

August 10, 2000

Mr. William O'Connor, Jr.
Vice President
Nuclear Generation
Detroit Edison Company
6400 North Dixie Highway
Newport, MI 48166

SUBJECT: OPERATOR LICENSING EXAMINATION REPORT 50-341/2000302(DRS)

Dear Mr. O'Connor:

A Nuclear Regulatory Commission examiner completed an initial operator licensing examination at your Fermi 2 Nuclear Station on July 20, 2000. The license applicant's performance evaluation was finalized on August 7, 2000.

This examination was a continuation of an April 1998 initial licensing examination. The examiner administered the Category C, "Integrated Plant Operations," portion of the operating examination to one senior reactor operator license applicant as agreed upon in the court document for the Atomic Safety and Licensing Board Case No. 99-755-01-SP, dated June 22, 2000. The applicant passed the administered examination and was issued a senior reactor operator license.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/NRC/ADAMS/index.html> (the Public Electronic Reading Room).

We will gladly discuss any questions you have concerning this examination.

Sincerely

/RA/

David E. Hills, Chief
Operations Branch
Division of Reactor Safety

Docket No. 50-341
License No. NPF-43

Enclosures: 1. Inspection Report 50-341/2000302(DRS)
2. Simulation Facility Report

See Attached Distribution

DOCUMENT NAME: G:\DRS\FER2000302DRS.WPD

ML 003739610

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cc w/encls: N. Peterson, Director, Nuclear Licensing
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R. Whale, Michigan Public Service Commission
Michigan Department of Environmental Quality
Monroe County, Emergency Management Division
Emergency Management Division
MI Department of State Police
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AJK1 (Project Mgr.)

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SRI Fermi

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M. Bies

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No: 50-341
License No: NPF-43

Report No: 50-341/2000302(DRS)

Licensee: The Detroit Edison Company

Facility: Fermi 2

Location: 6400 North Dixie Highway
Newport, MI 48166

Date: July 20, 2000

Examiner: A. M. Stone, Chief Examiner, RIII

Approved by: David E. Hills, Chief, Operations Branch
Division of Reactor Safety

NRC's REVISED REACTOR OVERSIGHT PROCESS

The federal Nuclear Regulatory Commission (NRC) recently revamped its inspection, assessment, and enforcement programs for commercial nuclear power plants. The new process takes into account improvements in the performance of the nuclear industry over the past 25 years and improved approaches of inspecting and assessing safety performance at NRC licensed plants.

The new process monitors licensee performance in three broad areas (called strategic performance areas): reactor safety (avoiding accidents and reducing the consequences of accidents if they occur), radiation safety (protecting plant employees and the public during routine operations), and safeguards (protecting the plant against sabotage or other security threats). The process focuses on licensee performance within each of seven cornerstones of safety in the three areas:

Reactor Safety	Radiation Safety	Safeguards
<ul style="list-style-type: none">• Initiating Events• Mitigating Systems• Barrier Integrity• Emergency Preparedness	<ul style="list-style-type: none">• Occupational• Public	<ul style="list-style-type: none">• Physical Protection

To monitor these seven cornerstones of safety, the NRC uses two processes that generate information about the safety significance of plant operations: inspections and performance indicators. Inspection findings will be evaluated according to their potential significance for safety, using the Significance Determination Process, and assigned colors of GREEN, WHITE, YELLOW or RED. GREEN findings are indicative of issues that, while they may not be desirable, represent very low safety significance. WHITE findings indicate issues that are of low to moderate safety significance. YELLOW findings are issues that are of substantial safety significance. RED findings represent issues that are of high safety significance with a significant reduction in safety margin.

Performance indicator data will be compared to established criteria for measuring licensee performance in terms of potential safety. Based on prescribed thresholds, the indicators will be classified by color representing varying levels of performance and incremental degradation in safety: GREEN, WHITE, YELLOW, and RED. GREEN indicators represent performance at a level requiring no additional NRC oversight beyond the baseline inspections. WHITE corresponds to performance that may result in increased NRC oversight. YELLOW represents performance that minimally reduces safety margin and requires even more NRC oversight. And RED indicates performance that represents a significant reduction in safety margin but still provides adequate protection to public health and safety.

The assessment process integrates performance indicators and inspection so the agency can reach objective conclusions regarding overall plant performance. The agency will use an Action Matrix to determine in a systematic, predictable manner which regulatory actions should be taken based on a licensee's performance. The NRC's actions in response to the significance (as represented by the color) of issues will be the same for performance indicators as for inspection findings. As a licensee's safety performance degrades, the NRC will take more and increasingly significant action, which can include shutting down a plant, as described in the Action Matrix.

More information can be found at: <http://www.nrc.gov/NRR/OVERSIGHT/index.html>.

SUMMARY OF FINDINGS

Examination Report, 50-341/2000302(DRS), on 07/20/2000; Detroit Edison; Fermi 2 Nuclear Power Plant; Unit 2. Other Activities.

The announced operator licensing initial examination was conducted by a regional examiner in accordance with the guidance of NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," Revision 8, and as agreed upon in the court document for the Atomic Safety and Licensing Board Case No. 99-755-01-SP, dated June 22, 2000. No issues were identified.

Examination Summary

- One senior reactor operator applicant was administered the Category C, "Integrated Plant Operations," portion of the operating examination. The applicant passed the administered examination and was awarded a senior reactor operator license (Section 4OA5.1).

Report Details

4. OTHER ACTIVITIES

4OA5 Other

.1 Initial Licensing Examinations

a. Inspection Scope

The NRC examiner conducted an announced operator licensing initial examination on July 20, 2000. The facility staff used the guidance prescribed in NUREG-1021, Operator Licensing Examination Standards for Power Reactors, Revision 8, dated April 1999, to prepare the outline and two dynamic scenarios. The facility submitted the proposed outline and examination to the NRC on time.

b. Findings

The NRC determined that the two scenarios submitted by the facility were within the range of acceptability expected for the proposed examination. The NRC examiner did not identify any significant security concerns associated with the development or administration of the tests.

The NRC examiner administered the Category C operating test on July 20, 2000. The applicant demonstrated satisfactory performance during the dynamic scenarios. The NRC examiner documented the applicant's performance deficiencies in the applicant's examination report, Form ES-303-1, "Operator Licensing Examination Report." The NRC forwarded a copy of the evaluation under separate correspondence to the Site Training Manager. The sample size (one applicant) was considered too small to evaluate for any meaningful generic performance deficiencies.

In addition, per the court document for the Atomic Safety and Licensing Board Case No. 99-755-01-SP, dated June 22, 2000, a facility representative also evaluated the applicant's performance. Overall, the facility evaluator's assessment was similar to the NRC evaluation.

4OA6 Management Meetings

Exit Meeting Summary

The examiner presented the preliminary examination observations to Mr. Stasek and other members of licensee management on July 20, 2000. The licensee acknowledged the issues presented. No proprietary information was identified.

PARTIAL LIST OF PERSONS CONTACTED

Licensee

S. Stasek, Supervisor, Independent Safety Engineering Group
R. Duke, Operations Training
J. Flint, Licensing
K. Hlavaty, Operations Department
R. Johnson, Licensing
A. Mann, Operations Department, Facility Evaluator
S. Peterman, Operations Department
M. Philippon, Operations Department
D. Pierce, Nuclear Training
L. Sanders, General Supervisor, Operations Training

NRC

J. Larizza, Resident Inspector

SIMULATION FACILITY REPORT

Facility Licensee: Fermi 2

Facility Licensee Docket No: 50-341

Operating Examinations Administered: July 20, 2000

The following documents observations made by the NRC examination team during the initial license examination. These observations do not constitute audit or inspection findings and are not, without further verification and review, indicative of non-compliance with 10 CFR 55.45(b). These observations do not affect NRC certification or approval of the simulation facility other than to provide information which may be used in future evaluations. No licensee action is required in response to these observations.

During the conduct of the simulator portion of the operating examinations, the following items were observed:

ITEM	DESCRIPTION
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1. None

Detroit Edison



July 11, 2000
NANT-00-0091

0801.24

Ms. Anne Marie Stone
Region III
U. S. Nuclear Regulatory Commission
801 Warrenville Rd.
Lisle, IL 60532-4351

Dear Ms. Stone

The attached Examination Materials, provided in both computer diskette and hard copy form, are provided in support of the licensing examinations at the Fermi 2 Nuclear Power Plant scheduled to commence on July 20, 2000.

To maintain examination security and integrity, the examination materials shall be withheld from public disclosure until after the examinations are complete.

Should you have any questions regarding any aspect of the licensing examinations, please contact Roy Duke at (734) 586-4067.

Sincerely,

A handwritten signature in black ink, appearing to read "Kirk R. Snyder".

Kirk R. Snyder
General Supervisor, Operations Training

Attachments

KRS/new

MEMORANDUM TO: File

FROM: Ann Marie Stone, Chief Examiner

SUBJECT: FERMI 2 JULY 2000 (PHILIPPON) EXAMINATION

DATE: August 4, 2000

The following items should be noted concerning the FERMI 2 Examination:

1. A letter to the corporate office announcing the examination was not generated. In a teleconference on June 30, 2000 with Mr. K. Sneider, it was agreed that the facility would develop two scenarios and submit these with the appropriate quality checklists by July 14. It was also agreed that the exam would be validated on July 19, changes discussed with the Acting Branch Chief, and administered on July 20, 2000.
2. ES-201-2: The examination consisted only of Category C, "Integrated Plant Operations;" therefore, I marked "N/A" for the written and walkthrough portions of the exam on this form. Section 4.c. was marked as N/A since K/A importance ratings do not generally relate to dynamic simulator activities.
3. Operating Test Outline: The facility submitted the outline the same day as the material for the exam. The outline is located in the "Proposed Operating Test" section.
4. ES-301-3: The facility's comment on 1.a was made because the misunderstood and did not send the ES-201-2 form with the submitted material. I notified them of the error and the form was sent. Step 1.d was marked "N/A" by the facility since a written and walkthrough exam were not prepared. I reviewed the material and verified that there was not overlap with the April 1998 exam (this exam was a continuation of the April 1998 exam) The facility's initials on step 4.d of ES-201-2 confirms the facility's review of the previous exam.
5. Changes to the Operating Test: Very few changes were required of the facility.

Scenario #1, Event #6 - Form ES-D-2 changed to reflect actual valve numbers for the charging system (C11-F034 changed to C1100-F034 and C11-F003 changed to C1152-F003)

Scenario #2, Event#7 - The original component failure, LPCI injection valve E1150-F015B position failure, was changed during validation day. A failure of the containment spray inboard isolation valve, E11-F016A, was added as Event #7. This change was necessary because the original fault could have led the applicant to enter the SAGs instead of continuing in the EOPs. The LPCI loop select logic selected the B loop. With the E1150-F015B (also on the B loop) failed, the applicant could decide not to switch to the "A" loop because logic implied the break was on the "A" side. The applicant would enter the SAGs which is not the direction intended for an initial exam. The component failure was changed.

Facility: <u>Fermi - Philippon only</u>		Date of Examination: <u>7/20/2000</u>
Examinations Developed by: <input checked="" type="checkbox"/> Facility / NRC (circle one)		
Target Date*	Task Description / Reference	Chief Examiner's Initials
-180	1. Examination administration date confirmed (C.1.a; C.2.a & b)	AMS
-120	2. NRC examiners and facility contact assigned (C.1.d; C.2.e)	AMS
-120	3. Facility contact briefed on security & other requirements (C.2.c)	AMS
-120	4. Corporate notification letter sent (C.2.d)	*1 N/A
[-90]	[5. Reference material due (C.1.e; C.3.c)]	N/A
-75	6. Integrated examination outline(s) due (C.1.e & f; C.3.d)	*2 AMS
-70	7. Examination outline(s) reviewed by NRC and feedback provided to facility licensee (C.2.h; C.3.e)	*3 AMS
-45	8. Proposed examinations, supporting documentation, and reference materials due (C.1.e, f, g & h; C.3.d)	AMS
-30	9. Preliminary license applications due (C.1.i; C.2.g; ES-202)	AMS
-14	10. Final license applications due and assignment sheet prepared (C.1.i; C.2.g; ES-202)	AMS
-14	11. Examination approved by NRC supervisor for facility licensee review (C.2.h; C.3.f)	AMS
-14	12. Examinations reviewed with facility licensee (C.1.j; C.2.f & h; C.3.g)	AMS
-7	13. Written examinations and operating tests approved by NRC supervisor (C.2.i; C.3.h)	*4 AMS
-7	14. Final applications reviewed; assignment sheet updated; waiver letters sent (C.2.g, ES-204)	AMS
-7	15. Proctoring/written exam administration guidelines reviewed with facility licensee and authorization granted to give written exams (if applicable) (C.3.k)	N/A
-7	16. Approved scenarios, job performance measures, and questions distributed to NRC examiners (C.3.i)	*4 AMS
<p>* Target dates are keyed to the examination date identified in the corporate notification letter. They are for planning purposes and may be adjusted on a case-by-case basis in coordination with the facility licensee.</p> <p>[] Applies only to examinations prepared by the NRC.</p>		

*1 No corporate letter sent per discussion with Branch Chief.

*2 Facility did not complete ES 201-2 until reminded by examiner when exam was received.

*3 Outline and exam reviewed simultaneously due to quick turnaround for exam.

*4 Exam consists of only scenarios for one applicant. Continuation of 1998 exam.

Examination Outline
Quality Checklist

Facility:		Date of Examination:		
Item	Task Description	Initials		
		a	b*	c
1. W R I T T E N	a. Verify that the outline(s) fit(s) the appropriate model per ES-401.			
	b. Assess whether the outline was systematically prepared and whether all knowledge and ability categories are appropriately sampled.			
	c. Assess whether the outline over-emphasizes any systems, evolutions, or generic topics.			
	d. Assess whether the repetition from previous examination outlines is excessive.			
2. S I M	a. Using Form ES-301-5, verify that the proposed scenario sets cover the required number of normal evolutions, instrument and component failures, and major transients.	RED	W	AMS
	b. Assess whether there are enough scenario sets (and spares) to test the projected number and mix of applicants in accordance with the expected crew composition and rotation schedule without compromising exam integrity; ensure each applicant can be tested using at least one new or significantly modified scenario, that no scenarios are duplicated from the applicants' audit test(s)*, and scenarios will not be repeated over successive days.	RED	W	AMS
	c. To the extent possible, assess whether the outline(s) conform(s) with the qualitative and quantitative criteria specified on Form ES-301-4 and described in Appendix D.	RED	W	AMS
3. W / T	a. Verify that: (1) the outline(s) contain(s) the required number of control room and in-plant tasks, (2) no more than 30% of the test material is repeated from the last NRC examination, (3)* no tasks are duplicated from the applicants' audit test(s), and (4) no more than 80% of any operating test is taken directly from the licensee's exam banks.			
	b. Verify that: (1) the tasks are distributed among the safety function groupings as specified in ES-301, (2) one task is conducted in a low-power or shutdown condition, (3) 40% of the tasks require the applicant to implement an alternate path procedure, (4) one in-plant task tests the applicant's response to an emergency or abnormal condition, and (5) the in-plant walk-through requires the applicant to enter the RCA.			
	c. Verify that the required administrative topics are covered, with emphasis on performance-based activities.			
	d. Determine if there are enough different outlines to test the projected number and mix of applicants and ensure that no items are duplicated on successive days.			
4. G E N E R A L	a. Assess whether plant-specific priorities (including PRA and IPE insights) are covered in the appropriate exam section.	RED	W	AMS
	b. Assess whether the 10 CFR 55.41/43 and 55.45 sampling is appropriate.	RED	W	AMS
	c. Ensure that K/A importance ratings (except for plant-specific priorities) are at least 2.5.			N/A
	d. Check for duplication and overlap among exam sections.	RED	W	AMS
	e. Check the entire exam for balance of coverage.	RED	W	AMS
	f. Assess whether the exam fits the appropriate job level (RO or SRO).	RED	W	AMS
Printed Name / Signature				
Date				
a. Author	Ray E Duke / REDul			RED
b. Facility Reviewer(*)	KIRK SNYDER / KSN			NO
				7/13/00
				7/13/00

c. Chief Examiner	<u>Ann Marie Stone / Ann Marie Stone</u>	<u>7/13/00</u>
d. NRC Supervisor	<u>David Hill / David Hill</u>	<u>7/15/00</u>
(*) Not applicable for NRC-developed examinations.		

I acknowledge that I have acquired specialized knowledge of the listed section(s) of the examination scheduled for the week(s) indicated in this agreement. As of the date of my signature, I agree that I will not knowingly divulge any information about these section(s) of the examination to any unauthorized persons. An unauthorized person is any individual who has not been approved by the exam supervisor to receive specialized knowledge of this examination(s). I understand that I am not to participate in any instruction, tutoring, or practice examination(s) involving the section(s) of the examination I have acquired specialized knowledge of, to the students listed below.

EXAMINATION PERIOD -- 20 July 00 to N/A

I understand that this Security Agreement Clarification applies to Mike Phillipon.
The students on that shift / crew are: Shift / Crew

Mike Phillipon

I did not, to the best of my knowledge, divulge any information concerning the examination(s) administered during the week(s) indicated to any unauthorized persons. I did not participate in instructing, tutoring, or practice examinations (for the sections of the examination that I have signed pre-examination blocks) to those students who were administered this examination(s) from the date that I entered into this security agreement until the completion of the examination administration.

SECURITY AGREEMENT CLARIFICATION

WRITTEN EXAMINATION					
PRINT NAME	PRE-EXAMINATION CERTIFICATION SIGNATURE	DATE/TIME	SUPERVISOR INITIALS	POST-EXAMINATION CERTIFICATION SIGNATURE	DATE/TIME

SIMULATOR DYNAMIC EXAMINATION					
PRINT NAME	PRE-EXAMINATION CERTIFICATION SIGNATURE	DATE/TIME	SUPERVISOR INITIALS	POST-EXAMINATION CERTIFICATION SIGNATURE	DATE/TIME
Tim Barrett	<i>Tim Barrett</i>	6/30/00/1506	TM	<i>Tim Barrett</i>	7-31-00/0650
Mike Doret	<i>Mike Doret</i>	6/30/00/1507	TM	<i>Mike Doret</i>	7/20/00/1155
Roy E. Duke	<i>Roy E. Duke</i>	6/30/00/1507	TM	<i>Roy E. Duke</i>	7/20/00/1200
Nancy E. Williams	<i>Nancy E. Williams</i>	6/30/00/1508	TM	<i>Nancy E. Williams</i>	7/20/00/1205
JAMES CANFIELD	<i>James Canfield</i>	7/10/00/10:58	TM	<i>James Canfield</i>	7/20/00/1200
KIRK SNYDER	<i>Kirk Snyder</i>	7/10/00/07:25	TM	<i>Kirk Snyder</i>	7-31-00/0724
Bryan Fowler	<i>Bryan Fowler</i>	7/10/00/0730	TM	<i>Bryan Fowler</i>	7/20/00/1406
<i>Kirk Snyder</i>					7-31-00/0724

JPM EXAMINATION					
PRINT NAME	PRE-EXAMINATION CERTIFICATION SIGNATURE	DATE/TIME	SUPERVISOR INITIALS	POST-EXAMINATION CERTIFICATION SIGNATURE	DATE/TIME

SECURITY AGREEMENT CLARIFICATION

WRITTEN EXAMINATION					
PRINT NAME	PRE-EXAMINATION CERTIFICATION SIGNATURE	DATE/TIME	SUPERVISOR INITIALS	POST-EXAMINATION CERTIFICATION SIGNATURE	DATE/TIME

SIMULATOR DYNAMIC EXAMINATION					
PRINT NAME	PRE-EXAMINATION CERTIFICATION SIGNATURE	DATE/TIME	SUPERVISOR INITIALS	POST-EXAMINATION CERTIFICATION SIGNATURE	DATE/TIME
Joseph Lavelline	Joseph Lavelline	7/10/00 ¹⁰⁴⁵	JN	Joseph Lavelline	7-24-00/1000
Robert P. Mann	Robert P. Mann	7-20-00/1512	REM	Robert P. Mann	7-20-00/1154
Phillip Skarbeck	Phillip Skarbeck	7-19-00/1453	REM	Phillip Skarbeck	7-20-00/1134
Douglas J Pience	Douglas J Pience	7-19-00/1455	DPJ	Douglas J Pience	7-20-00/1210
Michael Lake	Michael Lake	7-19-00/1925	MLD	Michael Lake	7-20-00/1203
A. Mann	A. Mann				

JPM EXAMINATION					
PRINT NAME	PRE-EXAMINATION CERTIFICATION SIGNATURE	DATE/TIME	SUPERVISOR INITIALS	POST-EXAMINATION CERTIFICATION SIGNATURE	DATE/TIME

SECURITY AGREEMENT ROSTER

EXAMINATION PERIOD -- 20 JULY 00 to N/A

[illegible]

DTC: TPMMNT DSN: MNT04009 Rev. 1 P1/1 File: 1703.22 Date: 101195

DTC: VSNTDP DSN: _____ File: 0210.06.04 IP: I

Facility:		Date of Examination:		Operating Test Number:		
1. GENERAL CRITERIA				Initials		
				a	b	c
a.	The operating test conforms with the previously approved outline; changes are consistent with sampling requirements (e.g., 10 CFR 55.45, operational importance, safety function distribution).	* RED	RED	ANS	<i>Outline reviewed 7/13/00</i> <i>No overlap from 1998 exam</i>	
b.	There is no day-to-day repetition between this and other operating tests to be administered during this examination.	RED	RED	ANS		
c.	The operating test shall not duplicate items from the applicants' audit test(s) (see Section D.1.a).	RED	RED	ANS		
d.	Overlap with the written examination and between operating test categories is within acceptable limits.	N/A	N/A	ANS		
e.	It appears that the operating test will differentiate between competent and less-than-competent applicants at the designated license level.	RED	RED	ANS		
2. WALK-THROUGH (CATEGORY A & B) CRITERIA				--	--	--
a.	Each JPM includes the following, as applicable: <ul style="list-style-type: none"> initial conditions initiating cues references and tools, including associated procedures validated time limits (average time allowed for completion) and specific designation if deemed to be time critical by the facility licensee specific performance criteria that include: <ul style="list-style-type: none"> detailed expected actions with exact criteria and nomenclature system response and other examiner cues statements describing important observations to be made by the applicant criteria for successful completion of the task identification of critical steps and their associated performance standards restrictions on the sequence of steps, if applicable 				<i>N/A</i>	
b.	The prescribed questions in Category A are predominantly open reference and meet the criteria in Attachment 1 of ES-301.					
c.	Repetition from operating tests used during the previous licensing examination is within acceptable limits (30% for the walk-through) and do not compromise test integrity.					
d.	At least 20 percent of the JPMs on each test are new or significantly modified.					
3. SIMULATOR (CATEGORY C) CRITERIA				--	--	--
a.	The associated simulator operating tests (scenario sets) have been reviewed in accordance with Form ES-301-4 and a copy is attached.	RED	RED	ANS		
Printed Name / Signature		Date				
a. Author	<u>Roy E Duke</u> <i>RED Duke (RED)</i>	<u>7/10/00</u>				
b. Facility Reviewer(*)	<u>KIRK R. SNYDER</u> <i>Kirk Snyder (red)</i>	<u>7-11-00</u>				
c. NRC Chief Examiner (*)	<u>Ann Marie Stone</u> <i>Ann Marie Stone (ANS)</i>	<u>7/13/00</u>				
d. NRC Supervisor (*)	<u>David E. H. III</u> <i>David H. III</i>	<u>7/13/00</u>				
(*) The facility signature is not applicable for NRC-developed tests; two independent NRC reviews are required.						

* no outline - only simulator (dynamic) portion of test to be administered. Written + JPM performed earlier. RED 7/10/00

Facility: Fermi 2		Date of Exam: 7/20/00		Scenario Numbers: 1,2		Operating Test No.: 1	
QUALITATIVE ATTRIBUTES				Initials			
				a	b	c	
1.	The initial conditions are realistic, in that some equipment and/or instrumentation may be out of service, but it does not cue the operators into expected events.			RED	NO	AMS	
2.	The scenarios consist mostly of related events.			RED	NO	AMS	
3.	Each event description consists of . the point in the scenario when it is to be initiated . the malfunction(s) that are entered to initiate the event . the symptoms/cues that will be visible to the crew . the expected operator actions (by shift position) . the event termination point (if applicable)			RED	NO	AMS * For SRO scenarios, only other positions filled by surrogates	
4.	No more than one non-mechanistic failure (e.g., pipe break) is incorporated into the scenario without a credible preceding incident such as a seismic event.			RED	NO	AMS	
5.	The events are valid with regard to physics and thermodynamics.			RED	NO	AMS	
6.	Sequencing and timing of events is reasonable, and allows the examination team to obtain complete evaluation results commensurate with the scenario objectives.			RED	NO	AMS	
7.	If time compression techniques are used, the scenario summary clearly so indicates. Operators have sufficient time to carry out expected activities without undue time constraints. Cues are given.			RED	NO	AMS	
8.	The simulator modeling is not altered.			RED	NO	AMS	
9.	The scenarios have been validated. Any open simulator performance deficiencies have been evaluated to ensure that functional fidelity is maintained while running the planned scenarios.			RED	NO		
10.	Every operator will be evaluated using at least one new or significantly modified scenario. All other scenarios have been altered in accordance with Section D.4 of ES-301.			RED	NO	AMS	
11.	All individual operator competencies can be evaluated, as verified using Form ES-301-6 (submit the form along with the simulator scenarios).			RED	NO	AMS	
12.	Each applicant will be significantly involved in the minimum number of transients and events specified on Form ES-301-5 (submit the form with the simulator scenarios).			RED	NO	AMS	
13.	The level of difficulty is appropriate to support licensing decisions for each crew position.			RED	NO	AMS	
TARGET QUANTITATIVE ATTRIBUTES (PER SCENARIO; SEE SECTION D.4.D)				Actual Attributes			
1.	Total malfunctions (5-8)			6	5	RED NO AMS	
2.	Malfunctions after EOP entry (1-2)			1	1	RED NO AMS	
3.	Abnormal events (2-4)			3	2	RED NO AMS	
4.	Major transients (1-2)			1	2	RED NO AMS	
5.	EOPs entered/requiring substantive actions (1-2)			1	2	RED NO AMS	
6.	EOP contingencies requiring substantive actions (0-2)			1	1	RED NO AMS	
7.	Critical tasks (2-3)			4	4	RED NO AMS	

OPERATING TEST NO.:

Applicant Type	Evolution Type	Minimum Number	Scenario Number			
			1	2	3	4
RO	Reactivity	1				
	Normal	1				
	Instrument	2				
	Component	2				
	Major	1				

As RO	Reactivity	1	4			
	Normal	0				
	Instrument	1	2,7			
	Component	1	1,3,5			
	Major	1	6			
SRO-I						
As SRO	Reactivity	0				
	Normal	1		1		
	Instrument	1		2		
	Component	1		4,7		
	Major	1		5,6		

SRO-U	Reactivity	0				
	Normal	1				
	Instrument	1				
	Component	1				
	Major	1				

- Instructions: (1) Enter the operating test number and Form ES-D-1 event numbers for each evolution type.
- (2) Reactivity manipulations may be conducted under normal or *controlled* abnormal conditions (refer to Section D.4.d) but must be significant per Section C.2.a of Appendix D.

Author: Roy E Duke RE Duke

Chief Examiner: Annmarie Stone Annmarie Stone

Competencies	Michel Philippon SRO-I				Applicant #2 RO/SRO-I/SRO-U				Applicant #3 RO/SRO-I/SRO-U			
	SCENARIO				SCENARIO				SCENARIO			
	RO 1	SRO 2	3	4	1	2	3	4	1	2	3	4
Understand and Interpret Annunciators and Alarms	135 6	2356										
Diagnose Events and Conditions	123 567	2345 67										
Understand Plant and System Response	123 456 7	1234 567										
Comply With and Use Procedures (1)	134 567	1235 67										
Operate Control Boards (2)	124 567											
Communicate and Interact With the Crew	123 456	1234 567										
Demonstrate Supervisory Ability (3)		1234 567										
Comply With and Use Tech. Specs. (3)		2										
Notes: (1) Includes Technical Specification compliance for an RO. (2) Optional for an SRO-U. (3) Only applicable to SROs.												

Instructions:

Circle the applicant's license type and enter one or more event numbers that will allow the examiners to evaluate every applicable competency for every applicant.

Author:

Chief Examiner:

Roy E Duke RE Duke
Ann Marie Stone Ann Marie Stone

FERMI 2

DATE 2000

**PROPOSED
OPERATING TEST**

Facility: Fermi 2

Scenario No.: 1

Op-Test No.: 1

Examiners: _____

Operators: _____

Objectives:

To evaluate the applicant's ability to:

1. Respond to a Control Rod Drive Hydraulic Pump Trip
2. Respond to a Control Rod Drive Pressure Differential instrument failure
3. Respond to an inadvertent MSIV closure
4. Change Reactor Power using Recirculation flow
5. Respond to a trip of both Recirculation Pumps
6. Respond to a failure to scram (ATWS)
7. Respond to a failure of Primary Containment Isolation Logic

Initial Conditions: IC-16, BOL, 97% Rx. Power**Turnover:**

The plant is operating at 97% power.

Chemistry has requested placing the Torus Water Management System in Cleanup Mode for Sampling in accordance with 23.144 section 6.0 at the beginning of shift.

The West Stator Water Coolant Pump is out of service for bearing replacement.

All other conditions are normal.

NOTE: The pre-job briefing to place TWMS is to be conducted by the crew prior to entering the simulator. (Suggested time is 15 minutes prior to beginning the scenario).

Termination:

All rods in and RPV water level restored to the normal operating band.

Critical Tasks:

1. With a reactor scram required, reactor not shutdown, and conditions for ADS blowdown are met inhibit ADS to prevent an uncontrolled RPV depressurization, to prevent causing a significant power excursion.
2. With a reactor scram required and reactor not shutdown, take action to reduce power by injecting boron and/or inserting control rods, to prevent exceeding primary containment design limits BEFORE reaching the BIIT.
3. During an ATWS with conditions met to perform power/level control, terminate and prevent injection with exception of boron, RCIC and CRD, into the RPV until conditions are met to re-establish injection.
4. With a failure of PCIV system (RWCU) to isolate automatically, take manual actions to isolate RWCU system (prevents dilution of boron and establishes PC integrity).

EP Classification:

TAB S "System Malfunction"

Site Area Emergency based on (SS 2) failure of the reactor to automatically scram and manual scram was NOT successful.

Facility: Fermi 2			Scenario No.: 1	Op-Test No.: 1
Event No.	Malf. No.	Event Type*	Event Description	
1	MF 1181	C (RO)	CRD Pump Trip	
2	PO 00384	I (RO)	Failure of CRD pressure differential instrument (C11-R602)	
3	MF 0007	C (RO)	Inadvertent MSIV Closure	
4		R (RO)	Power reduction using recirc flow and rods	
5	MF 0059 MF 0060	C (RO)	Trip of both Recirc Pumps	
6	MF 3595 MF 3671	M (All)	Failure to Scram	
7	RF 1701 RF 0702 RF 0700	I (RO)	RWCU fails to isolate on SLC initiation due to logic failure	

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

The times listed in the scenario outline are approximates. The times may change depending on candidate performance and decision points. Ample time should be given to ensure the examiners have the opportunity to verify completion of required tasks. The NRC Lead Examiner may modify the flow of events at his or her discretion.

Op-Test No.: 1		Scenario No.: 1	Event No.: 1/2
Event Description: Control Rod Drive Hydraulic Pump Trip/CRD Differential Pressure instrument failure			
Time	Position	Applicant's Actions or Behavior	
0 min	SRO	Directs BOP to place TWMS in Bypass mode IAW 23.144 section 5.0 and section 6.0. <i>(This will ensure that the BOP operator is at the back panels during the CRD pump trip/ inst. failure)</i>	
	BOP	Places TWMS in cleanup mode IAW 23.144 section 5.0 and 6.0.	
+3 min	SRO	Responds to alarms 3D5, "CRD Charging Pressure Low" and 3D96, "Motor tripped". Enters 20.106.01, "CRD Hydraulic System Failure". Directs RO to shift to Standby CRD pump IAW 20.106.01 Upon receipt of 3D13, "CRD Hydraulic Temperature High", Directs" RO to send an operator to the relay room to verify CRDH temperatures are >250°F. No Tech Specs apply if standby pump is restored, but may consult 3.1.5, Control Rod Scram Accumulators	
	RO	Responds to tripped CRD pump and starts standby CRD pump IAW 20.106.01, "CRD Hydraulic System Failure" as follows: <ul style="list-style-type: none"> Place Flow Controller, C11-R600, in manual and closes the Flow Control Valve Close C1152-F003, CRD Drv/Clg water Pressure Control Valve Starts CRD pump B <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> Booth Operator: Respond as NO that standby pump is ready for start. If asked, CRD pump A motor is hot to the touch and Breaker 64B pos B11 has a tripped 51 device (overcurrent trip) </div> <ul style="list-style-type: none"> Adjust flow controller to 63 gpm RO realizes no drive water d/p indication on P603 panel for CRD C11-R602. Informs SRO of failure of instrument indication Uses alternate indications to restore CRD flow. (GEMAC will still track, local indications available, and other CRD system indications will respond normally) Place flow controller, C11-R600, in Auto Open C1152-F003, CRD Drv/Clg Water Pressure Control Valve to establish 255-265 psid on C11-R009 (field indication), Drive water diff press indicator.	

BOP

If directed, send an operator to relay room to verify high temperature condition on CRDs.

Booth Operator: Respond as Operator in Relay Room that several temperatures are above 250F (can get a list if they request it.)
If asked to reset CRD high temp alarm after system restoration, use RF 1713 in C11 section of Remote Functions.

Booth Operator: Using decterm window, type in BP:C1152F003 [enter] to monitor C1152F003 position vs. pressure to simulate field operations.

Valve position	Differential Pres.
----------------	--------------------

0.0	>350 psid pegged high
.25	350 psid top of ind. Range
.27	325 psid
.28	300 psid
.30	275 psid
.31	250 psid
.33	225 psid
1.0	50 psid

As RB rounds, coordinate positioning of C11F003 by reading valve position, but only reporting the differential pressure from the table above. The local instrument would be C11-PDI-R009 at H21-P164B.

Op-Test No.: 1			Scenario No.: 1			Event No.: 3/4								
Event Description: Inadvertent Closure of B21-F022B, INBD MSIV														
Time	Position	Applicant's Actions or Behavior												
+23 min	SRO	<p>Respond to 3D168, "Reactor Pressure High" and direct:</p> <ul style="list-style-type: none"> • Verify Pressure Regulator setting and turbine settings (may not be checked if MSIV closure discovered first) • Verify Rx Flow limit set correctly (may not be checked if MSIV closure discovered first) • Check MSIVs Open <p>Enters 20.137.01, and directs:</p> <ul style="list-style-type: none"> • Within 15 minutes, reduce steam dome pressure to <1045 psig • Due to steam flow inputs into DCS, FW inaccuracies will occur and RPV level will control slightly lower than normal. <p>Directs RO to:</p> <ul style="list-style-type: none"> • Reduce Core flow to 55-60% of rated flow (should not lose Heater Drains and still meet 15 min.) • Inform SRO when pressure is <1045 psig and 3D168 is clear. • Insert CRAM array to <60% power <p>Refers to 22.000.03, "Power Operation, for guidance on reducing power to 60%. Directs power reduction as follows:</p> <p>Directs BOP to maintain Turbine flow limit >5% above Rx power</p> <p>Contacts Central System Supervisor</p> <p>When RFP suction pressure reaches 700 psig, directs BOP to shutdown a Heater Feed Pump</p> <p>When Power is 65%, directs placing 2/3 defeat switch to defeat</p> <p>Complies with T.S. 3.4.11, Steam Dome Pressure and enters Condition A to reduce pressure <1045 within 15 minutes</p> <p>May refer to T.S. 3.6.1.3, Primary Containment Isolation Valves - no action required</p> <p>Exits T.S. 3.4.11 when pressure is <1045 psig</p> <p>During Transition through the "wobble" region for the Reactor Recirc pumps, a flow mismatch may exist. If so, SRO enters T.S. 3.4.1, Recirc loops operating, and must ensure flow is matched within 2 hours or declare recirc loop inoperable.</p>												

	RO	<p>Responds to 3D168, "Reactor Pressure High"</p> <p>When directed, lowers reactor power by:</p> <ul style="list-style-type: none"> • Reducing core flow to 55-60% (should not lose Heater Drains and still meet 15 min.) • Using recirc controllers "set pushbuttons" in Auto or "output" if in manual (operators discretion) • Insert Cram array to <60% power • Places 2/3 defeat switch to defeat at 65% Power • Report when reactor pressure is less than 1045 psig and 3D168 is clear. • Due to steam flow inputs into DCS, FW inaccuracies will occur and RPV level will control slightly lower than normal.
	BOP	<p>Responds to 3D168 and:</p> <ul style="list-style-type: none"> • Verifies pressure Regulator setpoint is 944(+5)(-0) psig, if required (may not be checked if MSIV closure discovered first) • Verifies Reactor Flow Limiter is set correctly at 115%, if required (may not be checked if MSIV closure discovered first) • Verifies MSIVs open (Should notice MSIV closed) <p>Maintains Turbine flow limit 5% above Rx Power</p> <p>Shuts down Heater Feed Pump at 700 psig as follows:</p> <ul style="list-style-type: none"> • Direct Closing N2000-F830A/B/C, HFP suction Hydrogen Injection Iso Valve • Place East Auxiliary Oil Pump in RUN • Stop the Heater Feed Pump • Verify N20-F405A/B/C, HFP min flow valve closes • Adjust Heater Drain pump seal pressure <div data-bbox="532 1501 1398 1619" style="border: 1px solid black; padding: 5px; margin-top: 20px;"> <p>Booth Operator: Respond to Shutdown the HFP. Seal pressures are normal. N2000-F830A/B/C are closed.</p> </div>

Op-Test No.: 1		Scenario No.: 1	Event No.: 5/6/7
Event Description: Recirc Pumps Trip/ATWS (Insert when power is reduced to 60% or if power is above 60% and lead evaluator directs moving on in the scenario)			
Time	Position	Applicant's Actions or Behavior	
+43 min	SRO	<p>Booth Operator Actions for ATWS:</p> <p>When directed, defeat MSIV L1 interlocks using:</p> <ul style="list-style-type: none"> • RF 2320, Div 1 MSIV L1 and Hi Rad defeat • RF 2321, Div 2 MSIV L2 and Hi Rad defeat • Place defeats on 300 sec time delay <p>When directed, defeat ARI L2 isolations using:</p> <ul style="list-style-type: none"> • RF 2315, Div 1 ARI L2 isolation defeat • RF 2316, Div 2 ARI L2 isolation defeat • Place defeats on 300 sec time delay <p>When directed by the lead evaluator OR when power has been reduced to <3% AND the RO is ready to re-initiate the scram with ARI - STOP Rod stuck malfunction using MF 3671.</p>	
		<p>* When RO reports that both Recirc pumps have tripped, direct mode switch placed in Shutdown (if not already done)</p> <p>Enters EOP sheet 1A, RPV Control ATWS, and directs:</p> <p>* Inhibiting ADS</p> <p>* Confirming Isolations IAW 29.ESP.01 (none currently)</p> <p>* Bypassing DW pneumatics</p> <p>* Ordering the performance of 29.ESP.11 - Bypassing MSIV L1 and Hi Rad interlocks</p> <p>* Initiating ARI</p> <p>* Injecting SLC</p> <p>Directs manual isolation of RWCU when RO informs him that auto isolation failed (close G33-F004 and F220. If level reaches 110", should also close G33-F001).</p> <p>* Directs RO to defeat ARI logic and insert rods using 29.ESP.03, Alternate Rod Insertion methods</p> <p>* Directs Terminate and Prevent to level of <108". Should give a level band of 50-100" until MSIV L1 interlocks are bypassed.</p> <p>After MSIV L1 interlocks are bypassed or MSIVs close, should direct a level band of 0-50" to lower power.</p> <p>When all rods are in using Scram/Reset/Scram method, transition to RPV Control and directs restoring water level to 173-214"</p>	
	RO	<p>* When it is observed that both Recirc Pumps have tripped, places Mode Switch to Shutdown IAW 20.138.01, Recirc</p>	

		<p>Pump Trip Immediate Actions.</p> <p>Informs SRO of Failure to SCRAM and performs the following as directed:</p> <ul style="list-style-type: none"> • Initiates ARI <p>* • Injects SLC</p> <p>* Informs SRO that RWCU did not auto isolate and close(s) any of the following valves:</p> <ul style="list-style-type: none"> • G33-F004, RWCU Otbd isolation valve • G33-F001, RWCU Inbd isolation valve • G33-F220, RWCU FW Otbd isolation valve <p>Note: Closing only one valve will meet the intent of isolating RWCU for SLC injection. (BOP may report RWCU fails to isolate on Level 2 when reducing level for T&P. Then the G33-F001 should also be closed.)</p> <p>* Monitors Reactor power and level while the BOP performs terminate and prevent.</p> <p>Commences Control rod insertion IAW 29.ESP.03, Alternate Rod Insertion methods:</p> <ul style="list-style-type: none"> • Directs RB rounds to close C11-F034, CRD charging water header isolation valve • Places RWM in bypass • Inserts Cram array • Inserts balance of rods in a checkerboard spiral out pattern • RO may ask SRO about the failed indication for the CRD C11-F003. The RO may either direct an operator to verify valve indication or just fully close the valve since closing the valve provides maximum d/p to insert the rods. <p>Pursues Scram/Reset/Scram method as follows:</p> <ul style="list-style-type: none"> • Orders reset of ARI • Depresses ARI reset Pushbuttons • When Scram discharge Volume is drained, arms and depresses ARI pushbuttons. • Observes all rods in - Verifies using RWM or full core display and informs SRO
	BOP	<p>When directed, perform the following actions:</p> <ul style="list-style-type: none"> * • Inhibit ADS • Bypass drywell pneumatics • Orders 29.ESP.11, MSIV L1 and Hi Rad interlocks to be bypassed <p>* When directed to perform terminate and prevent:</p> <ul style="list-style-type: none"> • Places or verifies the following switches in OFF: <ul style="list-style-type: none"> • A, B, C and D Core Spray pump CMC switches • A, B, C and D RHR pump CMC switches

		<ul style="list-style-type: none"> • A and B SBFW pump CMC switches • Dial HPCI tape to zero or place Aux Oil pump in OFF • Places RFP controllers in Manual and lowers flow to zero <p>When directed, and level is <108", restores level by matching Feed flow and steam flow using the RFP manual controllers</p> <p>When power is 25-30%, transition to the SULCV using 23.107, enclosure F if needed to control feedwater:</p> <ul style="list-style-type: none"> • Place SULCV in START • Place SULCV controller in AUTO • Close N2100-F607/608, N/S RFP discharge valves • Place all FW control stations in manual • Adjust RFP speed as necessary to maintain level <p>Controls RPV level in band as directed by SRO.</p> <p>Otherwise, control level using:</p> <ul style="list-style-type: none"> • RCIC • Standby Feedwater • HPCI <p>Note: 2D82, REAC BLDG TORUS SUMP LEVEL HI/HI, LO/LO will come in due to draining the Scram discharge volume. The SRO may refer to EOP SH. 5, Secondary Containment Control, to address this alarm.</p>
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END OF SCENARIO

Termination:

- All rods in
- RPV water level restored to the normal operating band

Attachment A Simulator Setup

Initiate the simulator to IC-16, BOL, 97% Rx. Power

Place the simulator in RUN,

Load the following items into the simulator:

Facility: Fermi 2		Scenario No.: 1		Op-Test No.: 1
Event No.	Malf. No.	Event Type*	Event Description	
1	MF 1181	C (RO)	C11-CRD A Pump Trip	
2	PO 00284	I (RO)	Failure of CRD drive water d/p instrument (C11-FI-R602)	
3	MF 0007	C (RO)	B21-Inboard MSIV Fails Shut B21-F022B	
4		R (RO)	Power reduction using recirc flow and rods	
5	MF 0059 MF 0060	C (RO)	B31-Recirc MG Set Motor Trip A B31-Recirc MG Set Motor Trip B (delay 5 sec)	
6	MF 3595 MF 3671	M (All)	C71-Total Scram Failure C11-All rods Stuck Variable Density (5%)	
7	RF 1701 RF 0702 RF 0700	I (RO)	EOP-G33-F220 RWCU OTBD Isol Vlv Defeat EOP-G33-F004 RWCU OTBD Supply Isol Defeat EOP-G33-F001 RWCU INBD Supply Isol Defeat	

Make the following configuration changes to the panels:

1. Remove West Stator Water Coolant Pump from service and place red tag dot beside CMC.
2. Update the rod pull sheets and CRAM Array

Advance all chart recorders until no previous data can be seen with the chart recorder doors open.

Inform the Lead Simulator Evaluator that the simulator setup has been completed.

END OF SECTION

Scenario 1 Turnover Information

The plant is operating at 97% power.

The following equipment is out of service:

West Stator Water Coolant Pump is out of service for bearing replacement, which is expected to take two days.

Chemistry has requested that TWMS is placed in Cleanup Mode IAW 23.144 section 6.0 for sampling at the beginning of shift.

The crew will maintain power at 97 in accordance with 22.000.03, Power Operation 25% to 100% to 25%.

Facility: Fermi 2

Scenario No.: 2

Op-Test No.: 1

Examiners: _____

Operators: _____

Objectives:

To evaluate the applicant's ability to:

- 1) Swap Heater Drains Pumps
- 2) Respond to a HPCI isolation due to instrument malfunction.
- 3) Evaluate Technical Specifications for 3.0.3. entry
- 4) Respond to a Seismic Event.
- 5) Respond to a Loss of 65D electrical bus
- 6) Respond to a Loss of Feedwater.
- 7) Respond to a LOCA with requirement to ED.
- 8) Respond to a failed LPCI Injection Valve permissive due to component failure.

Initial Conditions: IC-15, MOL, 75% Rx. Power,**Turnover:**

The plant is currently at 75% power and holding.

ADS SRV "J" was declared INOPERABLE four days ago due to a ground that has blown the power fuses. The fuses have been removed and I&C is working with System Engineering to develop a troubleshooting and repair package. System Engineering believes that SRV "J" will work in the safety valve mode. Tech Spec 3.5.1 condition G. has been entered.

The severe wear products in the oil of the North Heater Drains Pump require the pump removal from service to work. The shift is scheduled to swap the North Heater Drains Pump with the Center Heater Drains Pump to allow work to commence. All steps up to section 8.5.5 were completed by the previous shift.

The #4 General Service Water (GSW) pump is out of service and red-tagged for maintenance and will not be available for three days.

All other conditions are normal.

NOTE: The Pre-job Briefing for swapping Heater Drains Pumps is to be conducted by the crew prior to entering the simulator. (suggested time 30 minutes prior to beginning the scenario)

Termination:

Torus Sprays initiated; Drywell Sprays initiated (if necessary); RPV water level restored.

Critical Tasks:

- 1) When RPV water level cannot be restored and kept greater than -28", Emergency Depressurize the RPV BEFORE reaching -28".
- 2) Initiate Torus Sprays BEFORE reaching a Torus pressure of 9 psig.
- 3) When drywell pressure exceeds the suppression chamber spray initiation pressure, INITIATE drywell sprays, while in the safe region of the drywell spray initiation limit (DWSIL).
- 4) Secure TORUS or Drywell sprays before their respective pressure reaches 0 psig.

EP Classification:

TAB F "Fission Product Barrier Degradation"

Site Area Emergency based on (FS 1)loss of the Reactor Coolant System Barrier (Drywell pressure greater than 1.68 psig or RPV water level less than 0 inches)and the potential loss of Fuel Clad Barrier (RPV water level less than 0 inches).

Facility: Fermi 2			Scenario No.: 2	Op-Test No.: 1
Event No.	Malf. No.	Event Type*	Event Description	
1		(N)	Swap Heater Drains Pumps IAW 23.108 "Heater Drains System" system operating procedure section 8.5.5.	
2	MF 1427	(I)	HPCI logic "A" isolation due to instrument failure.	
3	MF 2469		"Seismic System Event/ Trouble Alarm"	
4	MF 2469 MF 3471	(C)	"Seismic System Event/ Trouble Alarm" and Loss of Electrical Bus 65D.	
5		(M)	Loss of Feedwater	
6	MF 0068	(M)	LOCA inside Primary Containment (Value = 10% ramped 700 sec, increasing to 60% after Emergency Depressurization)	
7	VO 1398	(C)	E11-LPCI Injection Valve E1150-F015B Position Failure	

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

The times listed in the scenario outline are approximates. The times may change depending on candidate performance and decision points. Ample time should be given to ensure the examiners have the opportunity to verify completion of required tasks. The NRC Lead Examiner may modify the flow of events at his or her discretion.

Op-Test No.: 1		Scenario No.: 2	Event No.: 1
Event Description: Swap Heater Drains Pumps IAW 23.108 "Heater Drains System" system operating procedure (SOP) 23.108 section 8.5.5.			
Time	Position	Applicant's Actions or Behavior	
0 min	SRO	Provides (or directs) evolution brief on swapping Heater Drains Pump (North shutdown and Center started) IAW SOP. Directs BOP to swap Heater Drains Pumps IAW 23.108. Directs RO to monitor RPV water level while shifting HDPs.	
	RO	Coordinates with BOP to control RPV level during transfer. (Affects RFP suction pressure and speed)	
+15 min	BOP	Reviews SOP to ensure Initial Conditions are met. Reviews applicable Precautions and Limitations. Swaps Heater Drains Pumps IAW SOP. Coordinates with RO to control RPV level during transfer. (Affects RFP suction pressure and speed)	

Simulator console operator:

Perform applicable steps of 23.108 sections 8.5.1, "Prerequisites" and 8.5.2, "Detailed procedure- Warm Up" to allow the crew to proceed directly to step 8.5.5. before crew enters simulator.

Act as Turbine Building Rounds Operator to perform field actions associated with step 8.5.5.

Op-Test No.: 1		Scenario No.:2	Event No.:2
Event Description: HPCI Logic A Inadvertent Isolation			
Time	Position	Applicant's Actions or Behavior	
+15 min	SRO	<p>Respond to 2D49, "HPCI Logic A isolation trip signal initiated" and directs BOP to:</p> <ul style="list-style-type: none"> • Verify E4150-F002, HPCI supply Inbd isolation valve closed • Verify E4150-F042, HPCI Torus Suct Inbd Iso Vlv, Closed <p>Refer to T.S. 3.5.1, ECCS operating:</p> <ul style="list-style-type: none"> • Declares HPCI Inoperable • Enters Condition E. <ul style="list-style-type: none"> ✓ Verifies RCIC Operable (admin). ✓ Must restore HPCI to operable status within 14 days • Enters Condition J. <ul style="list-style-type: none"> ✓ Enters 3.0.3 immediately <p>Respond to 2D58, "HPCI steam line differential pressure high" and 2D85, "HPCI steam line iso valve not fully open":</p> <ul style="list-style-type: none"> • Refers to T.S. 3.3.6.1, PCIS Instrumentation • Enters Condition A. <ul style="list-style-type: none"> ✓ Must place channel in trip within 24 hours <p>May refer to TRM 3.3.6.1 (setpoints only)</p> <p>Directs I&C to investigate and contacts WCNASS to write CARD and assist in investigation.</p> <p>Briefs crew on GOP shutdown due to Tech Spec 3.0.3 entry.</p>	

Simulator console operator:

If directed to testability to check HPCI steam line flow, report E41-N657A pegged high and tripped. All other indications are normal.

Op-Test No.: 1		Scenario No.: 2	Event No.: 3
Event Description: Seismic Event			
Time	Position	Applicant's Actions or Behavior	
+25 min	SRO	<p>Responds to annunciator 6D69, "Seismic Event/ Trouble" and directs operators to verify plant parameters are stable.</p> <p>Enters and directs actions IAW 20.000.01, "Acts of Nature" (Earthquake) as follows:</p> <p>Monitor the following parameters for abnormal values using multiple indications when available:</p> <ul style="list-style-type: none"> a. Reactor Vessel Level b. Reactor Vessel Pressure c. Reactor Power d. Reactor Feedwater Flow e. Reactor Steam Flow f. Drywell Pressure g. Primary Containment Temperatures h. Torus Water Level i. RCS Identified Leakage j. RCS Unidentified Leakage k. Process Radiation Monitors <p>Announce event over Hi-Com.</p> <p>Direct an operator to D30-K800, Active Seismic Central Recorder, to PERFORM 23.612, "Seismic Monitoring," (RR H11-P831) concurrently with this procedure.</p> <p>IF seismic event was less than the Operating Basis Earthquake (OBE) 0.05 gravity (vertical) or 0.08 (horizontal)], continue Reactor operation provided all conditions are normal.</p> <p>IF a seismic event (> 0.01G) has occurred:</p> <ul style="list-style-type: none"> a. Verify each MDCT is Operable by starting E1156-C001A(B,C,D), Div 1 and 2 RHRSW MDCT Fan A(B,C,D), and check for proper running indication (H11-P807). 1) IF a fan fails to start or does not display proper running indication, perform the following: <ul style="list-style-type: none"> a) Dispatch an operator to the affected Cooling Tower Fan Room. b) IF the brake for the fan is engaged: <ul style="list-style-type: none"> (1) Depress the disengage pushbutton on the solenoid operated valve located below the brake assembly. (2) IF the brake re-engages, de-energize the solenoid DC power supply: <ul style="list-style-type: none"> • Div 1 (Fans A and C) - 2 PA2-13 Ckt 3 • Div 2 (Fans B and D) - 2 PB2-14 Ckt 3 	

		<p>(3) Reperform step 5.a. for affected fan. b. Stop all RHRSW MDCT Fans. c. Attempt to obtain confirmation of magnitude of seismic event by calling the following stations: 1) University of Michigan Seismic Observatory (734) 763-4069. 2) Davis Besse (419) 321-7283.</p> <p>Based on input from field, may consider entering TRM section TR 3.3.7.2, "Seismic Monitoring Instrumentation".</p> <p><i>Based on input from the field and combining the condition that the plant is in a 3.0.3 action statement may brief plant scram and direct taking Rx Mode Switch to Shutdown.</i></p>
	RO	<p>Verifies plant parameters are stable.</p> <p>Performs actions as directed above by the SRO</p>
	BOP	<p>Verifies plant parameters are stable.</p> <p>Directs operator to Relay Room to perform 23.612, "Seismic Monitoring" section 4.3, "Response to Seismic System Event..."</p> <p>Performs actions as directed above by the SRO</p>

Simulator Console Operator:

Report as Patrol NSO or Tagging Center Operator:

- Recorder has printed
- Error red LED is OFF
- Peak signal is 0.013G

Op-Test No.: 1	Scenario No.: 2	Event No.: 4/5/6/7
<p>Event Description: LOCA on Recirc Loop A/Loss of Feedwater System/Emergency depressurization</p> <p>Note: Loss of 65D will cause the loss of feedwater requiring a reactor SCRAM. The next step will cause the LOCA and should be initiated approximately 1 minute after the scram.</p> <p>Note: The second step of the leak to increase the size requiring RHR to restore level should be initiated during ED.</p>		
Time	Position	Applicant's Actions or Behavior
+35 min	SRO	<p>Responds to annunciator 10D51, "4160V BOP Breaker Tripped" and resulting loss of feed to RPV (Condenser, Heater Feed, and Reactor Feedwater pumps all trip) by directing the RO to place Mode Switch to Shutdown.</p> <ul style="list-style-type: none"> • Direct RO to place the Mode Switch to Shutdown. • May direct starting Standby Feedwater pumps to supplement RCIC • Enter EOP Sheet 1, RPV Control, due to low RPV level • Direct Confirm Reactor Scram - (All rods in) • Direct verifying ECCS actuations and isolations using 29.ESP.01 • Direct to Restore and keep RPV Level 173" to 214" using all available systems: <ul style="list-style-type: none"> • Feedwater is not available due to electrical power loss. • Standby Feedwater • RCIC • CRD • HPCI is not available due to isolation <p>When SRO is informed that available systems will not restore level to >173":</p> <ul style="list-style-type: none"> • Direct to Restore and keep RPV Level 0" to 214" using all available systems above and: <ul style="list-style-type: none"> • SLC system, if desired <p>When RPV level is <32":</p> <ul style="list-style-type: none"> • Direct inhibiting ADS <p>When SRO is informed that available systems will not restore level to >0":</p> <ul style="list-style-type: none"> • Verify at least 2 injection subsystems are aligned <ul style="list-style-type: none"> • Standby Feedwater • LPCI Div 1 (already running) • LPCI Div 2 (already running) • Core Spray Div 1 (already running)

		<ul style="list-style-type: none"> • Core Spray Div 2 (already running) <p>When RPV level reaches 0":</p> <p>Diagnose if low pressure sources are aligned and water level cannot be restored:</p> <ul style="list-style-type: none"> • At or before -28", Emergency Depressurize IAW EOP sheet 3, emergency depressurization. <p>* <ul style="list-style-type: none"> • Verify torus level >-112" • Direct opening 5 SRVs ADS preferred - SRV J will not open and an alternate SRV will be opened. The EOPs direct verifying at least 4 SRVs are open during depressurization. </p> <p>* <ul style="list-style-type: none"> • Directs restoring Drywell pneumatics </p> <p>When pressure lowers to the point of injection of the low pressure systems (~200#):</p> <ul style="list-style-type: none"> • Direct restoring water level to 173" - 214" with low pressure systems (RHR and Core Spray) <p>* <ul style="list-style-type: none"> • When it is discovered that E1150-F015B is failed closed (due to no flow into RPV), direct RHR injection using Loop A (must wait for LPCI Loop Select to time out - approx. 10 min from the start of the high drywell pressure signal) </p> <p>Responds to annunciator 3D85 "Primary Containment Pressure High Pressure Channel Trip"</p> <p>Enter EOP Sheet 2, Primary Containment Control, due to high drywell pressure.</p> <ul style="list-style-type: none"> • Direct RO/BOP to verify Primary Containment pressure. • Confirm initiation of EECW and isolation from the drywell • Direct restore cooling to CRD pumps • Direct Tripping RR Pumps (may trip automatically at Level 2) <p>* <ul style="list-style-type: none"> • Direct placing RHR in Torus Spray mode in accordance with 23.205, RHR Operating procedure before torus pressure reaches 9 psig. </p> <ul style="list-style-type: none"> • When torus pressure is > 9 psig: <ul style="list-style-type: none"> • Verify drywell temperature and pressure are within the Drywell Spray Initiation Limit (DWSIL) • S/D drywell fans <p>* <ul style="list-style-type: none"> • Initiate Drywell Sprays (not to interfere with raising RPV level above TAF, adequate core cooling is the priority) </p> <p>Direct terminating drywell and/or torus sprays before drywell and/or torus pressure reaches 0 psig.</p> <p>Directs closing the P44-F606A/B and F607A/B, EECW to drywell isolation valves when drywell temperature exceeds 242°F.</p>
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		<p>Note: The torus and drywell sprays should automatically isolate when level drops to approximately 0 inches on core level (unless 2/3 core override is selected).</p> <p>When RPV level is restored above TAF:</p> <ul style="list-style-type: none">• Directs reinitiating torus cooling and sprays. <p>Directs reinitiating drywell spray when within the limits of the DWSIL.</p>
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	RO	<p>Responds to annunciator 3D81 "Primary Containment Pressure High/Low"</p> <ul style="list-style-type: none"> • Compare Pri. Cont. Pressures to ensure they are consistent with the annunciator setpoint value, using multiple indications. • Place the Mode Switch to Shutdown and enter 20.000.21 Reactor Scram" <p>Performs the following actions of EOP sht. 1, RPV Control, & 2, Primary Containment Control, as directed.</p> <ul style="list-style-type: none"> • Confirm Reactor Scram and all rods full in • Perform verification of initiation of EECW. • Perform verification of isolation of EECW to Drywell. • Restore Cooling to CRD. • Shutdown RR Pumps. • Verify ECCS Actuations and Isolations using 29.ESP.01 • Start RHR Loop in Torus Cooling in accordance with 23.205. • Places RHR in Torus Spray in accordance with 23.205
	BOP	<p>Responds to annunciator 3D81 "Primary Containment Pressure High/Low"</p> <p>Performs the following actions of EOP sheet 1, RPV Control, & 2, Primary Containment Control, as directed.</p> <ul style="list-style-type: none"> • Restore and keep RPV Level 173" to 214". • Perform verification of initiation of EECW. • Perform verification of isolation of EECW to Drywell. • Restore Cooling to CRD. • Verify ECCS Actuations and Isolations using 29.ESP.01 • Start RHR Loop in Torus Cooling in accordance with 23.205. • Places RHR in Torus Spray in accordance with 23.205

Termination:

- RPV water level restored
- Torus Sprays initiated
- Drywell Sprays initiated (if necessary)

END OF SCENARIO

Attachment A Simulator Setup

Initiate the simulator to IC - 15, 75% Rx. Pwr., MOL,

Place the simulator in RUN,

Load the following items into the simulator:

Facility: Fermi 2		Scenario No.: 2		Op-Test No.: 1
Event No.	Malf. No.	Event Type*	Event Description	
1		(N)	Swap Heater Drains Pumps IAW 23.108 "Heater Drains System" system operating procedure section 8.5.5.	
2	MF 1427	(I)	HPCI logic "A" isolation due to instrument failure.	
3	MF 2469		"Seismic System Event/ Trouble Alarm"	
4	MF 2469 MF 3471	(C)	"Seismic System Event/ Trouble Alarm" and Loss of Electrical Bus 65D.	
5		(M)	Loss of Feedwater	
6	MF 0068	(M)	LOCA inside Primary Containment (Value =10% ramped over 700 sec delay, increasing to 60% after Emergency Depressurization)	
7	VO 1398	(C)	E11-LPCI Injection Valve E1150-F015B Position Failure	

Make the following configuration changes to the panels:

1. Take the actions of 23.108 up to step 8.5.5 for swapping Heater Drains Pumps.
2. Update the rod pull sheets.
3. Ensure LCO sheets updated for SRV J LCO 3.5.1 Condition G - 4 days ago
4. Remove GSW pump 4 from service and red tag.

Advance all chart recorders until no previous data can be seen with the chart recorder doors open.

Ensure a copy of the following documents have been prepared and are available for use in this scenario:

1. GOP 22.000.03 "Power Operation 25% TO 100% TO 25%"
2. SOP 23.108 "Extraction Steam and Heater Drains"
3. LCO 00-xxx "LCO sheet for Inoperable ADS Valve"
4. Print 6I721-2095-02

Inform the Lead Simulator Evaluator that the simulator setup has been completed.

END OF SECTION

Scenario 2 Turnover Information

The plant is currently at 75% power and holding.

ADS SRV "J" was declared INOPERABLE four days ago due to a ground that has blown the power fuses. The fuses have been removed and I&C is working with System Engineering to develop a troubleshooting and repair package. System Engineering believes that SRV "J" will work in the safety valve mode. Tech Spec 3.5.1 condition G. has been entered.

The severe wear products in the oil of the North Heater Drains Pump require the pump removal from service to work. The shift is scheduled to swap the North Heater Drains Pump with the Center Heater Drains Pump to allow work to commence. All steps up to section 8.5.5 were completed by the previous shift.

The #4 General Service Water (GSW) pump is out of service and red-tagged for maintenance and will not be available for three days.

All other conditions are normal.

FERMI 2

DATE 2000

**FINAL, AS-GIVEN
OPERATING TEST**

Facility: Fermi 2**Scenario No.:** 1**Op-Test No.:** 1

Examiners: _____ **Operators:** _____

Objectives:

To evaluate the applicant's ability to:

1. Respond to a Control Rod Drive Hydraulic Pump Trip
2. Respond to a Control Rod Drive Pressure Differential instrument failure
3. Respond to an inadvertent MSIV closure
4. Change Reactor Power using Recirculation flow
5. Respond to a trip of both Recirculation Pumps
6. Respond to a failure to scram (ATWS)
7. Respond to a failure of Primary Containment Isolation Logic

Initial Conditions: IC-17, MOL, 97% Rx. Power

Turnover:

The plant is operating at 97% power.

Chemistry has requested placing the Torus Water Management System in Cleanup Mode for Sampling in accordance with 23.144 section 6.0 at the beginning of shift.

The West Stator Water Coolant Pump is out of service for bearing replacement.

All other conditions are normal.

NOTE: The pre-job briefing to place TWMS is to be conducted by the crew prior to entering the simulator. (Suggested time is 15 minutes prior to beginning the scenario).

Termination:

All rods in and RPV water level restored to the normal operating band.

Critical Tasks:

1. With a reactor scram required, reactor not shutdown, and conditions for ADS blowdown are met inhibit ADS to prevent an uncontrolled RPV depressurization, to prevent causing a significant power excursion.
2. With a reactor scram required and reactor not shutdown, take action to reduce power by injecting boron and/or inserting control rods, to prevent exceeding primary containment design limits BEFORE reaching the BIIT.
3. During an ATWS with conditions met to perform power/level control, terminate and prevent injection with exception of boron, RCIC and CRD, into the RPV until conditions are met to re-establish injection.
4. With a failure of PCIV system (RWCU) to isolate automatically, take manual actions to isolate RWCU system (prevents dilution of boron and establishes PC integrity).

EP Classification:

TAB S "System Malfunction"

Site Area Emergency based on (SS 2) failure of the reactor to automatically scram and manual scram was NOT successful.

Facility: Fermi 2			Scenario No.: 1	Op-Test No.: 1
Event No.	Malf. No.	Event Type*	Event Description	
1	MF 1181	C (RO)	CRD Pump Trip	
2	PO 00384	I (RO)	Failure of CRD pressure differential instrument (C11-R602)	
3	MF 0007	C (RO)	Inadvertent MSIV Closure	
4		R (RO)	Power reduction using recirc flow and rods	
5	MF 0059 MF 0060	C (RO)	Trip of both Recirc Pumps	
6	MF 3595 MF 3671	M (All)	Failure to Scram	
7	RF 1701 RF 0702 RF 0700	I (RO)	RWCU fails to isolate on SLC initiation due to logic failure	

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

The times listed in the scenario outline are approximates. The times may change depending on candidate performance and decision points. Ample time should be given to ensure the examiners have the opportunity to verify completion of required tasks. The NRC Lead Examiner may modify the flow of events at his or her discretion.

Op-Test No.: 1			Scenario No.: 1			Event No.: 1/2								
Event Description: Control Rod Drive Hydraulic Pump Trip/CRD Differential Pressure instrument failure														
Time	Position	Applicant's Actions or Behavior												
0 min	SRO	Directs BOP to place TWMS in Bypass mode IAW 23.144 section 5.0 and section 6.0. <i>(This will ensure that the BOP operator is at the back panels during the CRD pump trip/ inst. failure)</i>												
	BOP	Places TWMS in cleanup mode IAW 23.144 section 5.0 and 6.0.												
+3 min	SRO	Responds to alarms 3D5, "CRD Charging Pressure Low" and 3D96, "Motor tripped". Enters 20.106.01, "CRD Hydraulic System Failure". Directs RO to shift to Standby CRD pump IAW 20.106.01 Upon receipt of 3D13, "CRD Hydraulic Temperature High", Directs" RO to send an operator to the relay room to verify CRDH temperatures are >250°F. No Tech Specs apply if standby pump is restored, but may consult 3.1.5, Control Rod Scram Accumulators												
	RO	Responds to tripped CRD pump and starts standby CRD pump IAW 20.106.01, "CRD Hydraulic System Failure" as follows: <ul style="list-style-type: none"> Place Flow Controller, C11-R600, in manual and closes the Flow Control Valve Close C1152-F003, CRD Drv/Clg water Pressure Control Valve Starts CRD pump B <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> Booth Operator: Respond as NO that standby pump is ready for start. If asked, CRD pump A motor is hot to the touch and Breaker 64B pos B11 has a tripped 51 device (overcurrent trip) </div> <ul style="list-style-type: none"> Adjust flow controller to 63 gpm RO realizes no drive water d/p indication on P603 panel for CRD C11-R602. Informs SRO of failure of instrument indication Uses alternate indications to restore CRD flow. (GEMAC will still track, local indications available, and other CRD system indications will respond normally) Place flow controller, C11-R600, in Auto Open C1152-F003, CRD Drv/Clg Water Pressure Control Valve to establish 255-265 psid on C11-R009 (field indication), Drive water diff press indicator.												

BOP

If directed, send an operator to relay room to verify high temperature condition on CRDs.

Booth Operator: Respond as Operator in Relay Room that several temperatures are above 250F (can get a list if they request it.)
If asked to reset CRD high temp alarm after system restoration, use RF 1713 in C11 section of Remote Functions.

Booth Operator: Using decterm window, type in BP:C1152F003 [enter] to monitor C1152F003 position vs. pressure to simulate field operations.

Valve position

Differential Pres.

0.0	>350 psid pegged high
.25	350 psid top of ind. Range
.27	325 psid
.28	300 psid
.30	275 psid
.31	250 psid
.33	225 psid
1.0	50 psid

As RB rounds, coordinate positioning of C11F003 by reading valve position, but only reporting the differential pressure from the table above. The local instrument would be C11-PDI-R009 at H21-P164B.

Op-Test No.: 1			Scenario No.: 1			Event No.: 3/4		
Event Description: Inadvertent Closure of B21-F022B, INBD MSIV								
Time	Position	Applicant's Actions or Behavior						
+23 min	SRO	<p>Respond to 3D168, "Reactor Pressure High" and direct:</p> <ul style="list-style-type: none">• Verify Pressure Regulator setting and turbine settings (may not be checked if MSIV closure discovered first)• Verify Rx Flow limit set correctly (may not be checked if MSIV closure discovered first)• Check MSIVs Open <p>Enters 20.137.01, and directs:</p> <ul style="list-style-type: none">• Within 15 minutes, reduce steam dome pressure to <1045 psig• Due to steam flow inputs into DCS, FW inaccuracies will occur and RPV level will control slightly lower than normal. <p>Directs RO to:</p> <ul style="list-style-type: none">• Reduce Core flow to 55-60% of rated flow (should not lose Heater Drains and still meet 15 min.)• Inform SRO when pressure is <1045 psig and 3D168 is clear.• Insert CRAM array to <60% power <p>Refers to 22.000.03, "Power Operation, for guidance on reducing power to 60%. Directs power reduction as follows:</p> <p>Directs BOP to maintain Turbine flow limit >5% above Rx power</p> <p>Contacts Central System Supervisor</p> <p>When RFP suction pressure reaches 700 psig, directs BOP to shutdown a Heater Feed Pump</p> <p>When Power is 65%, directs placing 2/3 defeat switch to defeat</p> <p>Complies with T.S. 3.4.11, Steam Dome Pressure and enters Condition A to reduce pressure <1045 within 15 minutes</p> <p>May refer to T.S. 3.6.1.3, Primary Containment Isolation Valves - no action required</p> <p>Exits T.S. 3.4.11 when pressure is <1045 psig</p> <p>During Transition through the "wobble" region for the Reactor Recirc pumps, a flow mismatch may exist. If so, SRO enters T.S. 3.4.1, Recirc loops operating, and must ensure flow is matched within 2 hours or declare recirc loop inoperable.</p>						

	RO	<p>Responds to 3D168, "Reactor Pressure High"</p> <p>When directed, lowers reactor power by:</p> <ul style="list-style-type: none"> • Reducing core flow to 55-60% (should not lose Heater Drains and still meet 15 min.) • Using recirc controllers "set pushbuttons" in Auto or "output" if in manual (operators discretion) • Insert Cram array to <60% power • Places 2/3 defeat switch to defeat at 65% Power • Report when reactor pressure is less than 1045 psig and 3D168 is clear. • Due to steam flow inputs into DCS, FW inaccuracies will occur and RPV level will control slightly lower than normal.
	BOP	<p>Responds to 3D168 and:</p> <ul style="list-style-type: none"> • Verifies pressure Regulator setpoint is 944(+5)(-0) psig, if required (may not be checked if MSIV closure discovered first) • Verifies Reactor Flow Limiter is set correctly at 115%, if required (may not be checked if MSIV closure discovered first) • Verifies MSIVs open (Should notice MSIV closed) <p>Maintains Turbine flow limit 5% above Rx Power</p> <p>Shuts down Heater Feed Pump at 700 psig as follows:</p> <ul style="list-style-type: none"> • Direct Closing N2000-F830A/B/C, HFP suction Hydrogen Injection Iso Valve • Place East Auxiliary Oil Pump in RUN • Stop the Heater Feed Pump • Verify N20-F405A/B/C, HFP min flow valve closes • Adjust Heater Drain pump seal pressure <div data-bbox="529 1516 1395 1631" style="border: 1px solid black; padding: 5px; margin-top: 20px;"> <p>Booth Operator: Respond to Shutdown the HFP. Seal pressures are normal. N2000-F830A/B/C are closed.</p> </div>

Op-Test No.: 1

Scenario No.: 1

Event No.: 5/6/7

Event Description: Recirc Pumps Trip/ATWS (Insert when power is reduced to 60% or if power is above 60% and lead evaluator directs moving on in the scenario)

Time	Position	Applicant's Actions or Behavior
		<p>Booth Operator Actions for ATWS:</p> <p><i>When directed, defeat MSIV L1 interlocks using:</i></p> <ul style="list-style-type: none"> • RF 2320, Div 1 MSIV L1 and Hi Rad defeat • RF 2321, Div 2 MSIV L2 and Hi Rad defeat • Place defeats on 300 sec time delay <p><i>When directed, defeat ARI L2 isolations using:</i></p> <ul style="list-style-type: none"> • RF 2315, Div 1 ARI L2 isolation defeat • RF 2316, Div 2 ARI L2 isolation defeat • Place defeats on 300 sec time delay <p><i>When directed by the lead evaluator OR when power has been reduced to <3% AND the RO is ready to re-initiate the scram with ARI - STOP Rod stuck malfunction using MF 3671.</i></p>
+43 min	SRO	<p>* When RO reports that both Recirc pumps have tripped, direct mode switch placed in Shutdown (if not already done)</p> <p>Enters EOP sheet 1A, RPV Control ATWS, and directs:</p> <p>* • Inhibiting ADS</p> <p>• Confirming Isolations IAW 29.ESP.01 (none currently)</p> <p>• Bypassing DW pneumatics</p> <p>• Ordering the performance of 29.ESP.11 - Bypassing MSIV L1 and Hi Rad interlocks</p> <p>• Initiating ARI</p> <p>* • Injecting SLC</p> <p>Directs manual isolation of RWCU when RO informs him that auto isolation failed (close G33-F004 and F220. If level reaches 110", should also close G33-F001).</p> <p>* Directs RO to defeat ARI logic and insert rods using 29.ESP.03, Alternate Rod Insertion methods</p> <p>* Directs Terminate and Prevent to level of <108". Should give a level band of 50-100" until MSIV L1 interlocks are bypassed.</p> <p>After MSIV L1 interlocks are bypassed or MSIVs close, should direct a level band of 0-50" to lower power.</p> <p>When all rods are in using Scram/Reset/Scram method, transition to RPV Control and directs restoring water level to 173-214"</p>
	RO	<p>* When it is observed that both Recirc Pumps have tripped, places Mode Switch to Shutdown IAW 20.138.01, Recirc</p>

		<p>Pump Trip Immediate Actions.</p> <p>Informs SRO of Failure to SCRAM and performs the following as directed:</p> <ul style="list-style-type: none">• Initiates ARI <p>* • Injects SLC</p> <p>* Informs SRO that RWCU did not auto isolate and close(s) any of the following valves:</p> <ul style="list-style-type: none">• G33-F004, RWCU Otbd isolation valve• G33-F001, RWCU Inbd isolation valve• G33-F220, RWCU FW Otbd isolation valve <p>Note: Closing only one valve will meet the intent of isolating RWCU for SLC injection. (BOP may report RWCU fails to isolate on Level 2 when reducing level for T&P. Then the G33-F001 should also be closed.)</p> <p>* Monitors Reactor power and level while the BOP performs terminate and prevent.</p> <p>Commences Control rod insertion IAW 29.ESP.03, Alternate Rod Insertion methods:</p> <ul style="list-style-type: none">• Directs RB rounds to close C1100-F034, CRD charging water header isolation valve• Places RWM in bypass• Inserts Cram array• Inserts balance of rods in a checkerboard spiral out pattern• RO may ask SRO about the failed indication for the CRD C1152-F003. The RO may either direct an operator to verify valve indication or just fully close the valve since closing the valve provides maximum d/p to insert the rods. <p>Pursues Scram/Reset/Scram method as follows:</p> <ul style="list-style-type: none">• Orders reset of ARI• Depresses ARI reset Pushbuttons• When Scram discharge Volume is drained, arms and depresses ARI pushbuttons.• Observes all rods in - Verifies using RWM or full core display and informs SRO
	BOP	<p>When directed, perform the following actions:</p> <ul style="list-style-type: none">• Inhibit ADS• Bypass drywell pneumatics• Orders 29.ESP.11, MSIV L1 and Hi Rad interlocks to be bypassed <p>* When directed to perform terminate and prevent:</p> <ul style="list-style-type: none">• Places or verifies the following switches in OFF:<ul style="list-style-type: none">• A, B, C and D Core Spray pump CMC switches• A, B, C and D RHR pump CMC switches

		<ul style="list-style-type: none"> • A and B SBFW pump CMC switches • Dial HPCI tape to zero or place Aux Oil pump in OFF • Places RFP controllers in Manual and lowers flow to zero <p>When directed, and level is <108", restores level by matching Feed flow and steam flow using the RFP manual controllers</p> <p>When power is 25-30%, transition to the SULCV using 23.107, enclosure F if needed to control feedwater:</p> <ul style="list-style-type: none"> • Place SULCV in START • Place SULCV controller in AUTO • Close N2100-F607/608, N/S RFP discharge valves • Place all FW control stations in manual • Adjust RFP speed as necessary to maintain level <p>Controls RPV level in band as directed by SRO.</p> <p>Otherwise, control level using:</p> <ul style="list-style-type: none"> • RCIC • Standby Feedwater • HPCI <p>Note: 2D82, REAC BLDG TORUS SUMP LEVEL HI/HI, LO/LO will come in due to draining the Scram discharge volume. The SRO may refer to EOP SH. 5, Secondary Containment Control, to address this alarm.</p>
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END OF SCENARIO

Termination:

- All rods in
- RPV water level restored to the normal operating band

Attachment A Simulator Setup

Initiate the simulator to IC-16, BOL, 97% Rx. Power

Place the simulator in RUN,

Load the following items into the simulator:

Facility: Fermi 2		Scenario No.: 1		Op-Test No.: 1
Event No.	Malf. No.	Event Type*	Event Description	
1	MF 1181	C (RO)	C11-CRD A Pump Trip	
2	PO 00284	I (RO)	Failure of CRD drive water d/p instrument (C11-R602)	
3	MF 0007	C (RO)	B21-Inboard MSIV Fails Shut B21-F022B	
4		R (RO)	Power reduction using recirc flow and rods	
5	MF 0059 MF 0060	C (RO)	B31-Recirc MG Set Motor Trip A B31-Recirc MG Set Motor Trip B (delay 5 sec)	
6	MF 3595 MF 3671	M (All)	C71-Total Scram Failure C11-All rods Stuck Variable Density (5%)	
7	RF 1701 RF 0702 RF 0700	I (RO)	EOP-G33-F220 RWCU OTBD Isol Vlv Defeat EOP-G33-F004 RWCU OTBD Supply Isol Defeat EOP-G33-F001 RWCU INBD Supply Isol Defeat	

Make the following configuration changes to the panels:

1. Remove West Stator Water Coolant Pump from service and place red tag dot beside CMC.
2. Update the rod pull sheets and CRAM Array

Advance all chart recorders until no previous data can be seen with the chart recorder doors open.

Inform the Lead Simulator Evaluator that the simulator setup has been completed.

END OF SECTION

Scenario 1 Turnover Information

The plant is operating at 97% power.

The following equipment is out of service:

West Stator Water Coolant Pump is out of service for bearing replacement, which is expected to take two days.

Chemistry has requested that TWMS is placed in Cleanup Mode IAW 23.144 section 6.0 for sampling at the beginning of shift.

The crew will maintain power at 97 in accordance with 22.000.03, Power Operation 25% to 100% to 25%.

Facility: Fermi 2

Scenario No.: 2

Op-Test No.: 1

Examiners: _____ Operators: _____

Objectives:

To evaluate the applicant's ability to:

- 1) Swap Heater Drains Pumps
- 2) Respond to a HPCI isolation due to instrument malfunction.
- 3) Evaluate Technical Specifications for 3.0.3. entry
- 4) Respond to a Seismic Event.
- 5) Respond to a Loss of 65D electrical bus
- 6) Respond to a Loss of Feedwater.
- 7) Respond to a LOCA with requirement to ED.
- 8) Respond to a failed CTMT Spray Valve (closed) during attempts to spray the drywell.

Initial Conditions: IC-15, MOL, 75% Rx. Power,

Turnover:

The plant is currently at 75% power and holding.

ADS SRV "J" was declared INOPERABLE four days ago due to a ground that has blown the power fuses. The fuses have been removed and I&C is working with System Engineering to develop a troubleshooting and repair package. System Engineering believes that SRV "J" will work in the safety valve mode. Tech Spec 3.5.1 condition G. has been entered.

The severe wear products in the oil of the North Heater Drains Pump require the pump removal from service to work. The shift is scheduled to swap the North Heater Drains Pump with the Center Heater Drains Pump to allow work to commence. All steps up to section 8.5.5 were completed by the previous shift.

The #4 General Service Water (GSW) pump is out of service and red-tagged for maintenance and will not be available for three days.

All other conditions are normal.

NOTE: The Pre-job Briefing for swapping Heater Drains Pumps is to be conducted by the crew prior to entering the simulator. (suggested time 30 minutes prior to beginning the scenario)

Termination:

Torus Sprays initiated; Drywell Sprays initiated (if necessary); RPV water level restored.

Critical Tasks:

- 1) When RPV water level cannot be restored and kept greater than -28", Emergency Depressurize the RPV BEFORE reaching -28".
- 2) When drywell pressure exceeds the suppression chamber spray initiation pressure, INITIATE drywell sprays, while in the safe region of the drywell spray initiation limit (DWSIL).
- 3) Secure TORUS or Drywell sprays before their respective pressure reaches 0 psig.

EP Classification:

TAB F "Fission Product Barrier Degradation"

Site Area Emergency based on (FS 1)loss of the Reactor Coolant System Barrier (Drywell pressure greater than 1.68 psig or RPV water level less than 0 inches)and the potential loss of Fuel Clad Barrier (RPV water level less than 0 inches).

Facility: Fermi 2			Scenario No.: 2	Op-Test No.: 1
Event No.	Malf. No.	Event Type*	Event Description	
1		(N)	Swap Heater Drains Pumps IAW 23.108 "Heater Drains System" system operating procedure section 8.5.5.	
2	MF 1427	(I)	HPCI logic "A" isolation due to instrument failure.	
3	MF 2469		"Seismic System Event/ Trouble Alarm"	
4	MF 2469 MF 3471	(C)	"Seismic System Event/ Trouble Alarm" and Loss of Electrical Bus 65D.	
5		(M)	Loss of Feedwater	
6	MF 0068	(M)	LOCA inside Primary Containment Value = 10% ramped 700 sec	
7	VO 0177 VO 0178	(C)	E11-CTMT Spray Inboard Iso Valve E11-F016A failed Closed E11-CTMT Spray Inboard Iso Valve E11-F016B failed Closed Note: booth operator to select failure based on the division of RHR selected to spray the drywell by the crew	

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

The times listed in the scenario outline are approximates. The times may change depending on candidate performance and decision points. Ample time should be given to ensure the examiners have the opportunity to verify completion of required tasks. The NRC Lead Examiner may modify the flow of events at his or her discretion.

Op-Test No.: 1			Scenario No.: 2			Event No.: 1		
Event Description: Swap Heater Drains Pumps IAW 23.108 "Heater Drains System" system operating procedure (SOP) 23.108 section 8.5.5.								
Time		Position		Applicant's Actions or Behavior				
0 min		SRO		Provides (or directs) evolution brief on swapping Heater Drains Pump (North shutdown and Center started) IAW SOP. Directs BOP to swap Heater Drains Pumps IAW 23.108. Directs RO to monitor RPV water level while shifting HDPs.				
		RO		Coordinates with BOP to control RPV level during transfer. (Affects RFP suction pressure and speed)				
+15 min		BOP		Reviews SOP to ensure Initial Conditions are met. Reviews applicable Precautions and Limitations. Swaps Heater Drains Pumps IAW SOP. Coordinates with RO to control RPV level during transfer. (Affects RFP suction pressure and speed)				

Simulator console operator:

Perform applicable steps of 23.108 sections 8.5.1, "Prerequisites" and 8.5.2, "Detailed procedure- Warm Up" to allow the crew to proceed directly to step 8.5.5. before crew enters simulator.

Act as Turbine Building Rounds Operator to perform field actions associated with step 8.5.5.

Op-Test No.: 1		Scenario No.:2	Event No.:2
Event Description: HPCI Logic A Inadvertent Isolation			
Time	Position	Applicant's Actions or Behavior	
+15 min	SRO	<p>Respond to 2D49, "HPCI Logic A isolation trip signal initiated" and directs BOP to:</p> <ul style="list-style-type: none"> • Verify E4150-F002, HPCI supply Inbd isolation valve closed • Verify E4150-F042, HPCI Torus Suct Inbd Iso Vlv, Closed <p>Refer to T.S. 3.5.1, ECCS operating:</p> <ul style="list-style-type: none"> • Declares HPCI Inoperable • Enters Condition E. <ul style="list-style-type: none"> ✓ Verifies RCIC Operable (admin). ✓ Must restore HPCI to operable status within 14 days • Enters Condition J. <ul style="list-style-type: none"> ✓ Enters 3.0.3 immediately <p>Respond to 2D58, "HPCI steam line differential pressure high" and 2D85, "HPCI steam line iso valve not fully open":</p> <ul style="list-style-type: none"> • Refers to T.S. 3.3.6.1, PCIS Instrumentation • Enters Condition A. <ul style="list-style-type: none"> ✓ Must place channel in trip within 24 hours <p>May refer to TRM 3.3.6.1 (setpoints only)</p> <p>Directs I&C to investigate and contacts WCNASS to write CARD and assist in investigation.</p> <p>Briefs crew on GOP shutdown due to Tech Spec 3.0.3 entry.</p>	

Simulator console operator:

If directed to testability to check HPCI steam line flow, report E41-N657A pegged high and tripped. All other indications are normal.

Op-Test No.: 1		Scenario No.: 2	Event No.: 3
Event Description: Seismic Event			
Time	Position	Applicant's Actions or Behavior	
+25 min	SRO	<p>Responds to annunciator 6D69, "Seismic Event/ Trouble" and directs operators to verify plant parameters are stable.</p> <p>Enters and directs actions IAW 20.000.01, "Acts of Nature" (Earthquake) as follows:</p> <p>Monitor the following parameters for abnormal values using multiple indications when available:</p> <ul style="list-style-type: none"> a. Reactor Vessel Level b. Reactor Vessel Pressure c. Reactor Power d. Reactor Feedwater Flow e. Reactor Steam Flow f. Drywell Pressure g. Primary Containment Temperatures h. Torus Water Level i. RCS Identified Leakage j. RCS Unidentified Leakage k. Process Radiation Monitors <p>Announce event over Hi-Com.</p> <p>Direct an operator to D30-K800, Active Seismic Central Recorder, to PERFORM 23.612, "Seismic Monitoring," (RR H11-P831) concurrently with this procedure.</p> <p>IF seismic event was less than the Operating Basis Earthquake (OBE) 0.05 gravity (vertical) or 0.08 (horizontal)], continue Reactor operation provided all conditions are normal.</p> <p>IF a seismic event (> 0.01G) has occurred:</p> <ul style="list-style-type: none"> a. Verify each MDCT is Operable by starting E1156-C001A(B,C,D), Div 1 and 2 RHRSW MDCT Fan A(B,C,D), and check for proper running indication (H11-P807). 1) IF a fan fails to start or does not display proper running indication, perform the following: <ul style="list-style-type: none"> a) Dispatch an operator to the affected Cooling Tower Fan Room. b) IF the brake for the fan is engaged: <ul style="list-style-type: none"> (1) Depress the disengage pushbutton on the solenoid operated valve located below the brake assembly. (2) IF the brake re-engages, de-energize the solenoid DC power supply: <ul style="list-style-type: none"> • Div 1 (Fans A and C) - 2 PA2-13 Ckt 3 • Div 2 (Fans B and D) - 2 PB2-14 Ckt 3 	

		<p>(3) Reperform step 5.a. for affected fan. b. Stop all RHRSW MDCT Fans. c. Attempt to obtain confirmation of magnitude of seismic event by calling the following stations: 1) University of Michigan Seismic Observatory (734) 763-4069. 2) Davis Besse (419) 321-7283.</p> <p>Based on input from field, may consider entering TRM section TR 3.3.7.2, "Seismic Monitoring Instrumentation".</p> <p><i>Based on input from the field and combining the condition that the plant is in a 3.0.3 action statement may brief plant scram and direct taking Rx Mode Switch to Shutdown.</i></p>
	RO	<p>Verifies plant parameters are stable.</p> <p>Performs actions as directed above by the SRO</p>
	BOP	<p>Verifies plant parameters are stable.</p> <p>Directs operator to Relay Room to perform 23.612, "Seismic Monitoring" section 4.3, "Response to Seismic System Event..."</p> <p>Performs actions as directed above by the SRO</p>

Simulator Console Operator:

Report as Patrol NSO or Tagging Center Operator:

- Recorder has printed
- Error red LED is OFF
- Peak signal is 0.013G

Op-Test No.: 1

Scenario No.: 2

Event No.: 4/5/6/7

Event Description: LOCA on Recirc Loop A/Loss of Feedwater System/Emergency depressurization

Note: Loss of 65D will cause the loss of feedwater requiring a reactor SCRAM. The next step will cause the LOCA and should be initiated approximately 1 minute after the scram.

Note: The second step of the leak to increase the size requiring RHR to restore level should be initiated during ED.

Time	Position	Applicant's Actions or Behavior
+35 min	SRO	<p>Responds to annunciator 10D51, "4160V BOP Breaker Tripped" and resulting loss of feed to RPV (Condenser, Heater Feed, and Reactor Feedwater pumps all trip) by directing the RO to place Mode Switch to Shutdown.</p> <ul style="list-style-type: none"> • Direct RO to place the Mode Switch to Shutdown. • May direct starting Standby Feedwater pumps to supplement RCIC • Enter EOP Sheet 1, RPV Control, due to low RPV level • Direct Confirm Reactor Scram - (All rods in) • Direct verifying ECCS actuations and isolations using 29.ESP.01 • Direct to Restore and keep RPV Level 173" to 214" using all available systems: <ul style="list-style-type: none"> • Feedwater is not available due to electrical power loss. • Standby Feedwater • RCIC • CRD • HPCI is not available due to isolation <p>When SRO is informed that available systems will not restore level to >173":</p> <ul style="list-style-type: none"> • Direct to Restore and keep RPV Level 0" to 214" using all available systems above and: <ul style="list-style-type: none"> • SLC system, if desired <p>When RPV level is <32":</p> <ul style="list-style-type: none"> • Direct inhibiting ADS <p>When SRO is informed that available systems will not restore level to >0":</p> <ul style="list-style-type: none"> • Verify at least 2 injection subsystems are aligned <ul style="list-style-type: none"> • Standby Feedwater • LPCI Div 1 (already running) • LPCI Div 2 (already running) • Core Spray Div 1 (already running)

		<ul style="list-style-type: none"> • Core Spray Div 2 (already running) <p>When RPV level reaches 0":</p> <p>Diagnose if low pressure sources are aligned and water level cannot be restored:</p> <ul style="list-style-type: none"> • At or before -28", Emergency Depressurize IAW EOP sheet 3, emergency depressurization. <p>*</p> <ul style="list-style-type: none"> • Verify torus level >-112" • Direct opening 5 SRVs ADS preferred - SRV J will not open and an alternate SRV will be opened. The EOPs direct verifying at least 4 SRVs are open during depressurization. <p>*</p> <ul style="list-style-type: none"> • Directs restoring Drywell pneumatics <p>When pressure lowers to the point of injection of the low pressure systems (~200#):</p> <ul style="list-style-type: none"> • Direct restoring water level to 173" - 214" with low pressure systems (RHR and Core Spray) <p>Responds to annunciator 3D85 "Primary Containment Pressure High Pressure Channel Trip"</p> <p>Enter EOP Sheet 2, Primary Containment Control, due to high drywell pressure.</p> <ul style="list-style-type: none"> • Direct RO/BOP to verify Primary Containment pressure. • Confirm initiation of EECW and isolation from the drywell • Direct restore cooling to CRD pumps • Direct Tripping RR Pumps (may trip automatically at Level 2) • Direct placing RHR in Torus Spray mode in accordance with 23.205, RHR Operating procedure when torus pressure reaches 9 psig. • When torus pressure is > 9 psig: <ul style="list-style-type: none"> • Verify drywell temperature and pressure are within the Drywell Spray Initiation Limit (DWSIL) • Directs S/D drywell fans • Directs initiating Drywell Sprays (not to interfere with raising RPV level above TAF, adequate core cooling is the priority) • When panel operator informs SRO of CTMT Spray valve failure, SRO directs spraying drywell with the opposite division of RHR. <p>*</p> <p>Direct terminating drywell and/or torus sprays before drywell and/or torus pressure reaches 0 psig.</p> <p>Directs closing the P44-F606A/B and F607A/B, EECW to drywell isolation valves when drywell temperature exceeds 242°F.</p> <p>Note: The torus and drywell sprays should automatically isolate when level drops to approximately 0 inches on</p>
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		<p>Note: The torus and drywell sprays should automatically isolate when level drops to approximately 0 inches on core level (unless 2/3 core override is selected).</p> <p>When RPV level is restored above TAF:</p> <ul style="list-style-type: none">• Directs reinitiating torus cooling and sprays. <p>Directs reinitiating drywell spray when within the limits of the DWSIL.</p>
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	RO	<p>Responds to annunciator 3D81 "Primary Containment Pressure High/Low"</p> <ul style="list-style-type: none"> • Compare Pri. Cont. Pressures to ensure they are consistent with the annunciator setpoint value, using multiple indications. • Place the Mode Switch to Shutdown and enter 20.000.21 Reactor Scram" <p>Performs the following actions of EOP sht. 1, RPV Control, & 2, Primary Containment Control, as directed.</p> <ul style="list-style-type: none"> • Confirm Reactor Scram and all rods full in • Perform verification of initiation of EECW. • Perform verification of isolation of EECW to Drywell. • Restore Cooling to CRD. • Shutdown RR Pumps. • Verify ECCS Actuations and Isolations using 29.ESP.01 • Start RHR Loop in Torus Cooling in accordance with 23.205. • Places RHR in Torus Spray in accordance with 23.205
	BOP	<p>Responds to annunciator 3D81 "Primary Containment Pressure High/Low"</p> <p>Performs the following actions of EOP sheet 1, RPV Control, & 2, Primary Containment Control, as directed.</p> <ul style="list-style-type: none"> • Restore and keep RPV Level 173" to 214". • Perform verification of initiation of EECW. • Perform verification of isolation of EECW to Drywell. • Restore Cooling to CRD. • Verify ECCS Actuations and Isolations using 29.ESP.01 • Start RHR Loop in Torus Cooling in accordance with 23.205. • Places RHR in Torus Spray in accordance with 23.205

Termination:

- RPV water level restored
- Torus Sprays initiated
- Drywell Sprays initiated (if necessary)

END OF SCENARIO

Attachment A Simulator Setup

Initiate the simulator to IC - 15, 75% Rx. Pwr., MOL,

Place the simulator in RUN,

Load the following items into the simulator:

Facility: Fermi 2			Scenario No.: 2	Op-Test No.: 1
Event No.	Malf. No.	Event Type*	Event Description	
1		(N)	Swap Heater Drains Pumps IAW 23.108 "Heater Drains System" system operating procedure section 8.5.5.	
2	MF 1427	(I)	HPCI logic "A" isolation due to instrument failure.	
3	MF 2469		"Seismic System Event/ Trouble Alarm"	
4	MF 2469 MF 3471	(C)	"Seismic System Event/ Trouble Alarm" and Loss of Electrical Bus 65D.	
5		(M)	Loss of Feedwater	
6	MF 0068	(M)	LOCA inside Primary Containment Value =10% ramped over 700 sec delay	
7	VO 0177 VO 0178	(C)	E11-CTMT Spray Inboard Iso Valve E11-F016A failed Closed E11-CTMT Spray Inboard Iso Valve E11-F016B failed Closed Note: booth operator to select failure based on the division of RHR selected to spray the drywell by the crew	

Make the following configuration changes to the panels:

1. Take the actions of 23.108 up to step 8.5.5 for swapping Heater Drains Pumps.
2. Update the rod pull sheets.
3. Ensure LCO sheets updated for SRV J LCO 3.5.1 Condition G - 4 days ago
4. Remove GSW pump 4 from service and red tag.

Advance all chart recorders until no previous data can be seen with the chart recorder doors open.

Ensure a copy of the following documents have been prepared and are available for use in this scenario:

1. GOP 22.000.03 "Power Operation 25% TO 100% TO 25%"
2. SOP 23.108 "Extraction Steam and Heater Drains"
3. LCO 00-xxx "LCO sheet for Inoperable ADS Valve"
4. Print 6I721-2095-02

Inform the Lead Simulator Evaluator that the simulator setup has been completed.

END OF SECTION

Scenario 2 Turnover Information

The plant is currently at 75% power and holding.

ADS SRV "J" was declared INOPERABLE four days ago due to a ground that has blown the power fuses. The fuses have been removed and I&C is working with System Engineering to develop a troubleshooting and repair package. SRV "J" will work in the safety valve mode. Tech Spec 3.5.1 condition G. has been entered.

The severe wear products in the oil of the North Heater Drains Pump require the pump removal from service to work. The shift is scheduled to swap the North Heater Drains Pump with the Center Heater Drains Pump to allow work to commence. All steps up to section 8.5.5 were completed by the previous shift.

The #4 General Service Water (GSW) pump is out of service and red-tagged for maintenance and will not be available for three days.

All other conditions are normal.