

Facility: <u>DC Cook</u>			Date of Exam: <u>06/21/2010</u>			Operating Test No.: <u>Crews 1,2, & 3</u>											
A P P L I C A N T	E V E N T T Y P E	Scenarios												T O T A L	M I N I M U M(*)		
		Cook 10-01			Cook 10-02												
		C R E W P O S I T I O N			C R E W P O S I T I O N			C R E W P O S I T I O N			C R E W P O S I T I O N						
		S R O	A T C	B O P	S R O	A T C	B O P	S R O	A T C	B O P	S R O	A T C	B O P				
															R	I	U
RO <input type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input checked="" type="checkbox"/>	RX	1			1									2	1	1	0
	NOR	1			1									2	1	1	1
	I/C	4			4									8	4	4	2
	MAJ	1			1									2	2	2	1
	TS	2			4									6	0	2	2
RO <input checked="" type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input type="checkbox"/>	RX		1				0							1	1	1	0
	NOR		0				1							1	1	1	1
	I/C		2				2							4	4	4	2
	MAJ		1				1							2	2	2	1
	TS		0				0							0	0	2	2
RO <input checked="" type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input type="checkbox"/>	RX			0		1								1	1	1	0
	NOR			1		0								1	1	1	1
	I/C			2		2								4	4	4	2
	MAJ			1		1								2	2	2	1
	TS			0		0								0	0	2	2
RO <input type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input type="checkbox"/>	RX													0	1	1	0
	NOR													0	1	1	1
	I/C													0	4	4	2
	MAJ													0	2	2	1
	TS													0	0	2	2

Instructions:

- Check the applicant level and enter the operating test number and Form ES-D-1 event numbers for each event type; TS are not applicable for RO applicants. ROs must serve in both the "at-the-controls (ATC)" and "balance-of-plant (BOP)" positions; Instant SROs must serve in both the SRO and the ATC positions, including at least two instrument or component (I/C) malfunctions and one major transient, in the ATC position. If an Instant SRO *additionally* serves in the BOP position, one I/C malfunction can be credited toward the two I/C malfunctions required for the ATC position.
- Reactivity manipulations may be conducted under normal or *controlled* abnormal conditions (refer to Section D.5.d) but must be significant per Section C.2.a of Appendix D. (*) Reactivity and normal evolutions may be replaced with additional instrument or component malfunctions on a 1-for-1 basis.
- Whenever practical, both instrument and component malfunctions should be included; only those that require verifiable actions that provide insight to the applicant's competence count toward the minimum requirements specified for the applicant's license level in the right-hand columns.

Facility: DC Cook

Date of Examination: 06/21/2010

Operating Test No.: Crews 1, 2, & 3

Competencies	APPLICANTS															
	RO <input type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input checked="" type="checkbox"/>				RO <input checked="" type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input type="checkbox"/>				RO <input checked="" type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input type="checkbox"/>				RO <input type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input type="checkbox"/>			
	SCENARIO				SCENARIO				SCENARIO				SCENARIO			
	SRO 1	SRO 2			ATC 1	BOP 2			BOP 1	ATC 2			1	2	3	4
Interpret/Diagnose Events and Conditions	3,4,5, 6,7,8, 9	3,4,5, 6,7,8, 9			3,5,7	3,6,7, 9			4,6,7	4,5,7						
Comply With and Use Procedures (1)	2,3,4, 5,6,7, 8,9	2,3,4, 5,6,7, 8,9			2,3,5, 7	1,3,6, 7,8,9			1,4,6, 7	2,4,5, 7						
Operate Control Boards (2)					2,3,5, 7	1,3,6, 7,8,9			1,4,6, 7	2,4,5, 7						
Communicate and Interact	2,3,4, 5,6,7, 8,9	2,3,4, 5,6,7, 8,9			2,3,5, 7	1,3,6, 7,9			1,4,6, 7	2,4,5, 7						
Demonstrate Supervisory Ability (3)	2,3,4, 5,6,7, 8,9	2,3,4, 5,6,7, 8,9														
Comply With and Use Tech. Specs. (3)	3,6	3,4,5, 6														

Notes:

(1) Includes Technical Specification compliance for an RO.

(2) Optional for an SRO-U.

(3) Only applicable to SROs.

Instructions:

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

Facility: <u>DC Cook</u>		Date of Exam: <u>06/21/2010</u>		Operating Test No.: <u>Crew 4</u>														
A P P L I C A N T	E V E N T T Y P E	Scenarios												T O T A L	M I N I M U M(*)			
		Cook 10-03			Cook 10-04													
		C R E W P O S I T I O N			C R E W P O S I T I O N			C R E W P O S I T I O N			C R E W P O S I T I O N							
		S R O	A T C	B O P	S R O	A T C	B O P	S R O	A T C	B O P	S R O	A T C	B O P					
															R	I	U	
RO <input type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input checked="" type="checkbox"/>	RX	1					0								1	1	1	0
	NOR	1					1								2	1	1	1
	I/C	4					2								6	4	4	2
	MAJ	2					1								3	2	2	1
	TS	3					0								3	0	2	2
RO <input type="checkbox"/> SRO-I <input checked="" type="checkbox"/> SRO-U <input type="checkbox"/>	RX		1		1										2	1	1	0
	NOR		0		1										1	1	1	1
	I/C		2		4										6	4	4	2
	MAJ		2		1										3	2	2	1
	TS		0		3										3	0	2	2
RO <input checked="" type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input type="checkbox"/>	RX			0		1									1	1	1	0
	NOR			1		0									1	1	1	1
	I/C			2		2									4	4	4	2
	MAJ			2		1									3	2	2	1
	TS			0		0									0	0	2	2
RO <input type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input type="checkbox"/>	RX														0	1	1	0
	NOR														0	1	1	1
	I/C														0	4	4	2
	MAJ														0	2	2	1
	TS														0	0	2	2

Instructions:

- Check the applicant level and enter the operating test number and Form ES-D-1 event numbers for each event type; TS are not applicable for RO applicants. ROs must serve in both the "at-the-controls (ATC)" and "balance-of-plant (BOP)" positions; Instant SROs must serve in both the SRO and the ATC positions, including at least two instrument or component (I/C) malfunctions and one major transient, in the ATC position. If an Instant SRO *additionally* serves in the BOP position, one I/C malfunction can be credited toward the two I/C malfunctions required for the ATC position.
- Reactivity manipulations may be conducted under normal or *controlled* abnormal conditions (refer to Section D.5.d) but must be significant per Section C.2.a of Appendix D. (*) Reactivity and normal evolutions may be replaced with additional instrument or component malfunctions on a 1-for-1 basis.
- Whenever practical, both instrument and component malfunctions should be included; only those that require verifiable actions that provide insight to the applicant's competence count toward the minimum requirements specified for the applicant's license level in the right-hand columns.

Facility: DC Cook

Date of Examination: 06/21/2010

Operating Test No.: Crew 4

Competencies	APPLICANTS															
	RO <input type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input checked="" type="checkbox"/>				RO <input type="checkbox"/> SRO-I <input checked="" type="checkbox"/> SRO-U <input type="checkbox"/>				RO <input checked="" type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input type="checkbox"/>				RO <input type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input type="checkbox"/>			
	SCENARIO				SCENARIO				SCENARIO				SCENARIO			
	SRO 3	BOP 4			ATC 3	SRO 4			BOP 3	ATC 4			1	2	3	4
Interpret/Diagnose Events and Conditions	2,3,4, 6,7,8, 9,10	4,6,7, 8			2,4,7, 8,9	3,4,5, 6,7,8, 9			3,6,7, 9	3,5,7, 9						
Comply With and Use Procedures (1)	2,3,4, 5,6,7, 8,9, 10	1,4,6, 7,8			2,4,5, 7,8,9	2,3,4, 5,6,7, 8,9			1,3,6, 7,9	2,3,5, 7,9						
Operate Control Boards (2)		1,4,6, 7,8			2,4,5, 7,8,9				1,3,6, 7,9	2,3,5, 7,9						
Communicate and Interact	1,2,3, 4,5,6, 7,8,9, 10	1,4,6, 7,8			2,4,5, 7,8,9	2,3,4, 5,6,7, 8,9			1,3,6, 7,9	2,3,5, 7,9						
Demonstrate Supervisory Ability (3)	1,2,3, 4,5,6, 7,8,9, 10					2,3,4, 5,6,7, 8,9										
Comply With and Use Tech. Specs. (3)	2,3,4					4,5,6										

Notes:

- (1) Includes Technical Specification compliance for an RO.
 (2) Optional for an SRO-U.
 (3) Only applicable to SROs.

Instructions:

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

Facility: <u>DC Cook</u>		Date of Exam: <u>06/21/2010</u>		Operating Test No.: <u>Crew 5</u>													
A P P L I C A N T	E V E N T T Y P E	Scenarios												T O T A L	M I N I M U M(*)		
		Cook 10-03			Cook 10-04												
		C R E W P O S I T I O N			C R E W P O S I T I O N			C R E W P O S I T I O N			C R E W P O S I T I O N						
		S R O	A T C	B O P	S R O	A T C	B O P	S R O	A T C	B O P	S R O	A T C	B O P				
															R	I	U
RO <input type="checkbox"/>	RX	1			1									2	1	1	0
SRO-I <input type="checkbox"/>	NOR	1			1									2	1	1	1
SRO-U <input type="checkbox"/>	I/C	4			4									8	4	4	2
<input checked="" type="checkbox"/>	MAJ	2			1									3	2	2	1
	TS	3			3									6	0	2	2
RO <input checked="" type="checkbox"/>	RX		1				0							1	1	1	0
SRO-I <input type="checkbox"/>	NOR		0				1							1	1	1	1
SRO-U <input type="checkbox"/>	I/C		2				2							4	4	4	2
	MAJ		2				1							3	2	2	1
	TS		0				0							0	0	2	2
RO <input type="checkbox"/>	RX													0	1	1	0
SRO-I <input type="checkbox"/>	NOR													0	1	1	1
SRO-U <input type="checkbox"/>	I/C													0	4	4	2
	MAJ													0	2	2	1
	TS													0	0	2	2
RO <input type="checkbox"/>	RX													0	1	1	0
SRO-I <input type="checkbox"/>	NOR													0	1	1	1
SRO-U <input type="checkbox"/>	I/C													0	4	4	2
	MAJ													0	2	2	1
	TS													0	0	2	2

Instructions:

- Check the applicant level and enter the operating test number and Form ES-D-1 event numbers for each event type; TS are not applicable for RO applicants. ROs must serve in both the "at-the-controls (ATC)" and "balance-of-plant (BOP)" positions; Instant SROs must serve in both the SRO and the ATC positions, including at least two instrument or component (I/C) malfunctions and one major transient, in the ATC position. If an Instant SRO *additionally* serves in the BOP position, one I/C malfunction can be credited toward the two I/C malfunctions required for the ATC position.
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Facility: DC Cook

Date of Examination: 06/21/2010

Operating Test No.: Crew 5

Competencies	APPLICANTS															
	RO <input type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input checked="" type="checkbox"/>				RO <input checked="" type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input type="checkbox"/>				RO <input type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input type="checkbox"/>				RO <input type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input type="checkbox"/>			
	SCENARIO				SCENARIO				SCENARIO				SCENARIO			
	SRO 3	SRO 4			ATC 3	BOP 4							1	2	3	4
Interpret/Diagnose Events and Conditions	2,3,4, 6,7,8, 9,10	3,4,5, 6,7,8, 9			2,4,7, 8,9	4,6,7, 8										
Comply With and Use Procedures (1)	2,3,4, 5,6,7, 8,9, 10	2,3,4, 5,6,7, 8,9			2,4,5, 7,8,9	1,4,6, 7,8										
Operate Control Boards (2)					2,4,5, 7,8,9	1,4,6, 7,8										
Communicate and Interact	1,2,3, 4,5,6, 7,8,9, 10	2,3,4, 5,6,7, 8,9			2,4,5, 7,8,9	1,4,6, 7,8										
Demonstrate Supervisory Ability (3)	1,2,3, 4,5,6, 7,8,9, 10	2,3,4, 5,6,7, 8,9														
Comply With and Use Tech. Specs. (3)	2,3,4	4,5,6														

Notes:

- (1) Includes Technical Specification compliance for an RO.
 (2) Optional for an SRO-U.
 (3) Only applicable to SROs.

Instructions:

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

Facility: Cook Plant Unit 1 & Unit 2 Scenario No.: COOK 2010-01 Op-Test No.: Crews 1,2,& 3

Examiners: _____

Operators: _____

Initial Conditions: IC-37, 78% pwr, 1021 ppm Boron, 8 GWD, 554°F Tave, CBD @196 steps, 848 MW

Turnover: Swap NESW pumps. 1E MDAFW OOS. Unit was holding at 78% power due to a small oil leak on the West MFW Pump that has recently been repaired, Blender line is full of PW.

Event No.	Malf. No.	Event Type*	Event Description
1		N	Start South NESW Pump and Stop the North NESW pump.
2		R	Raise Reactor Power and Turbine Load
3	NTP111 to 650°F	I-RO TS	Loop 1 Hot Leg NTP-111 Temperature Transmitter Fails High
4	CBPN FW58B	C-BOP	North CB pump trip; Middle CB pump fails to start in AUTO
5	QTC302 @ 50°F	C-RO	Letdown Temperature Controller fails LOW
6	MPP212 to 100%	I-BOP TS	S/G 11 Pressure Transmitter MPP-212 Fails High
7	RC10A ramp to 20% RC01A at 50% after 5 min.	Major	Large Break Loss of Coolant Accident on Loop 1 (Starts Out Slowly)
8	RP19D - Preload	C-RO	Slave Relay Failure: 1E RHR and SI Pumps Fail to Auto Start
9	WRHR	C-RO	1W RHR Pump Trips 15 minutes after SI

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

Summary

The scenario starts with the plant at 78% power. Power escalation has been on hold for 72 hours while repairs were made to the West MFW Pump oil leak.

The crew is directed to start the South NESW Pump and shutdown the North NESW pump. An AEO has been briefed and the starting party is ready for the pump start. After NESW Pumps have been swapped, the crew is directed to raise power.

The Loop 1 Hot Leg NTP-111 Temperature Transmitter fails high. The rods will insert and power will have to be restored. The crew will need to enter an Abnormal Operating Procedure, defeat the failed channel, address Technical Specifications, and restore rod control to auto.

The next event is a trip of the North Condensate Booster pump. This will result in reduced feedwater capability. BOP will be required to manually start the Middle Condensate Booster pump. Crew will be required to implement compensatory actions to stabilize the plant.

A short time later a failure of the Letdown Temperature controller will cause the transmitted value to the letdown heat exchanger temperature controller and temperature indicator to fail at the selected severity level. Selection of a severity level lower than the controller setpoint (normally 120°F.) will cause the letdown temperature control valve (CRV-470) to move to its fully closed position in AUTO. Actual letdown temperature will rise resulting in a rising VCT temperatures. The operator may limit the consequences of this malfunction by taking manual control of CRV-470.

Next SG 11 Pressure Channel MPP-212 will fail high, requiring the BOP to take manual control and close the SG PORV valve. The crew should implement an Abnormal Operating Procedure, stabilize the plant, trip bistables, and declare SG PORV Radiation Monitor Inoperable.

Shortly after the SG Pressure Channel failure, a LOCA will slowly develop resulting in a large break LOCA. The plant will trip and Safety Injection will actuate. As the crew performs the actions of E-0 they will note that the 1E RHR and SI pumps failed to auto start on the SI due to a slave relay K610 failure. The crew will transition to E-1 and to ES-1.3 to align for cold leg recirculation. The 1W RHR will trip 15 minutes into the event. The crew will have to align ECCS to the recirculation sump without the 1W RHR pump. The scenario will terminate when the crew has aligned ECCS for cold leg injection.

Critical Tasks

Establish Low Pressure SI (RHR)
Establish Cold Leg Recirculation

Procedures

E-0 Reactor Trip or Safety Injection
E-1 Loss of Reactor or Secondary Coolant
ES-1.3 Transfer to Cold Leg Recirculation

Facility: Cook Plant Unit 1 & Unit 2 Scenario No.: Cook 2010-02 Op-Test No.: Crews 1,2,& 3

Examiners: _____

Operators: _____

Initial Conditions: IC-38 ,100% pwr; 979 ppm Boron, 8 GWD, 556°F Tave, CBD @ 219 steps, 1107 MW

Turnover: Swap CCP pumps. 1E MDAFW OOS. 100% power, Blender line is full of PW. A Small Leak on the West MFW Pump will require a power reduction.

Event No.	Malf. No.	Event Type*	Event Description
1		N	Start West CCP and Stop East CCP (BOP Performs)
2		R	Lower Reactor Power and Turbine Load
3	RX21A @ 0	I-BOP TS	SG Feed Flow Instrument (FFC-210) fails LOW
4	NLP151 @ 0	I-RO TS	Controlling Pressurizer Level Channel (NLP-151) fails LOW
5	WCP	C-RO TS	West CCP pump trips (May insert prior to letdown restoration in event 4)
6	RX11D @100%	C-BOP TS	SG PORV Controller Failure
7	ED05H ED05D	M	Loss of Bus T11A due to fault on Bus 1A 1A RCP Bus Fault (Loss of RCS Flow in Loop 1)
8	TC02A RP07A RP07B	C-BOP	Main Turbine Fails to Trip/ Steam Line Auto Isolation Failure
9	FW51	C-BOP	TDAFW pump T&TV failure due to blown control power fuse West AFW pump power is lost (East AFW is OOS)

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

Summary

The scenario starts with the plant at 100% power. Power reduction is required due to a small West MFW Pump oil leak.

The crew is directed to start the West Charging Pump and shutdown the East Charging Pump. An AEO has been briefed and the starting party is ready for the pump start. After the Charging pumps have been swapped, the crew is directed to reduce power.

After a small power change, a LOW failure of #11 Steam Generator Feed Flow instrument (FFC-210) will occur. This will result in a rise in feedwater flow to #11 SG with corresponding SG level rise. The BOP will be required to take manual control of FRV-210. Crew will be required to implement AOP actions to stabilize the plant and trip bistables.

The controlling Pressurizer Level channel instrument (NLP-151) will fail LOW. This results in charging flow rising, Pressurizer level rising, Pressurizer heaters OFF, and letdown isolation. RO will be required to restore normal letdown and charging flow conditions. Crew will be required to implement AOP actions to stabilize the plant and trip bistables.

The West Charging Pump will trip. This will result in the loss of charging and letdown. RO will be required to manually start the East Charging Pump to restore charging flow. Crew will be required to take manual control of charging and restore letdown to stabilize the plant.

The next event will involve the failure of the SG #14 PORV Controller. The Controller will fail causing PORV 1-MRV-243 to Fully open. This will also cause Reactor power to slightly rise. The BOP will need to take manual action to close the PORV and the US will need to declare the associated radiation monitor inoperable.

The main event will involve the loss of RCP Bus 1A and Safety Bus T11A requiring a reactor trip. Failure of the Reactor Protection circuit will require a manual turbine trip. As the crew performs the actions of E-0, they should identify the failure to provide adequate feed flow. An SI is expected due to the failure of turbine to trip. The CSFST for Heat Sink will indicate RED due to the loss of all AFW. The crew will immediately transition to FR-H.1 and re-establish feedwater flow using the TD AFW pump. The scenario will terminate when the crew has established adequate feed flow.

Critical Tasks

Manually Trip Turbine/Isolate Steam Lines
Establish AFW flow for Secondary Heat Sink

Procedures

E-0, Reactor Trip or Safety Injection
FR-H.1, Loss of Secondary Heat Sink

Facility: Cook Plant Unit 1 & Unit 2Scenario No.: COOK 2010-03Op-Test No.: Crews 4 & 5Examiners: _____

_____Operators: _____

Initial Conditions: IC-37, 78% pwr, 1021 ppm Boron, 8 GWD, 554°F Tave, CBD @196 steps, 848 MW

Turnover: Swap Hotwell Pumps, West CCP is OOS for Oil Change this shift. Pump has been OOS for 2 Hours.

Event No.	Malf. No.	Event Type*	Event Description
1		N-BOP	Start South Hotwell pump and Stop North Hotwell Pump
2	NTP240 @ 620	I-RO TS	RCS Cold Leg Temperature Instrument (NTP-240) Fails HIGH
3	MFC140 @ 4E6 over 20 sec	I-BOP TS	#14 SG Steam Flow Transmitter (MFC-140) fails HIGH
4	RC17C to 50%	C-RO TS	Pressurizer PORV NRV-153 Fails Open.
5		R-RO	Lower Reactor Power and Turbine Load
6	FW05A	C-BOP	East Main Feed Pump Trip
7	FW05B	M	West Main Feed Pump Trip
8	RP03A RP03B	C-RO	AUTO/MANUAL Reactor trip actuation failure (ATWS)
9	MS01D @ 20 2 min Ramp	M	Steam Line Break inside Containment (#14 SG)
10	RP19J	C-RO	RPS relay K626-X3 failure (1East CTS pump fails to start)

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

Summary

The Crew is directed to start South Hotwell pump and stop North Hotwell Pump. Following the Hotwell pump shutdown, the crew is preparing to reduce power due to a small oil leak on the East MFP.

The RCS Loop 4 Cold Leg Temperature instrument (NTP-240) failing HIGH. This will result in the AUTO insertion of control rods and a lower trip setpoint value for OPΔT and OTΔT. The RO will be required to take manual control of rods to stop insertion. Crew will be required to implement AOP actions to stabilize the plant and trip bistables.

After the crew has addressed the RCS temperature the #14 SG Steam Flow instrument (MFC-140) failing HIGH. This will result in the opening of #14 SG FWRV (FRV-240) to raise feedwater flow. BOP will be required to take manual control and regulate FRV-240. Crew will be required to implement AOP actions to stabilize the plant and trip bistables.

The Pressurizer PORV NRV153 will fail partially Open. This results in Actual RCS pressure lowering. The RO will be required to take manual actions to isolate the PORV (close block valve) and restore normal pressure conditions.

Next a rapid power reduction is performed (Optional if reactivity change is required - note next event also involves a reactivity change which may be combined with this reactivity change) based on a report of an Oil leak on the East Main feed Pump.

A trip of the East Main Feed Pump will result in a rapid power reduction to less than 60% if not already performed. The RO will be required to control reactivity while the BOP monitors the SG levels.

The main event will involve a Failure of the RPS function (ATWS) following a trip of the remaining FW pump. The RPS failure also results in failure of K626-X3 relay which prevents the auto start of the East CTS pump. The reactor must be locally tripped. The crew will implement FR-S.1 actions until reactor is subcritical. A Steam Line Break will cause SG #14 to blow down inside Containment. The BOP will be required to isolate the main steam lines. After the reactor is subcritical, the crew will perform the actions of E-0 to verify the SI actions and then transition to E-2. The scenario will terminate when the crew has completed isolation of the faulted SG in FR-S.1 (and completed required steps of E-0) or E-2.

Critical Tasks

Insert Negative Reactivity
Isolate the Faulted Steam Generator

Procedures

E-0, Reactor Trip or Safety Injection
E-2, Faulted Steam Generator Isolation
FR-S.1, Response to Anticipated Trip without Scram

Facility: Cook Plant Unit 1 & Unit 2 Scenario No.: COOK2010-04 Op-Test No.: Crews 4 & 5

Examiners: _____

Operators: _____

Initial Conditions: IC-992, 53% pwr, 1100 ppm Boron, 8 GWD, 551.5°F Tave, CBD @ 184 steps, 550 MW.

Turnover: Start the #13 CW Pump. 1CD EDG has been out of service for one day for fuel rack repairs.

Event No.	Malf. No.	Event Type*	Event Description
1		N-BOP	Start Circulating Water Pump
2		R-RO	Raise Turbine and Reactor Power to 100%.
3	CV04C	C-RO	75 gpm Letdown Orifice Isolation Valve QRV-162 Fails Closed
4	ECC, CC02B – Preload	C-BOP TS	1E CCW pump Trips (1W CCW [Standby] Fails to Auto Start)
5	NPP151 to 2500 psig	I-RO TS	Pressurizer Pressure Channel NPP-151 Fails High
6	U1_BLP131 to 103 over 2 min	I-BOP TS	S/G 13 Level instrument (BLP-131) failing High
7	RC10D to 70%	M-ALL	Loop 4 Cold Leg Primary Coolant System 700gpm Leak inside Containment over 5 minutes
8	RP13A, RP13B – Preload	C-BOP	Failure of Automatic Phase A Actuation
9	RP19G, RP20G – Preload	C-RO	Slave Relay failures: High Head Charging SI valves fail to align

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

Summary

The Crew is directed to start the 13 CW Pump. The operator will place the 13 CW in service in accordance with the normal operating procedure. Following the CW pump start the crew will perform the power escalation to 80%.

After a short ramp the letdown orifice valve will fail closed. The RO will need to restore Letdown through a different valve.

While the RO is restoring letdown, a trip of the operating (East) Component Cooling Water (CCW) pump will require the BOP to manually start the standby pump (auto start failure).

After the Crew has addressed the Tech Specs for CCW, the Pressurizer Pressure Channel NPP-151 Fails High. Pressurizer spray valves will go full open. The crew will need to take manual control of pressurizer pressure and enter an Abnormal Operating Procedure, defeat the failed channel, address Technical Specifications, then restore pressurizer pressure control to auto.

Following RCS pressure restoration, the #13 Steam Generator Level instrument (BLP-131) fails High. This results in a lowering feedwater flow and Steam Generator level. BOP will be required to take manual control and restore normal level. Crew will be required to implement AOP actions to stabilize the plant and address Technical Specifications.

The major events will occur when the SG level has been stabilized. A 700 gpm Primary System Leak in Containment will occur requiring a Reactor Trip and SI. On the SI, various slave relay failures will cause the High Head Charging SI injection flowpath to fail to align. The RO will need to manually align the High Head Injection Valves. The auto Phase A Isolation will also fail requiring manual actuation to align Phase A equipment. The crew should progress through E-0 to E-1 to ES-1.2. The scenario will terminate once a transition has been made to ES-1.2.

Critical Tasks

Restore High Head Injection
Trip RCPs

Procedures

E-0 Reactor Trip or Safety Injection
E-1 Loss of Reactor or Secondary Coolant