines the following:
Contact 1-2 {D-7, 2265-03} **OPENS**, removing A71B-K27 circuit seal-in.
Contact 13-14 {D-4, 2265-03} **OPENS**, de-energizes A71B-K27A
Contacts 3-4 and 5-6 are shown on 2261-10 for G33-F004

Applicant refers to 2261-10 for G33-F004 and determines the following:
Contact 3-4 of A71B-K27 {D-4} **CLOSE** resulting in the G3352F004 CLOSE contactor {B-4} energizing, thus closing Reactor Water Cleanup Supply Outboard Isolation Valve G3352F004.

Applicant determines that contact 5-6 of A71B-K27 {D-6, 2261-10} **OPEN** resulting in the loss of a G3352F004 open permissive.

Applicant determines that Reactor Water Cleanup Supply Outboard Isolation Valve G3352F004 limit switches 11 {B-4 & G-3 2261-10} and 12 {B-3 & G-3 2261-10} **CLOSE** when the valve is less than 95% open, causing pumps G3303C001A and G3303C001B to trip.

Comment:

SAT or UNSAT

Performance step:

Using plant electrical drawings 2261 and 2265 series, determine that failure of relay G33A-K3B {relay de-energizes} results in the closure of valve G3352F220 and the tripping of G3303C001A and G3303C001B, pumps if running.

Standard:

Applicant refers to relay A71B-K27A, relay tabulation {G-2, 2265-03}, and determines the following:

Contacts 1-2 and 3-4 are shown on 2261-11 for G33-F220

- Applicant refers to 2261-11 for G33-F220 and determines the following:
 Contact 3-4 of A71B-K27A {D-5} **CLOSE** resulting in the G3352F220 CLOSE contactor {B-5} energizing, thus closing Reactor Water Cleanup To Feedwater Outboard Containment Isolation Valve G3352F220.

Applicant determines that contact 5-6 of A71B-K27A {B-7, 2261-11} **OPEN** resulting in the loss of a G3352F004 open permissive.

Applicant determines that Reactor Water Cleanup To Feedwater Outboard Containment Isolation Valve G3352F220 limit switches 11 {C-5 & G-4 2261-11} and 12 {C-4 & G-4 2261-14} **CLOSE** when the valve is less than 95% open, causing pumps G3303C001A and G3303C001B to trip.

Comment:

SAT or UNSAT

Terminating cue:

Failure of relay G33A-K3B {relay de-energizes} results in the closure of valves G3352-F004 and G3352F220 and the tripping of G3303C001A and G3303C001B, pumps if running, as determined from plant electrical drawings.

STOP TIME: _____

APPLICANT PAGE - INITIAL CONDITIONS AND INITIATING QUE

Initial Conditions:

The plant is in MODE 1, at 100% power. An I&C Technician working in H11P613, reports a strong odor of overheated insulation coming from relay G33A-K3B. Upon further visual inspection, he determined the relay shows signs of potential to fail at any moment.

Initiating Cue:

You are an extra licensed operator assigned to the shift crew. The NASS directs you to research the plant electrical drawings and determine the component(s) affected if relay G33A-K3B were to fail.

VERIFICATION OF COMPLETION

Job Performance Measure No. _____

Examinee's Name:

Examiner's Name:

Date performed:

Facility Evaluator:

Number of attempts:

Time to complete:

Question Documentation:

Question: _____

Response: _____

Result: SAT or UNSAT

Examiner's signature and date: _____

Facility: Fermi 2

Task No: 02A0006026

Task Title: Perform SR 3.8.1.1 for OPERABLE offsite circuit(s) due to an inoperable EDG.

Job Performance Measure No: RO/SRO Admin JPM A.2

K/A Reference: 2.2.12, Knowledge of surveillance procedures. {3.0/3.4}

Examinee: _____

NRC Examiner: _____

Facility Evaluator: _____

Date: _____

Method of testing:

Simulated Performance _____

Actual Performance X

Classroom _____

Simulator X

Plant _____

READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

Initial Conditions:

You are an extra licensed operator assigned to the shift.
The plant is in MODE 1 at 100% power.
EDG #11 has been declared inoperable due to a fire on the generator outboard bearing.
Shoal Line is out of service.

Task Standard:

24.000.01, Attachment, 28b 022300 Demonstrating Operability of AC Sources - Mode 1, 2, 3 completed with alternate indications for 120kV breaker GH noted.

Required Materials:

24.000.01, Attachment, 28b 022300 Demonstrating Operability of AC Sources - Mode 1, 2, 3

General References:

24.000.01, SITUATIONAL SURVEILLANCES/LCO ACTION TRACKING - Attachment, 28b 022300 Demonstrating Operability of AC Sources - Mode 1, 2, 3

Initiating Cue:

EDG #11 has been declared inoperable 15 minutes ago and you are directed to perform the initial SR 3.8.1.1, IAW 24.000.01 - Attachment 28b.

Time Critical Task: **YES/NO**

SR 3.8.1.1 must be completed within 1 hour of declaring the EDG inoperable.

Validation Time: 10 minutes

Simulator Setup:

Remove Shoal line from service.

Use panel override to turn off indicating lights for 120kV breaker GH.

START TIME: _____

DEMONSTRATING OPERABILITY OF AC SOURCES - MODE 1, 2, 3

1.0 AC Sources—Operating

1.1 For Bus 101 supplying SST64, perform the following (H11-P811); otherwise NA

Steps 1.1.1 through 1.1.5:

_____ Performance step: 1.1.1 Record Bus 101 voltage:

Standard: Applicant records Bus 101 voltage.

Comment:

SAT or UNSAT

Performance step: 1.1.2 Verify indicated voltage is approximately 120V AC.

Standard:

Applicant verifies Bus 101 indicated voltage is approximately 120V AC.

(√) Applicant initials step 1.1.2 concurring that Bus 101 indicated voltage is approximately 120V AC.

Comment:

SAT or UNSAT

_____ Performance step: 1.1.3 If indicated bus voltage < 116V AC, notify the NSS, otherwise NA.

Standard: Applicant records N/A on step 1.1.3

Comment:

SAT or UNSAT

Performance step:

1.1.4 Verify one of the following lineups is met:

For Shoal Line supplying, Breaker GD is CLOSED.

For Luzon Line supplying, Breakers GK and GH are CLOSED.

For Swan Creek Line supplying, Breakers GM and GH are CLOSED.

Standard:

Applicant recognizes Shoal Line is out of service.

(√) Applicant **does not** place a check mark for Breaker GD closed on Attach. 28b.

Applicant recognizes Breaker GH indicating lights are extinguished.

Applicant may unsuccessfully replace indicating lamps for breaker GH.

Applicant recognizes breaker GH is closed due to one or more of the the following indications:

- 120kV Bus 101 red power on light is indicating power to the bus.
- R14R870 Bus 101 Voltmeter indicates correct voltage.
- R14R863 Transformer #1 Secondary Current meter indicates current flow to 132kV Buss 11.
- Other indications include all down stream busses are energized, no alarm annunciators indicating failure of 120kV source to ESF busses etc.
- Applicant may dispatch plant operator to locally verify breaker closed.

Applicant recognizes Breaker GK for Luzon Line indicates closed.

~~(√)~~ ^{NA MBS} Applicant places a check mark for Breaker GK and GH closed on Attach. 28b.

Applicant recognizes Breaker GM for Swan Creek Line indicates closed.

~~(√)~~ ^{NA MBS} Applicant places a check mark for Breaker GM and GH closed on Attach. 28b.

(√) Based on indications and guidance in 24.000.01 step 4.1.3 applicant initials step 1.1.4.

~~(√)~~ ^{NA MBS} Applicant documents the instrument(s) used to satisfy the requirements for Breaker GH closed on Attach. 28b.

CUE: If asked, {As Plant Operator} report breaker GH locally indicates closed..

Comment:

SAT or UNSAT

EXAMINER NOTES:

ITS 3.8.1 Bases states:

“An offsite circuit consist of all breakers, transformers, switches.....required to transmit power from offsite transmission network to onsite Class 1E buses.”

ITS SR 3.8.1.1 Bases states:

“SR ensures proper circuit continuity for the offsite AC electrical power supply to the onsite distribution network and availability of offsite AC electrical power. The breaker alignment verifies that each breaker is in its correct position to ensure that distribution buses and loads are connected to their preferred power source and that appropriate independence of offsite circuits is maintained.”

Indications support ITS requirements however applicant should document use of alternate means of verification on 24.00.01.

24.000.01, Section 4.1 Performing Operations Situational Surveillances step 4.1.3 states:

“If an instrument, other than those listed in a step, is used to satisfy the requirements of that step (for example, monitoring a parameter, channel check), list the instrument that was used on the applicable attachment. The alternate instrument may be either an installed process instrument measuring the same parameter, a test instrument installed to measure the parameter continuously, or a test instrument used to measure the parameter intermittently.”

MES27, Verification of System Operability states:

3.3 Items Requiring Operability Determinations

3.3.3 When a question arises, an item can continue to be classified as operable if there is a reasonable expectation that the system will continue to be operable.

4.1 Determining Operability

{Nuclear Shift Supervisor} 4.1.2 Evaluate operability concern and determine if system, structure or component is operable or inoperable.

1. If unable to make a determination:

a. Instruct person who discovered concern to initiate a CARD.

b. Refer question to System Engineering as the lead department for technical evaluations

Performance step: 1.1.5

Verify the following breakers are CLOSED:
TRANS 1 SEC POS A BKR CONTROL
SS TRANS 64 PRI POS D BKR CONTROL

Standard:

Applicant verifies TRANS 1 SEC POS A BKR CONTROL is closed and places a check mark for TRANS 1 SEC POS A BKR CONTROL closed on Attach. 28b.

Applicant verifies SS TRANS 64 PRI POS D BKR CONTROL is closed and places a check mark for SS TRANS 64 PRI POS D BKR CONTROL closed on Attach. 28b.

Applicant initials step 1.1.5.

Comment:

SAT or UNSAT

Performance step: 1.2 For Bus 102 supplying SST64, perform the following (H11-P811); otherwise NA Steps 1.2.1 through 1.2.5:

Standard: Applicant places N/A in each initial block for steps 1.2.1 through 1.2.5.

Comment:

SAT or UNSAT

Performance step:

1.3 Verify at least one of the following two conditions is met:

1.3.1 Step 1.1.2, Step 1.1.4, **and** Step 1.1.5 were completed satisfactorily.

or

1.3.2 Step 1.2.2, Step 1.2.4, **and** Step 1.2.5 were completed satisfactorily.

Standard: Applicant checks box for step 1.3.1 and initials ACCEPTANCE CRITERIA.

Comment:

SAT or UNSAT

PERFORMANCE INFORMATION - (Denote critical steps with a check mark)

1.4 Perform the following (H11-P811):

_____ Performance step: 1.4.1 Record Bus 301 voltage.

Standard: Applicant records Bus 301 voltage.

Comment:

SAT or UNSAT

Performance step: 1.4.2 Verify indicated bus voltage is approximately 120V AC.

Standard:

Applicant verifies Bus 301 indicated voltage is approximately 120V AC.

(√) Applicant initials step 1.1.2 concurring that Bus 301 indicated voltage is approximately 120V AC.

Comment:

SAT or UNSAT

_____ Performance step: 1.4.3 If indicated bus voltage < 116V AC, notify the NSS; otherwise, NA.

Standard: Applicant recognizes Bus 301 indicated voltage is > 116V AC and places N/A in step initial block.

Comment:

SAT or UNSAT

Performance step:

- 1.4.4 Verify one of the following lineups is met:
 - For BRTN 3 Line, Breakers CT, DM, and DF are CLOSED.
 - For BRTN 3 Line, Breakers CM and CF are CLOSED.
 - For BRTN 2 Line supplying, Breaker DF is CLOSED.

Standard:

Applicant verifies Breakers CT, DM, and DF indicate CLOSED for BRTN 3 Line and places a check mark on Attach. 28B for BRTN 3 Line, Breakers CT, DM, and DF are CLOSED.

Applicant verifies Breakers CM and CF indicate CLOSED for BRTN 3 Line and places a check mark on Attach. 28B for BRTN 3 Line, Breakers CM and CF are CLOSED.

Applicant verifies Breaker DF indicates CLOSED for BRTN 2 Line and places a check mark on Attach. 28B for BRTN 2 Line supplying, Breaker DF is CLOSED.

Applicant initials step 1.4.4.

Comment:

SAT or UNSAT

Performance step:

- 1.5 Verify Step 1.4.2 **and** Step 1.4.4 were completed satisfactorily.

Standard:

Applicant verifies Steps 1.4.2 **and** 1.4.4 were completed satisfactorily and initials acceptance criteria.

Comment:

SAT or UNSAT

Terminating cue:

24.000.01, Attachment, 28b 022300 Demonstrating Operability of AC Sources - Mode 1, 2, 3 completed with all acceptance criteria initialed and alternate indications for 120kV breaker GH noted.

STOP TIME: _____

APPLICANT PAGE - INITIAL CONDITIONS AND INITIATING QUE

Initial Conditions:

You are an extra licensed operator assigned to the shift.

The plant is in MODE 1 at 100% power.

EDG #11 has been declared inoperable due to a fire on the generator outboard bearing.

Shoal Line is out of service.

Initiating Cue:

EDG #11 has been declared inoperable 15 minutes ago and you are directed to perform the initial SR 3.8.1.1, IAW 24.000.01 - Attachment 28b.

VERIFICATION OF COMPLETION

Job Performance Measure No. _____

Examinee's Name:

Examiner's Name:

Date performed:

Facility Evaluator:

Number of attempts:

Time to complete:

Question Documentation:

Question: _____

Response: _____

Result: SAT or UNSAT

Examiner's signature and date: _____

Facility: Fermi 2

Task No:

Task Title: Calculate Maximum Radiological Stay Time.

Job Performance Measure No: RO Admin JPM A.3

K/A Reference: Generic 2.3.4, Knowledge of radiation exposure limits and contamination control / including permissible levels in excess of those authorized.
RO 2.5

Examinee: _____

NRC Examiner: _____

Facility Evaluator: _____ Date: _____

Method of testing:

Simulated Performance _____ Actual Performance X

Classroom X Simulator _____ Plant _____

READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

Initial Conditions:

You are an extra operator on shift. The South Reactor Feed Pump turbine thrust bearing temperatures and vibrations appeared to be slowly increasing. System Engineering has developed a plan to attach additional temperature and vibration monitoring equipment to the bearing housing while the pump continues to operate. Operations Management has approved the plan with the condition that an operator is in continuous communication with the control room and **closely** observes the installation of the equipment. Installation of the monitoring equipment is expected to take about 90 minutes. The plant will be operating at about 100% power while the equipment is being installed. A radiological survey of the pump room was completed prior to the shift and the conditions in the room have not changed.

Based on shift staffing availability, you are the only person currently on shift available to closely observe the installation of the monitoring equipment.

Task Standard:

Based on the information provided, the Applicant will calculate his maximum stay time and determine that he cannot observe the equipment being installed for the entire time without exceeding his administrative dose limit.

Required Materials:

Radiological Survey Map of the South Reactor Feed Pump Room (NRC provided).

General References:

Radiation Protection Conduct Manual, MRP05, Revision 3, "ALARA / RWPs."
Fermi 2 Radiation Protection Conduct Manual, MRP12, Revision 3, "Requesting Dose Extensions," Enclosures A and B.

Initiating Cue:

Assuming that the job will be completed as planned, you are directed to determine if you can observe the installation of the equipment while not exceeding your administrative dose limits. Provide calculations to support your conclusion.

Time Critical Task: YES/NO

Validation Time: 10 minutes

Simulator Setup: None

START TIME: _____

Performance step: Applicant obtains their dose history for the calendar year.

Standard: Applicant describes/shows how and where he/she would obtain their dose history information for the calendar year.

Cue: Your dose history for the calendar year is TEDE = 905 mR (year to date).

Comment:

SAT or UNSAT

Performance step: Applicant reviews radiological survey map of the South Reactor Feed Pump room.

Standard: Applicant identifies correct survey map and reviews same to determine radiological conditions.

CUE: Examiner provides applicant with the attached survey map.

CUE: If Applicant ask exactly where monitoring equipment is to be mounted, reply "monitoring equipment is to be mounted on the turbine inboard dearing."

Comment:

SAT or UNSAT

Examiners Notes for next step:

Applicant's dose history for the calendar year:

905 mR (TEDE) year to date.

Admin Limit: 1000mR/yr (TEDE), without any extensions.

No extension will be granted.

Applicant's dose margin: 95 mR

Based on survey map, general area dose rate: 70 mR/hr

If the Applicant was in the area for the entire job, he would receive 105 mR.

$(90 \text{ min}) \times (70 \text{ mR/hr}) \times (\text{hr}/60 \text{ min}) = 105 \text{ mR}$

The Applicant has a dose margin of 95 mR. To remain below his admin limits, his maximum stay time is:

$\frac{(95\text{mR})}{(70\text{mR/hr}) \times (1 \text{ hr} / 60 \text{ min})} = 80 - 81 \text{ minutes (1 hr, 20 - 21 minutes)}$

Performance step: Applicant determines maximum stay time without exceeding administrative dose limits.

Standard: Maximum stay time would be 80 - 81 minutes. Applicant would **not** be able to observe the entire 90 minute task.

Comment:

SAT or UNSAT

Terminating cue:

Have the Applicant provide any calculations used to support his answer.

STOP TIME: _____

Initial Conditions:

You are an extra operator on shift. The South Reactor Feed Pump turbine thrust bearing temperatures and vibrations appeared to be slowly increasing. System Engineering has developed a plan to attach additional temperature and vibration monitoring equipment to the bearing housing while the pump continues to operate. Operations Management has approved the plan with the condition that an operator is in continuous communication with the control room and **closely** observes the installation of the equipment. Installation of the monitoring equipment is expected to take about 90 minutes. The plant will be operating at about 100% power while the equipment is being installed. A radiological survey of the pump room was completed prior to the shift and the conditions in the room have not changed.

Based on shift staffing availability, you are the only person currently on shift available to closely observe the installation of the monitoring equipment.

Initiating Cue:

Assuming that the job will be completed as planned, you are directed to determine if you can observe the installation of the equipment while not exceeding your administrative dose limits. Provide calculations to support your conclusion.

VERIFICATION OF COMPLETION

Job Performance Measure No. _____

Examinee's Name:

Examiner's Name:

Date performed:

Facility Evaluator:

Number of attempts:

Time to complete:

Question Documentation:

Question: _____

Response: _____

Result: SAT or UNSAT

Examiner's signature and date: _____

Every JPM should:

1. _____ be supported by facility licensee's job task analysis.
2. _____ be operationally important (meets NRC K/A Catalog threshold criterion of 2.5 (3 for requalification exams) or as determined by the facility and agreed to by the NRC).
3. _____ be designed as either SRO only, RO/SRO or AO/RO/SRO.
4. _____ include the following, as applicable:
 - a. _____ initial conditions
 - b. _____ initiating cues
 - c. _____ references and tools, including associated procedures
 - d. _____ validated time limits (average time allowed for completion) and specific designation of those JPMs that are deemed to be time-critical by the facility operations department
 - e. _____ specific performance criteria that include:
 - (1) _____ expected actions with exact control and indication nomenclature and criteria (switch position, meter reading), even if these criteria are not specified in the procedural step
 - (2) _____ system response and other cues that are complete and correct so that the examiner can properly cue the examinee, if asked
 - (3) _____ statements describing important observations that should be made by the examinee
 - (4) _____ criteria for successful completion of the task
 - (5) _____ identification of those steps that are considered critical
 - (6) _____ restrictions on the sequence of steps

Facility: Fermi 2

Task No: 02A0002036

Task Title: Perform actions as Emergency communicator during declaration of a General Emergency.

Job Performance Measure No: RO Admin JPM A.4

K/A Reference: Generic 2.4.43. Knowledge of emergency communications systems and techniques. RO 2.8

Examinee: _____

NRC Examiner: _____

Facility Evaluator: _____

Date: _____

Method of testing:

Simulated Performance X Actual Performance _____

Classroom _____ Simulator X Plant _____

READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

Initial Conditions:

You are an extra operator on shift. The plant has experienced an event and the Nuclear Shift Supervisor, acting as the Emergency Director, has declared a General Emergency.

Task Standard:

Simulate contacting the Monroe County Sheriff's Departments in accordance with Fermi 2 RERP Plan Implementing Procedure, EP-290, "Emergency Notifications," using the RERP Emergency Telephone Directory (alternate telephone numbers) within 15 minutes.

Required Materials:

Michigan Notification Form, Attachment 1, EP-290 (Provided by Examiner).
Fermi 2 RERP Plan Implementing Procedure, EP-290, "Emergency Notifications," Revision 36.
RERP Emergency Telephone Directory.

General References:

Michigan Notification Form, Attachment 1, EP-290 (Provided by Examiner).
Fermi 2 RERP Plan Implementing Procedure, EP-290, "Emergency Notifications,"
Revision 36.
RERP Emergency Telephone Directory.

Initiating Cue:

You are directed by the Nuclear Shift Supervisor to contact the Monroe and Wayne County Sheriff's Departments in accordance with Fermi 2 RERP Plan Implementing Procedure, EP-290, "Emergency Notifications."

This is a Time Critical Task.

CAUTION: DO NOT GIVE THE APPLICANT THE KEY WHEN HE IS GIVEN THE MICHIGAN NOTIFICATION FORM.

Time Critical Task: **YES** (15 minutes)

Note to Examiner - Inform the Applicant that the "clock starts" when he indicates that he understands the task and cue.

Validation Time: 10 minutes

Simulator Setup:

No setup required. However, the JPM will be conducted in the simulator.

CAUTION - ENSURE THE DIRECT-RING LINES ARE SECURED/DISCONNECTED PRIOR TO PERFORMING THIS JPM.

START TIME: _____

____ Performance step: Examiner provide the Applicant with a filled in copy of a Michigan Notification Form, Attachment 1, EP-290.

Standard: Examiner provides the Applicant with the Michigan Notification Form.

CAUTION: DO NOT GIVE THE APPLICANT THE KEY WHEN HE IS GIVEN THE MICHIGAN NOTIFICATION FORM.

Note to Examiner - Inform the Applicant that the "clock starts" when he indicates that he understands the task and cue.

SAT or UNSAT

____ Performance step: Applicant obtains copy of Fermi 2 RERP Plan Implementing Procedure, EP-290, "Emergency Notifications," Revision 36.

Standard: Applicant informs the Examiner where he would obtain a copy of procedure EP-290 in the control room.

CUE: After the Applicant informs the Examiner where he would obtain a copy of procedure EP-290 in the control room, the Examiner then gives the Applicant a copy of EP-290.

Comment:

SAT or UNSAT

____ Performance step: (Step 6.1.1.1, EP-290)

CAUTION - ENSURE THE DIRECT-RING LINES ARE SECURED/DISCONNECTED PRIOR TO PERFORMING THIS JPM.

Contact the Monroe and Wayne County Sheriffs' Departments using the designated direct-ring line. (The direct-ring lines ring in both Monroe and Wayne County Sheriffs' Departments Communications Centers).

Standard: Simulate contacting the Monroe and Wayne County Sheriffs' Departments using the designated direct-ring line. The direct-ring line does not work.

CUE: Examiner informs the Applicant that there is no dial tone and no ring tone on the phone.

Comment:

SAT or UNSAT

Performance step: Applicant obtains a copy of the RERP Emergency Telephone Directory in the control room.

Standard: Applicant informs the Examiner where he would obtain a copy of the RERP Emergency Telephone Directory in the control room.

CUE: After the Applicant informs the Examiner where he would obtain a copy of the RERP Emergency Telephone Directory in the control room, the Examiner then gives the Applicant a copy of the RERP Emergency Telephone Directory.

Comment:

SAT or UNSAT

Performance step: Contact the Monroe and Wayne County Sheriffs' Departments using the number in the RERP Emergency Telephone Directory.
Monroe County Sheriff's Department: 734/243-7070
Wayne County Sheriff' Department: 734/942-3600

Standard: Simulate contacting the Monroe and Wayne County Sheriffs' Departments using the number in the RERP Emergency Telephone Directory.

Comment: At this point, the Applicant has successfully obtained the alternate telephone numbers for the two County Sheriff's Departments, the Applicant only needs to simulate notifying the Monroe County.

SAT or UNSAT

Performance step: Use the Michigan Notification Form to inform the Monroe County Sheriff's Department of the General Emergency.

Standard: Applicant simulates informing the Monroe County Sheriff's Department by reading the information on Michigan Notification Form.

CUE: Examiner will act as representative of the Monroe County Sheriff's Department and repeat back what the Applicant says.

Comment:

SAT or UNSAT

Terminating cue:

After the Applicant has simulated contacting the Monroe County Sheriff's Department using the number in the RERP Emergency Telephone Directory, inform the Applicant that another individual will complete the notifications (the Wayne County Sheriff's Department, the Michigan State Police, NRC, Canada, ETC..)

STOP TIME: _____

Initial Conditions:

You are an extra operator on shift. The plant has experienced an event and the Nuclear Shift Supervisor, acting as the Emergency Director, has declared a General Emergency.

Initiating Cue:

You are directed by the Nuclear Shift Supervisor to contact the Monroe and Wayne County Sheriff's Departments in accordance with Fermi 2 RERP Plan Implementing Procedure, EP-290, "Emergency Notifications."

VERIFICATION OF COMPLETION

Job Performance Measure No. _____

Examinee's Name:

Examiner's Name:

Date performed:

Facility Evaluator:

Number of attempts:

Time to complete:

Question Documentation:

Question: _____

Response: _____

Result: SAT or UNSAT

Examiner's signature and date: _____

Every JPM should:

1. _____ be supported by facility licensee's job task analysis.
2. _____ be operationally important (meets NRC K/A Catalog threshold criterion of 2.5 (3 for requalification exams) or as determined by the facility and agreed to by the NRC).
3. _____ be designed as either SRO only, RO/SRO or AO/RO/SRO.
4. _____ include the following, as applicable:
 - a. _____ initial conditions
 - b. _____ initiating cues
 - c. _____ references and tools, including associated procedures
 - d. _____ validated time limits (average time allowed for completion) and specific designation of those JPMs that are deemed to be time-critical by the facility operations department
 - e. _____ specific performance criteria that include:
 - (1) _____ expected actions with exact control and indication nomenclature and criteria (switch position, meter reading), even if these criteria are not specified in the procedural step
 - (2) _____ system response and other cues that are complete and correct so that the examiner can properly cue the examinee, if asked
 - (3) _____ statements describing important observations that should be made by the examinee
 - (4) _____ criteria for successful completion of the task
 - (5) _____ identification of those steps that are considered critical
 - (6) _____ restrictions on the sequence of steps

Applicant's Copy

MICHIGAN NOTIFICATION FORM PLANT: FERMI 2

Required Information

1. This is a drill Actual Event
PLANT COMMUNICATOR CR TSC EOF
Name _____ Telephone No. (313) 256-4 _____
2. PLANT NAME/UNIT Fermi 2 2A. PLANT MESSAGE NUMBER 1

2B. NOTIFICATIONS

	Time Contacted	Name/Telephone Number
Monroe County Sheriff		
Wayne County Sheriff		
Michigan State Police		
NRC Operations Center - CR only		
Province of Ontario (Canada)		
Nuclear Information		

3. CLASS OF EMERGENCY

A. Unusual Event B. Alert C. Site Area Emergency D. General Emergency

E. This classification declared by Plant at: Time: _____ Date: _____

F. Initiating Conditions/Description of Event: Large Break LOCA on recirculation piping, no injection into reactor vessel, reactor vessel level unknown.

4. PLANT STATUS

A. Stable B. Degrading C. Improving

D. Additional Information: Indications of failed fuel. Drywell pressure response not consistent with LOCA. Containment Radiation approx. 12,000 Rem/hr.

5. RADIOLOGICAL RELEASE IN PROGRESS: YES NO

6. METEOROLOGICAL DATA

NOTE: 10 m Met Tower is preferred information source.

A. Wind Direction, Degrees From: 0° to 180° B. Wind Speed, MPH: 2 C. Stability Class: C

D. Three Downwind Sectors: H, J, K E. Precipitation: YES NO

7. OFFSITE PROTECTIVE ACTION RECOMMENDATIONS

A. YES NO

Note: If YES, fill in the following information:

B. PAR based on: Dose Calculations Plant Status Other _____

C. In-Place Shelter (Areas) 2, 3, 4, 5

D. Evacuation (Areas) 1

For Initial Notification Approval - Sign Below

For Subsequent Notifications - Sign Page 2

Approved: John Smith Time: _____
Emergency Director/Emergency Officer

NRC Exam Material

Key
MICHIGAN NOTIFICATION FORM
PLANT: FERMI 2

Required Information

1. This is a drill Actual Event

PLANT COMMUNICATOR CR TSC EOF

Name _____ Telephone No. (313) 256-4 _____

2. PLANT NAME/UNIT Fermi 2 2A. PLANT MESSAGE NUMBER 1

2B. NOTIFICATIONS

	Time Contacted	Name/Telephone Number
Monroe County Sheriff		734/243-7070
Wayne County Sheriff		734/942-3600
Michigan State Police		
NRC Operations Center - CR only		
Province of Ontario (Canada)		
Nuclear Information		

3. CLASS OF EMERGENCY

A. Unusual Event B. Alert C. Site Area Emergency D. General Emergency

E. This classification declared by Plant at: Time: _____ Date: _____

F. Initiating Conditions/Description of Event: Large Break LOCA on recirculation piping, no injection into reactor vessel, reactor vessel level unknown.

4. PLANT STATUS

A. Stable B. Degrading C. Improving

D. Additional Information: Indications of failed fuel. Drywell pressure response not consistent with LOCA. Containment Radiation approx. 12,000 Rem/hr.

5. RADIOLOGICAL RELEASE IN PROGRESS: YES NO

6. METEOROLOGICAL DATA

NOTE: 10 m Met Tower is preferred information source.

A. Wind Direction, Degrees From: 0° to 180° B. Wind Speed, MPH: 2 C. Stability Class: C

D. Three Downwind Sectors: H, J, K E. Precipitation: YES NO

7. OFFSITE PROTECTIVE ACTION RECOMMENDATIONS

A. YES NO

Note: If YES, fill in the following information:

B. PAR based on: Dose Calculations Plant Status Other _____

C. In-Place Shelter (Areas) 2, 3, 4, 5

D. Evacuation (Areas) 1, 1

For Initial Notification Approval - Sign Below

For Subsequent Notifications - Sign Page 2

Approved: John Smith Time: _____
 Emergency Director/Emergency Officer

NRC Exan Material

Key

Facility: Fermi 2

Task No:

Task Title: Selection of personnel for task based on radiation exposure for the job,
Fermi 2 administrative limits and dose extensions

Job Performance Measure No: SRO Admin JPM A.3

K/A Reference: Generic 2.3.4, Knowledge of radiation exposure limits and
contamination control / including permissible levels in excess of those authorized.
SRO 3.1

Examinee: _____ NRC Examiner: _____

Facility Evaluator: _____ Date: _____

Method of testing:

Simulated Performance _____ Actual Performance X

Classroom X Simulator _____ Plant _____

READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

Initial Conditions:

You are the on-shift Shift Manager. The RWCU Pump Motor thrust bearing temperatures and vibrations appeared to be slowly increasing. System Engineering had developed a plan to attach additional temperature and vibration monitoring equipment to the bearing housing while the pump continues to operate. Operations Management has approved the plan with the condition that an operator is in continuous communication with the control room and **closely** observes the installation of the equipment. Installation of the monitoring equipment is expected to take about 90 minutes. The plant will be operating at about 100% power while the equipment is being installed. A radiological survey of the pump room was completed prior to the shift and the conditions in the room have not changes. An ALARA evaluation was completed and shielding was installed where possible.

Based on shift staffing availability, there are two operators with the skills and experience currently on shift available to closely observe the installation of the monitoring equipment.

Task Standard:

Based on the information provided, the Applicant will select an operator who can observe the installation of the equipment while not exceeding administrative limits.

Required Materials:

Radiological Survey Map of the RWCU Pump Room (NRC provided).

General References:

Fermi 2 Radiation Protection Conduct Manual, MRP12, Revision 3, "Requesting Dose Extensions."

Initiating Cue:

Assuming that the job will be completed as planned, you are directed to select an operator who can observe the installation of the equipment in accordance with Fermi 2 administrative procedures. Provide calculations to support your conclusion.

Time Critical Task: YES/NO

Validation Time: 15 minutes

Simulator Setup: None

START TIME: _____

NOTE TO EXAMINER: JPM STEPS MAY NOT NECESSARILY BE PERFORMED IN THE ORDER WRITTEN.

_____ Performance step: Examiner provides the Applicant with the radiological survey map of the RWCU Pump Room.

Standard: Examiner provides the survey map to the Applicant.

Comment:

SAT or UNSAT

_____ Performance step: Applicant requests copy of Fermi 2 Radiation Protection Conduct Manual, MRP12, Revision 3, "Requesting Dose Extensions."

Standard: After the Applicant has explained where he would obtain a copy of the procedure, the Examiner provides a copy of the procedure to the Applicant.

NOTE TO EXAMINER:

The Applicant may not initially ask for the procedure. When the Applicant indicates he wants to use the procedure, the Examiner will ask the Applicant where a copy of the procedure could be obtain.

CUE: Examiner will ask the Applicant where he would obtain a copy of the procedure.

Comment:

SAT or UNSAT

Performance step: Applicant determines the amount of dose an operator would receive while performing the job.

Standard: Applicant determines that the operator who performs the job will receive 375 mRem.

NOTE TO EXAMINER:

Based on survey map, general area dose rate: 250 mR/hr

If the Applicant was in the area for the entire job, he would receive 375 mR.
 $(90 \text{ min}) \times (250 \text{ mR/hr}) \times (\text{hr}/60 \text{ min}) = 375 \text{ mR}$

Comment:

SAT or UNSAT

Performance step: Applicant determines if any of the operators would exceed the Fermi 2 administrative annual dose limit of 1000 mRem while performing the job.

Standard: Applicant determines that both operators would exceed the 1000 mRem administrative limit.

CUE: Examiner will provide the Applicant with the current CY 2001 dose histories, life time dose histories, and age of the operators, when requested (Table on Separate Page).

Examiner Note:

If the Applicant does not request all of the information, then verbally provide only the requested information.

	Dose (CY to Date) TEDE	Age of Operator	Dose History TEDE (thru 12/31/2000)
Operator 1	649 mRem	45	42,150 mRem
Operator 2	626 mRem	36	35,010 mRem

Operator 1: 649 mRem + 375 mRem = 1014 mRem

Operator 2: 626 mRem + 375 mRem = 1001 mRem

Comment:

SAT or UNSAT

Performance step:

Applicant determines that since both operators would exceed 1000 mRem for the year, a Dose Extension, in accordance with Fermi 2 Radiation Protection Conduct Manual, MRP12, Revision 3, "Requesting Dose Extensions," is required.

Standard:

Applicant determines that both operators would exceed 1000 mRem, administrative limit for the year.

Comment:

SAT or UNSAT

Performance step:

Applicant selects one of the operators perform the job (and to receive a dose extension).

Standard:

Applicant determines that operator # 1 should perform the job.

Applicant determines that operator # 2 should not perform the job because his total lifetime dose would exceed "N" Rem.

Examiner Note:

Operator 1: 1014 mRem for the year (with dose for job added).

Operator 2: 1001 mRem for the year (with dose for job added).

HOWEVER, Operator # 2 is rejected because his total lifetime dose would exceed "N" Rem (where "N" is the age of the operator at his last birthday).

1001 mRem + 35,010 mRem = 36,011 mRem

Comment:

SAT or UNSAT

Terminating cue:

Have the Applicant provide any calculations used to support his answer.

STOP TIME: _____

APPLICANT PAGE - INITIAL CONDITIONS AND INITIATING CUE

Initial Conditions:

You are the on-shift Shift Manager. The RWCU Pump Motor thrust bearing temperatures and vibrations appeared to be slowly increasing. System Engineering had developed a plan to attach additional temperature and vibration monitoring equipment to the bearing housing while the pump continues to operate. Operations Management has approved the plan with the condition that an operator is in continuous communication with the control room and **closely** observes the installation of the equipment. Installation of the monitoring equipment is expected to take about 90 minutes. The plant will be operating at about 100% power while the equipment is being installed. A radiological survey of the pump room was completed prior to the shift and the conditions in the room have not changes. An ALARA evaluation was completed and shielding was installed where possible.

Based on shift staffing availability, there are two operators with the skills and experience currently on shift available to closely observe the installation of the monitoring equipment.

Initiating Cue:

Assuming that the job will be completed as planned, you are directed to select an operator who can observe the installation of the equipment in accordance with Fermi 2 administrative procedures. Provide calculations to support your conclusion.

JPM SRO A.3Fermi 2 6/2001 Initial License Exam

OPERATOR DOSE HISTORY

	Dose (CY to Date) TEDE	Age of Operator	Dose History TEDE (thru 12/31/2000)
Operator 1	649 mRem	45	42,150 mRem
Operator 2	626 mRem	36	35,010 mRem

VERIFICATION OF COMPLETION

Job Performance Measure No. _____

Examinee's Name:

Examiner's Name:

Date performed:

Facility Evaluator:

Number of attempts:

Time to complete:

Question Documentation:

Question: _____

Response: _____

Result: SAT or UNSAT

Examiner's signature and date: _____

Every JPM should:

1. _____ be supported by facility licensee's job task analysis.
2. _____ be operationally important (meets NRC K/A Catalog threshold criterion of 2.5 (3 for requalification exams) or as determined by the facility and agreed to by the NRC).
3. _____ be designed as either SRO only, RO/SRO or AO/RO/SRO.
4. _____ include the following, as applicable:
 - a. _____ initial conditions
 - b. _____ initiating cues
 - c. _____ references and tools, including associated procedures
 - d. _____ validated time limits (average time allowed for completion) and specific designation of those JPMs that are deemed to be time-critical by the facility operations department
 - e. _____ specific performance criteria that include:
 - (1) _____ expected actions with exact control and indication nomenclature and criteria (switch position, meter reading), even if these criteria are not specified in the procedural step
 - (2) _____ system response and other cues that are complete and correct so that the examiner can properly cue the examinee, if asked
 - (3) _____ statements describing important observations that should be made by the examinee
 - (4) _____ criteria for successful completion of the task
 - (5) _____ identification of those steps that are considered critical
 - (6) _____ restrictions on the sequence of steps

Facility: Fermi 2

Task No: 02A0006026 & 02A0006014

Task Title: Determine Emergency Classification and PARs.

Job Performance Measure No: SRO Admin JPM A.4

K/A Reference: 2.4.41, Knowledge of the emergency action level thresholds and classifications. SRO 4.1

Examinee: _____

NRC Examiner: _____

Facility Evaluator: _____

Date: _____

Method of testing:

Simulated Performance _____

Actual Performance X

Classroom X

Simulator X

Plant X

READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

Initial Conditions:

You are the Shift Manager.

The plant was operating at 100% power when a Group 1 isolation signal on steam line high radiation resulted in MSIV closure.

Current conditions are as follows:

Reactor power	2% indicated on APRMs, all rods did not insert to 00.
RPV level	maintained between -28 inches and 0 inches.
RPV pressure	928 psig and is trending down very slowly.
Drywell pressure	21 psig and rising
Torus pressure	20 psig and rising
Drywell oxygen conc.	0.5%
Drywell hydrogen conc.	1.0%
CHRRM reading	1.2 E4 rad/hr.
SGTS DIV II AXM, Channel 3	775 μ Ci/cc and slowly trending up

Task Standard:

Determine the Emergency Action Level in accordance with EP-101 and related Protective Action Recommendations in accordance with EP-545.

Required Materials:

EP-101, CLASSIFICATION OF EMERGENCIES

EP-545, PROTECTIVE ACTION RECOMMENDATIONS

General References:

EP-101, CLASSIFICATION OF EMERGENCIES

EP-545, PROTECTIVE ACTION RECOMMENDATIONS

EP-547, RAPID ESTIMATE OF CORWFUEL DAMAGE BASED ON CONTAINMENT
HIGH RANGE RADIATION MONITOR

Initiating Cue:

Determine the appropriate Emergency Event Classification and if required any recommended protective actions to offsite authorities.

Time Critical Task: YES/NO

Validation Time: 15 minutes

START TIME: _____

_____ Performance step: Locate EP-101, CLASSIFICATION OF EMERGENCIES.

Standard: Applicant locates procedure EP-101.

Comment:

SAT or UNSAT

_____ Performance step:

From information in Initial Conditions Determine Event Category to be either:

- a. Tab A, Abnormal Rad Levels/Radiological Effluent
- OR**
- b. Tab F, Fission Product Barrier Degradation

Standard: Applicant determines Category.

Comment:

SAT or UNSAT

_____ Performance step:

Using EP101 Enclosure B and/or EP-101 - Enclosure A, Tab A, ABNORMAL RAD LEVELS/RADIOLOGICAL EFFLUENT; compare information in Initiating Conditions against Emergency Action Level criteria:

SITE AREA EMERGENCY - AS1 Site Boundary Dose Resulting from an Actual or Imminent Release of Gaseous Radioactivity Exceeds 100 mrem TEDE or 500 mrem Adult Thyroid for the Actual or Projected Duration of the Release.

Emergency Action Levels:

1. Note: If a valid monitor reading indicates a release of radioactivity that may result in a Site Boundary Doses in excess of 100 mrem TEDE or 500 mrem Adult Thyroid for greater than 15 minutes, and it is not confirmed by sample analysis or dose projection within that time, then the declaration must be based on the valid monitor reading. A valid monitor reading of greater than 80 mCi/cc on SGTS DIV I/II AXM, Channel 3, may indicate a release resulting in Site Boundary Dose Rates in excess of 100 mrem/hr TEDE or 500 mrem/hr Adult Thyroid, and warrants immediate confirmation by sampling and analysis in accordance with ODCM methodology or by performing dose assessment.

GENERAL EMERGENCY - AG1 Site Boundary Dose Resulting from an Actual or Imminent Release of Gaseous Radioactivity Exceeds 1000 mrem TEDE or 5000 mrem Adult Thyroid for the Actual or Projected Duration of the Release Using Actual Meteorology.

Emergency Action Levels:

1. Note: If a valid monitor reading indicates a release of radioactivity that may result in Site Boundary Doses in excess of 1000 mrem TEDE or 5000 mrem Adult Thyroid for greater than 15 minutes, and it is not confirmed by dose projection within that time, then the declaration must be based on the valid monitor reading. A valid monitor reading of greater than 800 microCi/cc on SGTS DIV I/II AXM, Channel 3, may indicate a release resulting in Site Boundary Dose Rates in excess of 1000 mRem/hr TEDE or 5000 mRem/hr Adult Thyroid, and warrants immediate confirmation by sampling and analysis in accordance with ODCM methodology or by performing dose assessment.

Que: If requested, wind is from Sector G at 5mph and steady.

Standard:

Applicant determines information provided in Initial conditions indicates exceeding criteria for AS1 - SITE AREA EMERGENCY, due to >80 microCi/cc on SGTS DIV I/II AXM, Channel 3.

Applicant determines information provided in Initial conditions does not indicate meeting criteria for AG1 - GENERAL EMERGENCY, due to < 800 microCi/cc on SGTS DIV I/II AXM, Channel 3.

Comment:

SAT or UNSAT

_____ Performance step:

Using EP101 Enclosure B and/or EP-101 - Enclosure A, Tab F, FISSION PRODUCT BARRIER DEGRADATION; compare information in Initiating Conditions against Emergency Action Level criteria:

SITE AREA EMERGENCY - FS1 Loss or Potential Loss of Any Two Barriers

GENERAL EMERGENCY - FG1 Loss of Any Two Barriers and Potential Loss of Third Barrier

Standard:

FG1	Fuel Clad Barrier	CHRRM reading > 2,500 R/Hr
	RCS Barrier	Drywell pressure > 1.68 psig
	Pri Cnmt Barrier	CHRRM reading > 10,000 R/Hr

Comment:

SAT or UNSAT

Performance step: Determine EAL to be a General Emergency from Tab F.

Standard: Applicant determines EAL to be a General Emergency using EP-101 Tab F.

Comment:

SAT or UNSAT

____ Performance step: Locate EP-545, PROTECTIVE ACTION RECOMMENDATIONS.

Standard: Applicant locates procedure EP-545.

Comment:

SAT or UNSAT

____ Performance step: Refer to EP- 545 Enclosure A, PAR FLOWCHART.

Standard: Applicant refers to EP- 545 Enclosure A, PAR FLOWCHART.

CUE: If Applicant ask, reply as STA that Offsite samples **have not** been obtained.

Comment:

SAT or UNSAT

Performance step: Determine PAR.

Standard: Using EP- 545 Enclosure A, PAR FLOWCHART, applicant determines PAR to be:

1. GENERAL EMERGENCY declared.
2. Loss of Physical Control of the Plant. N/Y
3. Substantial core damage in progress or projected? N/Y
{Conditions do not meet requirement of NOTE a for a YES response}

CUE: If Applicant ask, reply as STA that Gap Release has been determined to be approximately 17.4% using EP-547 Att #1. {Provide attached copy if requested}

4. Integrated Dose at 5 Miles > 1 Rem TEDE or 5 Rem Adult Thyroid N/Y
{SGTS DIV II AXM, Channel 3 reading 775 μ Ci/cc}

CUE: If Applicant ask STA for input, refer Applicant to EP-101 - Enclosure A, Tab A, ABNORMAL RAD LEVELS/RADIOLOGICAL EFFLUENT

Emergency Action Levels:

A valid monitor reading of greater than 800 microCi/cc on SGTS DIV I/II AXM, Channel 3, may indicate a release resulting in Site Boundary Dose Rates in excess of 1000 mRem/hr TEDE

Protective Action Recommendation

- Evacuate Area 1
- Evacuate to 5 Miles Downwind Affected Area(s)

Comment:

SAT or UNSAT

Terminating cue: Emergency Action Level and related Protective Action Recommendations are determined.

STOP TIME: _____

APPLICANT PAGE - INITIAL CONDITIONS AND INITIATING QUE

Initial Conditions:

You are the NSS.

The plant was operating at 100% power when a Group 1 isolation signal on steam line high radiation resulted in MSIV closure.

Current conditions are as follows:

Reactor power	2% indicated on APRMs, all rods did not insert to 00.
RPV level	maintained between -28 inches and 0 inches.
RPV pressure	928 psig and is trending down very slowly.
Drywell pressure	21 psig and rising
Torus pressure	20 psig and rising
Drywell oxygen conc.	0.5%
Drywell hydrogen conc.	1.0%
CHRRM reading	1.2 E4 rad/hr.
SGTS DIV II AXM, Channel 3	775 μ Ci/cc and slowly trending up

Initiating Cue:

Determine the appropriate Emergency Event Classification and if required any recommended protective actions to offsite authorities.

VERIFICATION OF COMPLETION

Job Performance Measure No. _____

Examinee's Name:

Examiner's Name:

Date performed:

Facility Evaluator:

Number of attempts:

Time to complete:

Question Documentation:

Question: _____

Response: _____

Result: SAT or UNSAT

Examiner's signature and date: _____