

Facility: <u>Susquehanna LLC</u>		Date of Examination: <u>08/13/2000</u>
Examination Level (circle one): RO		Operating Test Number: <u>Cat A</u>
Administrative Topic/Subject Description		Describe method of evaluation: 1. ONE Administrative JPM, OR 2. TWO Administrative Questions
A.1	Plant Parameter Verification	Q.1. Based on given count rates the PCO will determine reactor period. K/A: 2.1.7
		Q.2. Given specific conditions during a plant startup, the PCO will perform alternate power determination. K/A: 2.1.7
	Logs and Log Keeping	Q.1. The PCO will assess instrument shift channel check data and determine the necessary actions when agreement criteria are not met. K/A: 2.1.7, 2.1.33
		Q.2. The PCO will assess jet pump performance and determine the required actions. K/A: 2.1.7, 2.1.18, 2.1.25 <i>Plant Modification Spring 2001: Jet Pump Riser Braces</i>
A.2	Tagging and Clearances	Q.1 The PCO will evaluate specific conditions and determine what restrictions apply to Post Maintenance Testing in the Energy Control Process (ECP). K/A: 2.2.13
		Q.2 The PCO will evaluate specific conditions and determine what requirements apply to perform a Change of Blocking in the Energy Control Process (ECP). K/A: 2.2.13
A.3	Radiation Exposure limits and contamination control	Q.1. Given an RWP and related survey sheet, determine the dose reduction measures that are effective in supporting the ALARA concept. K/A: 2.3.1, 2.3.4, 2.3.10
		Q.2. Given an RWP and related survey determine the radiation hazards and HP requirements because of those hazards. K/A: 2.3.1, 2.3.10

A.4	Emergency Communications	JPM: Given an emergency notification report the PCO will demonstrate the ability to implement the Control Room Communicator functions. K/A: 2.4.15
-----	--------------------------	---

ES-301-1

Facility: <u>Susquehanna LLC</u>		Date of Examination: <u>8/13/2001</u>
Examination Level (circle one): <u>SRO</u>		Operating Test Number: <u>Cat A</u>
Administrative Topic/Subject Description		Describe method of evaluation: 1. ONE Administrative JPM, OR 2. TWO Administrative Questions
A.1	Mode Changes	Q.1. The SRO will describe how to administratively determine that the required Technical Specifications are met prior to making a mode change. K/A: 2.1.7, 2.1.22
		Q.2. Given specific conditions the SRO will describe how do you apply LCO 3.0.4 during a Technical Specification required shutdown? K/A: 2.1.7, 2.1.12, 2.1.33
	Parameter Verification	Q.1. The SRO will assess chemistry data and determine the required actions. K/A: 2.1.34
		Q.2. The SRO will assess instrument shift channel check data and determine the necessary actions per Technical Specifications when agreement criteria are not met. K/A: 2.1.7, 2.1.12, 2.1.33
A.2	Surveillance Testing	Q.1. Given a missed surveillance the SRO will describe the required actions. K/A: 2.1.12, 2.2.12 LER: 99-007, 00-009, 00-011
		Q.2. Given a Violation of a license condition the SRO will describe the reporting requirements. K/A: 2.1.14
A.3		Q.1. Given an RWP and related survey sheet, determine the dose reduction measures that are effective in supporting the ALARA concept. K/A: 2.3.1, 2.3.4, 2.3.10
		Q.2. Given an RWP and related survey determine the radiation hazards and HP requirements because of those hazards. K/A: 2.3.1, 2.3.10

A.4		<p>JPM: SRO event classification.</p> <p>The SRO will classify events that have occurred during the operating test.</p> <p>K/A: 2.4.41</p>
-----	--	--

ES-301 Control Room Systems and Facility Walk-Through Test Outline Form ES-301-2

Facility: Susquehanna Date of Examination: 8/13/2001
 Exam Level (circle one): RO / SRO(I) / SRO(U) Operating Test No.: 1

B.1 Control Room Systems

System / JPM Title	Type Code*	Safety Function
1-1 (RO/SRO) Perform a manual startup of the SGTS IAW OP-070-001. 70.OP.004.101	D, S	9
1-2 (RO) Restore RFPT A Spd/Ctl Demand Signal from MSC/hyd jack operation IAW OP-145-001.	N, S, A	2
1-3 (RO/SRO) Perform a recovery from a RCIC system turbine trip with an initiation signal present IAW OP-150-001. 50.OP.005.153	D, S, A	4
1-4 (RO) Venting Drywell within off-site release limits – ES-173-001, Section 4.2, Vent Suppression Chamber using two inch vent bypass to SGTS. 73.EO.001.101 PRA: Containment Venting.	D, S	5
1-5 (RO) Start, synchronize, and load DG D for a maintenance test. 24.OP-003.101 as a template and after DG D is loaded a fault evidenced by annunciators requires the operator to shutdown the DG.	M, S, A	6
1-6 (RO/SRO) Bypass an IRM Channel Trip input. 73.OP.009.105	D, S, L	7
1-7 (RO) Bypass and reset Drywell Cooling logic and isolation IAW ES-134-001 34.EO.005.101	D, S	7

B.2 Facility Walk-Through		
1-8 (RO) Perform manual operation of the SRVs Valves from the Remote Shutdown Panel as required by ON-100-009. <i>PRA: SRV Operation outside the Control Room.</i>	N, E/A	3
1-9 (RO/SRO) Manually vent the scram air header 00.EO.017.101	D, E, R	1
1-10 (RO/SRO) Perform shutdown of A 250 VDC Battery Charger IAW OP-188-001 88.OP.002.103	D	6
* Type Codes: (D)irect from bank, (M)odified from bank, (N)ew, (A)lternate path, (C)ontrol room, (S)imulator, (L)ow-Power, (R)CA		

Susquehanna		Scenario No. 1		Operating Test No. 1	
Examiners:			Candidates:		
<p><u>Objectives</u></p> <p>The crew assumes the shift with the plant operating at 100% power. During a routine surveillance HPCI Valve Testing Surveillance SO-152-004 the outboard HPCI steam isolation valve HV-152-F003 will bind in the almost closed position. A tube leak in the 3B Feedwater Heater will require a power reduction. After the power reduction, the master feedwater controller will fail as-is. After the FWLC failure has been addressed and the controller placed into Manual, the generator will lockout. The resulting turbine trip will cause a scram and RWCU break in the drywell, which will cause a Plant Aux Loadshed, resulting in a loss of Condensate, Feedwater, Service Water and Circulating Water pumps. With limited high pressure injection (RCIC, CRD, SLC), RPV level will lower. RCIC will fail to auto start, requiring a manual start. RCIC will subsequently trip on overspeed and require resetting, but will continue to trip on overspeed. RPV level will lower to -161" (TAF) requiring an RPV Rapid Depressurization to allow the use of low pressure injection systems.</p> <p>Candidates must execute alarm response, normal, abnormal and emergency procedures and ensure compliance with Technical Specifications.</p> <p><i>PRA: Small Break Liquid LOCA</i></p>					
<p><u>Initial Conditions:</u> 100% Full Power Operation on both units (IC-182)</p>					
<p><u>Turnover:</u> Continue power operations. Conduct HPCI Valve Exercise Surveillance. Step 5.5 of the procedure is NOT required.</p>					
Event No.	Malf. No.	Type	Event Description		
1		N	(BOP/SRO) Perform HPCI Surveillance SO-152-004		
2	MV09:HV 155F003 5 0 100	C	(BOP/SRO) HPCI outboard steam isolation valve HV-150-003 binds and sticks at 5% open and cannot be closed. Valve must be isolated and declared INOP and enters the following T.S.: 3.5.1. ECCS Action D 3.6.1.3 PCIV Action A.1, A.2		
3	IMF HX02: 1E103B 8 0 0	C	(BOP/SRO) 8% Tube leak in 3B Feedwater Heater, enter ON-147-002 and ON-100-104		

4		R	(RO/SRO) Reduce Reactor Power with Recirculation Flow
5	FW145004C	I	(RO/SRO) Reactor Feedwater Pump control signal failure. Operator must take Manual Control the Feedpump
6	EG198004 RR164010, 10 0 0 (RI02:86GA)	M	<p>(Crew) Main Generator Lockout Relays trip causing a generator and turbine trip and reactor scram. The RWCU bottom head drain will break (10%) this will cause a high Drywell pressure and a load shed. Condensate, Feedwater, Service Water and Circulating Water pumps will trip. Drywell pressure and temperature rise, requiring Drywell Sprays. RPV level lowers to <TAF requiring Rapid Depressurization and LP injection to restore RPV level > TAF. The following procedures will be executed:</p> <p>EO-100-102, RPV CONTROL</p> <p>EO-100-103, PC CONTROL</p> <p>EO-100-112, RAPID DEPRESSURIZATION</p> <p>Entry to EO-100-102 RPV Control and ON-100-101 Reactor Scram will be required.</p> <p><i>PRA: Small Break Loss of Coolant Accident</i></p>
7	RC150001 RC150002	I	(BOP/SRO) When RCIC is required for injection, the auto start signal will fail, requiring manual start. Additionally, RCIC will trip on overspeed, and subsequent restart attempts will not be successful.

Susquehanna		Scenario No. 2		Operating Test No. 1	
Examiners:			Candidates:		
<p><u>Objectives:</u></p> <p>Crew must transfer loads from Transformer T-10 to SU Bus 20 per OP-003-001 to remove Startup Transformer T-10 from service for a maintenance inspection. When the transfer has been completed the normal supply breaker to 4KV bus 1A204 (ESS Bus 1D) will trip and the bus will transfer to its alternate source. This will cause a loss of equipment including RBCCW to the Drywell and B CRD Pump. Entry into ON-155-007, Loss of CRD Flow, will be required to start a CRD Pump.</p> <p>After the electrical system is stable HPCI will spuriously initiate and CANNOT be controlled using the flow controller. HPCI must be tripped and isolated. Reactor power must be lowered. After power has been stabilized the C APRM Flow unit will fail downscale causing a half scram requiring bypassing the flow unit and resetting the half scram. A loss of instrument air will require tripping the plant. When the mode switch is placed in Shutdown the rods do not fully insert due to a hydraulic ATWS. As actions progress the loss of instrument air will cause the MSIVs to close and power level will require entry into Level/Power Control.</p> <p>Candidates must execute alarm response, normal, abnormal and emergency procedures and ensure compliance with Technical Specifications.</p> <p><i>PRA: ATWS</i></p>					
<p><u>Initial Conditions:</u> 100% Full Power Operation on both units (IC-182)</p>					
<p><u>Turnover:</u></p> <p>Transfer loads from Startup Transformer T-10 to Startup Bus 20 per Section 3.7 of OP-003-001 to remove Startup Transformer T-10 from service for a maintenance inspection. Procedure has been completed up through step 3.7.1</p>					
Event No.	Malf. No.	Type	Event Description		
1		N	(BOP/RO/SRO) Transfer loads from Transformer T-10 to Startup Bus 20 per sect. 3.7 of OP-003-001		
2		C	(BOP/SRO) Breaker supplying 4KV Bus D (1A204) trips and the bus swaps to the alternate source, the momentary loss of power causes an isolation of RBCCW to the Drywell and a trip of CRD Pump B		

3	HP152004 CN02: FCE411R600 89 0 100	I	(BOP/SRO) Inadvertent HPCI initiation with a failure of the HPCI controller
4		R	(RO/SRO) Reactivity reduction to restore power following the HPCI injection.
5	NM178012 0%	I	(RO/SRO) APRM Flow Unit 1C will fail low causing a half scram
6	IA118002 2% to 20% over 20 min.	C	(BOP/SRO) Loss of Instrument Air as a break occurs on the common header. (4.5 minutes after malfunction is entered until first alarm.)
7	RD155017 RPB.HYD ATWS 1 RPB.STKR DS	M	(Crew) When the mode switch is placed in Shutdown the rods do not fully insert due to a hydraulic ATWS. As instrument air pressure lowers the bypass valves will close. <i>PRA: ATWS</i>

Susquehanna		Alternate Scenario		Operating Test No. 1	
Examiners:			Candidates:		
Objectives: The crew will assume the watch and perform SO-070-001, Monthly Standby Gas Treatment surveillance. The operator will NOT be able to confirm SBGT flow and the train must be shutdown and declared inoperable. Shortly after the actions are taken for SBGT a fire suppression actuation will occur in the HPCI Room due to a faulty Heat Detector (INPO Significant Event Report SER 3-98). The HPCI room will be flooded to a depth of 4 feet. HPCI should be declared inoperable. The Shift may request HPCI Aux Oil Pump breaker opened. If HPCI is used later, the Aux Oil Pump will short out due to the water damage. After operators have responded to the HPCI Room flooding pressure oscillations will begin due to an oscillation in the EHC System. The Crew must open a TBV and place the alternate pressure regulator in service. The ON will require the Crew to reduce power by five percent. After the power change a fuel cladding failure will become apparent and actions must be taken to remove the plant from service and isolate the MSIVs. During the isolation the inboard MSIVs will not automatically isolate and must be manually isolated and the "D" inboard MSIV (HV141-F022D) will not fully close. A steam line break will occur in the Pipe Tunnel, resulting in high area temperatures. The leak will become a rupture on the Reactor Building side of the pipe tunnel. The Crew will enter EO-104 based on high radiation and high area temperatures. With the existing failure of the inboard MSIV, the pipe tunnel will pressurize sufficiently to activate the blowout ducts. The crew will be notified of rising Off-Site dose rates reaching the levels requiring a General Emergency. As directed by the EOPs, the Crew will rapidly depressurize.					
Initial Conditions: 100% Full Power Operation, IC 182					
Turnover: Both units are operating at 100% power, continue power operations and perform SO-070-001, Monthly Standby Gas Treatment surveillance.					
Event No.	Malf. No.	Type	Event Description		
1		N	(BOP/SRO) Perform SO-070-001, Monthly Standby Gas Treatment surveillance.		
2		I	(BOP/SRO) Recognize failure of SBGT flow instrument, shutdown SBGT and declare inoperable		
3	FD0130 02	I	(BOP/SRO) Fire suppression actuation in the HPCI Room (Heat Sensor X228_Z7 fails high)		

4	TC1930 03	I	(RO/SRO) Reactor pressure oscillations caused by EHC pressure regulator malfunction.
5		R	(RO/SRO) Power reduction
6	RR1790 03	C	(BOP/SRO) Fuel failure with a steam leak in the Steam Tunnel
7		C	(BOP/SRO) Failure of MSIVs to auto isolate (Failure of "D" Inboard MSIV to fully close).
8		M	(Crew) Steam line rupture requiring Rapid Depressurization