

**INITIAL SUBMITTAL OF OUTLINE FOR THE  
DAVIS-BESSE EXAMINATION THE WEEK OF OCTOBER 2, 2000**

Guy G. Campbell  
Vice President - Nuclear

419-321-8588  
Fax: 419-321-8337

Docket Number 50-346

License Number NPF-3

Serial Number 1-1215

Mr. H. Peterson  
Operator License Examiner – Region III  
United States Nuclear Regulatory Commission  
801 Warrenville Road  
Lisle, IL 60532-4351

Subject: Operator License Examination Outline

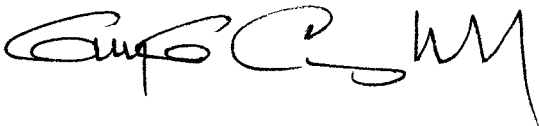
Dear Mr. Peterson:

Enclosed is the operator license examination outline required to support the operator license examinations being administered at the Davis-Besse Nuclear Power Station (DBNPS) during the week of October 2, 2000. This examination outline is considered confidential material and shall be withheld from public disclosure until after the scheduled operator examinations are complete.

Mr. Donald Bondy, Senior Nuclear Instructor, or Mr. Brian Young, Lead Nuclear Instructor, can respond to questions with regard to the submitted materials, at (419) 321-8275 or (419) 321 8497, respectively.

If you require additional information, please contact Mr. David H. Lockwood, Manager – Regulatory Affairs, at (419) 321-8450.

Sincerely yours,



DLM/dlc  
Enclosures

cc: S. P. Sands, DB-1 NRC/NRR Project Manager w/o  
K. S. Zellers, DB-1 Senior Resident Inspector w/o  
USNRC Document Control Desk w/o  
Utility Radiological Safety Board w/o

JUL 31 2000

Docket Number 50-346  
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Attachment  
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### **COMMITMENT LIST**

The following list identifies those actions committed to by the Davis-Besse Nuclear Power Station in this document. Any other actions discussed in the submittal represent intended or planned actions by Davis-Besse. They are described only as information and are not regulatory commitments. Please notify the Manager – Regulatory Affairs (419)321-8450 at Davis-Besse of any questions regarding this document or associated regulatory commitments.

#### **COMMITMENTS**

None

#### **DUE DATE**

N/A

Facility: Davis Besse Nuclear Power StationDate of Examination: 010/2/2000Examination Level (circle one): RO / SROOperating Test Number: 1

Administrative Topic/Subject Description		Describe method of evaluation: 1. ONE Administrative JPM, OR 2. TWO Administrative Questions
A.1	2.1.05 Shift Staffing	Call Out Proper Relief for Replacement of a Safe Shutdown Equipment Operator.
	2.1.33 Recognize entry conditions for Technical Specifications	Perform a Second Check on a Shutdown Margin Calculation and Find Shutdown Margin is < 1%.
A.2	2.2.13 Tagging and Clearance Procedures	Review and Approve a Clearance
A.3	2.3.08 Perform a Planned Gaseous Release	Approve a Waste Gas Release with No Radiation Monitors Available.
A.4	2.4.41 EAL Thresholds and Classifications	Perform an Off-site Dose Calculation and Upgrade to a General Emergency.

Facility: Davis Besse Nuclear Power Station  
 Exam Level (circle one): RO / SRO(I) / **SRO(U)**

Date of Examination: 10/2/2000  
 Operating Test No.: \_\_\_\_\_

### B.1 Control Room Systems

System / JPM Title	Type Code*	Safety Function
a. Establish Long Term Boron Dilution using LPI Train 2.	N, S, A, L	2-ESF
b. Perform Operator Actions for a High Steam Generator Level due to a SGTR.	M, S, L	7
c.		
d.		
e.		
f.		
g.		

### B.2 Facility Walk-Through

a. Serious Control Fire, Assistant Shift Supervisor Actions (EDG and High Voltage Switchgear Room)	M, L	6
b. Locally Operate the AFW Turbine.	M, A	Secondary 4
c. CRD (Dropped Control Rod) / Clear Asymmetric Fault	D,R	1

\* 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

ORIGINAL SUBMITTAL OF OUTLINE

ES-301

Simulator Scenario Quality Checklist

Form ES-301-4

Facility: Davis-Besse Nuclear Power Station Date of Exam: 10/2/2000 Scenario Numbers: / / Operating Test No.:				
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.	BY	GLA	AP
2.	The scenarios consist mostly of related events.	BY	GLA	AP
3.	Each event description consists of <ul style="list-style-type: none"> <li>the point in the scenario when it is to be initiated</li> <li>the malfunction(s) that are entered to initiate the event</li> <li>the symptoms/cues that will be visible to the crew</li> <li>the expected operator actions (by shift position)</li> <li>the event termination point (if applicable)</li> </ul>	BY	GLA	NE
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.	BY	GLA	AP
5.	The events are valid with regard to physics and thermodynamics.	BY	GLA	NE
6.	Sequencing and timing of events is reasonable, and allows the examination team to obtain complete evaluation results commensurate with the scenario objectives.	BY	GLA	NE
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.	BY	GLA	NE
8.	The simulator modeling is not altered.	BY	GLA	NE
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.	BY	GLA	NE
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.	BY	GLA	AP
11.	All individual operator competencies can be evaluated, as verified using Form ES-301-6 (submit the form along with the simulator scenarios).	BY	GLA	AP
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).	BY	GLA	AP
13.	The level of difficulty is appropriate to support licensing decisions for each crew position.	BY	GLA	AP
<b>TARGET QUANTITATIVE ATTRIBUTES (PER SCENARIO; SEE SECTION D.4.D)</b>		<b>Actual Attributes</b>	--	--
1.	Total malfunctions (5-8)	6 / 5 / 7	BY	GLA
2.	Malfunctions after EOP entry (1-2)	2 / 1 / 1	BY	GLA
3.	Abnormal events (2-4)	3 / 3 / 3	BY	GLA
4.	Major transients (1-2)	1 / 1 / 2	BY	GLA
5.	EOPs entered/requiring substantive actions (1-2)	1 / 1 / 2	BY	GLA
6.	EOP contingencies requiring substantive actions (0-2)	0 / 1 / 0	BY	GLA
7.	Critical tasks (2-3)	2 / 2 / 2	BY	GLA

xx Not yet evaluated - until receive actual exam material AP

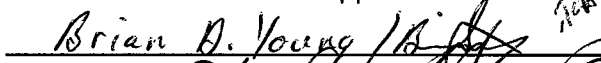
## OPERATING TEST NO.:

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				
	Normal	0				
	Instrument	1				
	Component	1				
	Major	1				
SRO-I	Reactivity	0				
	Normal	1				
	Instrument	1				
	Component	1				
	Major	1				
SRO-U	Reactivity	0	1	1	0	
	Normal	1	1	1	1	
	Instrument	1	23	2	1	
	Component	1	2	2	5	
	Major	1	1	1	2	

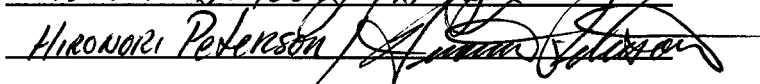
## Instructions:

- (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:



Chief Examiner:



Competencies	Applicant #1 RO/SRO-I/SRO-U			Applicant #2 RO/SRO-I/SRO-U			Applicant #3 RO/SRO-I/SRO-U		
	SCENARIO			SCENARIO			SCENARIO		
	1	2	3	1	2	3	1	2	3
Understand and Interpret Annunciators and Alarms	2,3,6,8				3,4,5,7				1,2,3,4,5,6,7,9
Diagnose Events and Conditions	2,3,6,7,8				3,4,5,6,7				2,3,4,5,6,7,8,9
Understand Plant and System Response	2,4,6,7				2,3,4,5,6				1,2,3,4,5,6,8,9
Comply With and Use Procedures (1)	1,2,3,4,5,6,7				1,2,3,4,5,6,7				1,2,3,4,5,6,8,9
Operate Control Boards (2)									
Communicate and Interact With the Crew	2,3,4,5,6,7				1,2,3,4,5,6,7				1,2,3,4,5,6,7,8,9
Demonstrate Supervisory Ability (3)	2,3,5,6,7,8				1,2,3,4,5,6,7				1,2,3,4,5,6,8,9
Comply With and Use Tech. Specs. (3)	2,3,6,7,8				3,4,5,7				2,4,5,7,8,9
<b>Notes:</b> (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:

Brian D. Young / B Dy <sup>2/28</sup>

Chief Examiner:

Helen Petersen / Helen Petersen



Facility: Davis-Besse NPS Scenario No.: 1 Op-Test No.: 1

Examiners: \_\_\_\_\_ Operators: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Objectives: The candidates are to (1) perform the operator actions required for testing the Main Turbine Stop valves, (2) implement the actions for a power range nuclear instrument failing high, (3) determine the need to trip Reactor Coolant Pump 2-2 and reduce power, (4) determine the need to trip the reactor due a secondary steam leak that is hazardous to personnel, (5) successfully trip the reactor when the Reactor Protection System fails insert the control rods, (7) identify that Steam Generator 1 has an unisolable steam leak and (8) recognize that the Steam and Feed Rupture Control System has failed to align the Auxiliary Feedwater system properly and then place the appropriate components in their required configuration.

Turnover: Plant is at 100% power. Planned: Perform DB-SS-04150, Main Turbine Stop Valve Test. In Progress: Release of the Miscellaneous Waste Monitor tank at 25 gpm. Equipment OOS: Stator Coolant Pump B for motor replacement and Station Air Compressor 1 for PMs.

Event No.	Malf. No.	Event Type*	Event Description
1		N(BOP)	Main Turbine Stop valve testing.
2	IMF R3N5 100 IMF R3N1 100	I(RO)	Power Range Nuclear Instrument, NI 5, fails high after Stop valve testing.
3	IMF H104E 1.0	C(RO)	High vibrations on Reactor Coolant Pump 2-2 ramping in over 15 minutes after RPS channel 2 is placed in bypass.
4		R(RO)	Reduce reactor power from 100% to 72% for tripping RCP 2-2.
5	IMF SAM5 0.009	C(BOP)	An isolable steam leak on Main Steam line 1 in the Turbine Building that is a personnel hazard.
6	IMF L4 TRUE IMF L7 TRUE IMF L8 TRUE IMF L502Q TRUE IMF L502C TRUE	I(RO)	Reactor Protection System will fail to trip the reactor automatically or manually, ATWS.
7	IMF SA03C TRUE	M(AII)	Fail open a Main Steam Safety Valve on Main Steam line 1.

8	IMF F30AB TRUE IMF F30BB TRUE IMF F30CB TRUE IMF F30DB TRUE	I(BOP)	Fail Steam and Feed Rupture Control System to automatically to actuate due to the low pressure in Steam Generator 1.
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\* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

Facility: Davis-Besse NPS Scenario No.: 2 Op-Test No.: 1

Examiners: \_\_\_\_\_ Operators: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Objectives: The candidates are to (1) perform a power decrease beginning at 60% power to ~50%, (2) shutdown MFPT 1, (3) identify the loss of a Condensate pump due to a lock out of C2 bus and reduce power to meet the capacity of one Condensate pump, (4) identify the selected Pressurizer level transmitter has failed low and perform the required operator actions, (5) recognize a small Reactor Coolant system leak and perform the required operator actions, (6) identify that Reactor Coolant system leak rate has increased and (7) perform the necessary actions for the Safety Features Actuation system failing to activate at < 1650 psig in the Reactor Coolant system.

Turnover: Plant is currently at ~60%, Planned: Continue to lower power to 50% at 5 MWe/minute for weekend load following, and shutdown Main Feedwater Pump 1 for work on the Lube Oil system. In Progress: Release of the Miscellaneous Waste Monitor tank at 25 gpm. Equipment OOS: TPCW Pump 1 for PMs.

Event No.	Malf. No.	Event Type*	Event Description
1		R(RO)	Lower power from 60% to 50% for the shutdown of Main Feedwater Pump 1.
2		N(BOP)	Shutdown MFPT 1.
3	IMF E1AC TRUE IRF E229 1.0	C(BOP)	Lockout 4160 Volt Bus C2 and AC Transformer after MFPT 1 is shutdown.
4	IMF H150E 1.0	I(RO)	Pressurizer Level Instrument, LT RC14A1, failed low.
5	IMF HH42 0.00005	C(RO)	Small Reactor Coolant System leak of 50 gpm.
6	IMF HH46 0.0009	M(All)	Medium sized break of 1000 gpm in the Reactor Coolant System.
7	IMF L6ADC TRUE IMF L6ACDC TRUE IMF L6ABDC TRUE IMF L6ADDC TRUE	I(RO)	Safety Features Actuation System fails to actuate at < 1650 psig in the Reactor Coolant System.

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

Facility: Davis-Besse NPS Scenario No.: 3 Op-Test No.: 1

Examiners: \_\_\_\_\_ Operators: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Objectives: The candidates are to (1) perform the necessary operator actions to raise Reactor power in order to lift off of Low Level Limits, (2) perform the required operator actions for a loss of Service Water pump supplying primary loads and align Service Water pump 3 as 2, (3) recognize the Turbine Header Pressure transmitter has failed to mid-scale and take the necessary actions to stabilize the plant, (4) identify a Steam Generator Tube Leak of 1 gpm and being a plant shutdown (5) identify a loss of Make-up Pump 1 and take the necessary actions to cover from a loss of Make-up, (6) recognize the Steam Generator Tube Leak Rate has increase to 150 gpm and take the actions for a Steam Generator Tube Rupture, (7) recognize the failure of Emergency Diesel Generator 2 to automatically start and take the actions to recover at least one of the essential 4160V buses and (8) identify an overcooling event due to a Turbine Bypass valve failing open and take the necessary actions to isolate the Turbine Bypass valve.

Turnover: Reactor power is 28%. Planned: Lift off of Low Level Limits. In Progress: Release of the Miscellaneous Waste Monitor tank at 25 gpm. Equipment OOS : EDG 1 to change out contaminated lube oil, SAC 1 for PMs.

Event No.	Malf. No.	Event Type*	Event Description
1		N(BOP)	Raise reactor power from 28% to 35% to lift of Low Level Limits.
2	IMF KEP115 TRUE	C(RO)	Service Water pump 1, supplying Primary loads, has sheared shaft.
3	IMF L1T2N 0.5	I(BOP)	Turbine Header Pressure transmitter fails to mid-scale.
4	IMF HH51 0.001	C(BOP)	Steam Generator tube leak of 1 gpm in Steam Generator 1.
5	IMF BME5J 0.3	C(RO)	Oil leak on Makeup Pump 2.
6	IMF HH51 0.035	M(All)	Steam Generator Tube Rupture of 150 gpm in Steam Generator 1.
7	IMF P8BJ TRUE IMF P8BK TRUE	M(All)	Lockout of J and K buses when the Main Turbine is tripped.
8	IMF G532B TRUE	C(RO)	Emergency Diesel Generator 2 will fail to automatically start.

9	IMF SA34D TRUE IMF F300 TRUE	C(BOP)	Turbine Bypass Valve on Main Steam line 1 will fail open on Reactor Trip and SFRCS will fail to automatically actuate.
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\* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

Facility: Davis-Besse Nuclear Power Station Date of Exam: 10/2/2000 Exam Level: USRO													
Tier	Group	K/A Category Points											Point Total
		K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G *	
1. Emergency & Abnormal Plant Evolutions	1	3	3	5				5	4			4	24
	2	3	2	2				3	3			3	16
	3	1	1	0				0	0			1	3
	Tier Totals	7	6	7				8	7			8	43
2. Plant Systems	1	3	2	1	3	1	2	1	2	1	2	1	19
	2	2	0	2	1	1	2	1	2	2	3	1	17
	3	0	0	0	1	1	0	0	0	2	0	0	4
	Tier Totals	5	2	3	5	3	4	2	4	5	5	2	40
3. Generic Knowledge and Abilities						Cat 1	Cat 2	Cat 3	Cat 4				
						5	4	4	4	17			
<p>Note: 1. Ensure that at least two topics from every K/A category are sampled within each tier (i.e., the "Tier Totals" in each K/A category shall not be less than two).</p> <p>2. Actual point totals must match those specified in the table.</p> <p>3. Select topics from many systems; avoid selecting more than two or three K/A topics from a given system unless they relate to plant-specific priorities.</p> <p>4. Systems/evolutions within each group are identified on the associated outline.</p> <p>5. The shaded areas are not applicable to the category/tier.</p> <p>6.* The generic K/As in Tiers 1 and 2 shall be selected from Section 2 of the K/A Catalog, but the topics must be relevant to the applicable evolution or system.</p> <p>7. On the following pages, enter the K/A numbers, a brief description of each topic, the topics' importance ratings for the RO license level, and the point totals for each system and category. K/As below 2.5 should be justified on the basis of plant-specific priorities. Enter the tier totals for each category in the table above.</p>													

ES-401		PWR SRO Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1/Group 1							Form ES-401-3	
E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G	K/A Topic(s)	Imp.	Points	
000001 Continuous Rod Withdrawal / 1				1			AA1.01 - Bank select switch	3.2	1	
000003 Dropped Control Rod / 1			1				AK3.08 -Criteria for inoperable control rods	4.2	1	
000005 Inoperable/Stuck Control Rod / 1						1	2.1.07 - Ability to eval. plant perf. & make operational judgements	4.4	1	
000011 Large Break LOCA / 3				1			EA1.11 - Long-term cooling of core	4.2	1	
000015/17 RCP Malfunctions / 4		1					AK2.10 - RCP indicators and controls	2.8	1	
000015/17 RCP Malfunctions / 4					1		AA2.11 - When to jog RCPs during ICC	3.8	1	
BW/E09; CE/A13; W/E09&E10 Natural Circ. / 4				1			EA1.03 - Desired operating results during abnormal and emerg. situations	3.7	1	
000024 Emergency Boration / 1	1						AK1.02 - Relationship between boron addition and reactor power	3.9	1	
000026 Loss of Component Cooling Water / 8			1				AK3.04 - Effect on the CCW flow header of a loss of CCW	3.7	1	
000029 Anticipated Transient w/o Scram / 1						1	2.4.49 - Ability to perf. w/o proced. actions that require immed. ops	4.0	1	
000040 (BW/E05; CE/E05; W/E12) Steam Line Rupture - Excessive Heat Transfer / 4		1					EK2.02 - Relation between operation of heat removal sys. to plant ops	4.4	1	
CE/A11; W/E08 RCS Overcooling - PTS / 4	1						EK1.02 - Procedures associated with PTS	4.0	1	
000051 Loss of Condenser Vacuum / 4						1	2.1.20 - Ability to execute procedure steps	4.2	1	
000055 Station Blackout / 6				1			EA1.04 - Reduction of loads on the battery	3.9	1	
000057 Loss of Vital AC Elec. Inst. Bus / 6			1				AK3.01 - Actions contained in EOP for loss of vital ac elect. inst. bus	4.4	1	
000059 Accidental Liquid RadWaste Rel. / 9					1		AA2.02 - The permit for liquid radioactive-waste release	3.9	1	
000062 Loss of Nuclear Service Water / 4			1				AK3.02 - The auto. actions within the SWS resulting from EFAS actuation	3.9	1	
000067 Plant Fire On-site / 9	1						AK1.02 - Fire fighting	3.9	1	
000068 (BW/A06) Control Room Evac. / 8		1					AK2.03 - Controllers and positioners	3.1	1	
000069 (W/E14) Loss of CTMT Integrity / 5			1				AK3.01 - Guidance contained in the EOP for loss of CTMT integrity	4.2	1	
000074 (W/E06&E07) Inad. Core Cooling / 4						1	2.4.07 - Knowledge of event based EOP mitigation strategies	3.8	1	
BW/E03 Inadequate Subcooling Margin / 4					1		EA2.01 - Selection of appropriate proced. during abnormal & emerg. ops	4.0	1	
000076 High Reactor Coolant Activity / 9					1		AA2.02 - Corrective actions required for high activity in RCS	3.4	1	
BW/A02&A03 Loss of NNI-X/Y / 7				1			A02-AA1.01 - Components and functions of control and safety systems	3.8	1	
K/A Category Totals:	3	3	5	5	4	4	Group Point Total:		24	

ES-401		PWR SRO Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1/Group 2						Form ES-401-3	
E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G	K/A Topic(s)	Imp.	Points
000007 (BW/E02&E10; CE/E02) Reactor Trip - Stabilization - Recovery / 1		1					E10-EK2.02 - Relation between operation of ht. removal sys. to plant ops	4.0	1
BW/A01 Plant Runback / 1			1				AK3.02 - Procedures associated with Plant Runback	3.6	1
BW/A04 Turbine Trip / 4	1						AK1.02 - Procedures associated with Turbine Trip	3.8	1
000008 Pressurizer Vapor Space Accident / 3	1						AK1.01 - Thermo. and flow characteristics of open or leaking vlvs	3.7	1
000009 Small Break LOCA / 3					1		EA2.33 -RCS water inventory balance and Tech-spec limits	3.8	1
BW/E08; W/E03 LOCA Cooldown - Depress. / 4						1	2.4.09 - Knowledge of low pwr/shutdown implications in accid. mitigation	3.9	1
W/E11 Loss of Emergency Coolant Recirc. / 4									
000022 Loss of Reactor Coolant Makeup / 2				1			AA1.09 - RCP seal flows, temperature, pressure and vibrations	3.3	1
000025 Loss of RHR System / 4					1		AA2.02 - Leakage of RC from RHR into closed clng wtr sys. or CTMT	3.8	1
000027 Pressurizer Pressure Control System Malfunction / 3						1	2.4.04 - Ability to recognize abnormal indications which are entry conditions into EOP and AOP.	4.3	1
000032 Loss of Source Range NI / 7					1		AA2.07 - Maximum allowable channel disagreement	3.4	1
000033 Loss of Intermediate Range NI / 7									
000037 Steam Generator Tube Leak / 3			1				AK3.05 - Actions in proced. for rad monitoring, wtr bal, SGTL and plnt S/D	4.0	1
000038 Steam Generator Tube Rupture / 3		1					EK2.02 -Sensors and Detectors	2.5	1
000054 (CE/E06) Loss of Main Feedwater / 4						1	2.4.18 - Knowledge of the specific bases for EOPs.	3.6	1
BW/E04; W/E05 Inadequate Heat Transfer - Loss of Secondary Heat Sink / 4	1						EK1.02 - Procedures associated with Inadequate heat transfer	4.2	1
000058 Loss of DC Power / 6				1			AA1.03 - Vital and battery bus components	3.3	1
000060 Accidental Gaseous Radwaste Rel. / 9									
000061 ARM System Alarms / 7									
W/E16 High Containment Radiation / 9									
000065 Loss of Instrument Air / 8				1			AA1.03 -Restoration of systems served by IA when press is regained	3.1	1
CE/E09 Functional Recovery									
K/A Category Point Totals:	3	2	2	3	3	3	Group Point Total:		16



ES-401		PWR SRO Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1/Group 3						Form ES-401-3	
E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G	K/A Topic(s)	Imp.	Points
000028 Pressurizer Level Malfunction / 2		1					AK2.02 - Sensors and detectors	2.7	1
000036 (BW/A08) Fuel Handling Accident / 8									
000056 Loss of Off-site Power / 6									
BW/E13&E14 EOP Rules and Enclosures	1						E13-EK1.02 - Procedures associated with EOP Rules	3.6	1
BW/A05 Emergency Diesel Actuation / 6						1	2.2.21 - Knowledge of pre and post maint. operability requirements	3.5	1
BW/A07 Flooding / 8									
CE/A16 Excess RCS Leakage / 2									
W/E13 Steam Generator Over-pressure / 4									
W/E15 Containment Flooding / 5									
K/A Category Point Totals:	1	1	0	0	0	1	Group Point Total:		3

ES-401		PWR SRO Examination Outline Plant Systems - Tier 2/Group 1										Form ES-401-3		
System # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)	Imp.	Points
001 Control Rod Drive									1			A3.05 - Individual vs. group rod position	3.5	1
003 Reactor Coolant Pump								1				A2.02 - Conditions for abn S/D of an RCP	3.9	1
004 Chemical and Volume Control										1		A4.01 - Boron and CR reactivity effects	3.9	1
013 Engineered Safety Features Actuation		1										K2.01 - ESFAS Equipment Control	3.8	1
013 Engineered Safety Features Actuation							1					A1.01 - RCS pressure and temperature	4.2	1
014 Rod Position Indication				1								K4.06 - Individual and group misalignment	3.7	1
015 Nuclear Instrumentation										1		A4.01 - Selection of controlling NIS channel	3.6	1
017 In-core Temperature Monitor				1								K4.01 - Input to subcooling monitors	3.7	1
022 Containment Cooling								1				A2.04 - Loss of service water	3.2	1
025 Ice Condenser														
026 Containment Spray	1											K1.01 - ECCS	4.2	1
056 Condensate	1											K1.03 - MFW	2.6	1
059 Main Feedwater				1								K4.18 - Automatic FW reduction on plant trip	3.0	1
059 Main Feedwater											1	2.1.23 - Ability to perf sys and integ plnt procd	4.0	1
061 Auxiliary/Emergency Feedwater		1										K2.01 - AFW system MOVs	3.3	1
061 Auxiliary/Emergency Feedwater					1							K5.01 - Relationship between AFW & RCS hx	3.9	1
063 DC Electrical Distribution			1									K3.02 - Components using DC control power	3.7	1
068 Liquid Radwaste						1						K6.10 - Radiation monitors	2.9	1
071 Waste Gas Disposal						1						K6.10 - Surge and decay tanks	2.5	1
072 Area Radiation Monitoring	1											K1.01 - Plant ventilation systems	3.5	1
K/A Category Point Totals:	3	2	1	3	1	2	1	2	1	2	1	Group Point Total:		19

ES-401		PWR SRO Examination Outline Plant Systems - Tier 2/Group 2										Form ES-401-3		
System # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)	Imp.	Points
002 Reactor Coolant			1									K3.03 - Containment	4.6	1
006 Emergency Core Cooling			1									K3.03 - Containment	4.4	1
010 Pressurizer Pressure Control						1						K6.03 - Pzr sprays and heaters	3.6	1
011 Pressurizer Level Control							1					A1.01 - Pzr level and pressure	3.6	1
012 Reactor Protection										1		A4.04 - Bistables, trips, reset and test sw.	3.3	1
016 Non-nuclear Instrumentation											1	2.1.31 - Ability to locate CTRM controls	3.9	1
027 Containment Iodine Removal														
028 Hydrogen Recombiner and Purge Control										1		A4.03 - Loc and ops of H2 sampling & anlys.	3.3	1
029 Containment Purge								1				A2.03 - S/U ops & vlv lineups	3.1	1
033 Spent Fuel Pool Cooling									1			A3.02 - Spent fuel leak or rupture	3.1	1
034 Fuel Handling Equipment														
035 Steam Generator									1			A3.01 - SG water level control	3.9	1
039 Main and Reheat Steam					1							K5.05 - Bases for RCS cooldown limits	3.1	1
055 Condenser Air Removal				1								K4.02 - Effluent control and monitoring	2.6	1
062 AC Electrical Distribution										1		A4.01 - All breakers (including switchyard)	3.1	1
064 Emergency Diesel Generator						1						K6.07 - Air receivers	2.9	1
073 Process Radiation Monitoring														
075 Circulating Water	1											K1.01 - SWS	2.5	1
079 Station Air														
086 Fire Protection								1				A2.02 - Low FPS header pressure	3.3	1
103 Containment	1											K1.02 - CTMT isolation/CTMT integrity	4.1	1
K/A Category Point Totals:	2	0	2	1	1	2	1	2	2	3	1	Group Point Total:		17

ES-401		PWR SRO Examination Outline Plant Systems - Tier 2/Group 3											Form ES-401-3	
System # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)	Imp.	Points
005 Residual Heat Removal					1							K5.09 - Dilution and boration considerations	3.4	1
007 Pressurizer Relief/Quench Tank									1			A3.01 - Components which disch to the PRT	2.9	1
008 Component Cooling Water				1								K4.02 - Ops of surge tk, vlvs and controls	2.7	1
041 Steam Dump/Turbine Bypass Control									1			A3.02 - RCS press, RCS temp & Rx pwr	3.4	1
045 Main Turbine Generator														
076 Service Water														
078 Instrument Air														
K/A Category Point Totals:	0	0	0	1	1	0	0	0	2	0	0	Group Point Total:		4
Plant-Specific Priorities														
System / Topic		Recommended Replacement for...					Reason					Points		
Plant-Specific Priority Total: (limit 10)														

Facility: Davis-Besse Nuclear Power Station Date of Exam: 10/2/2000 Exam Level: USRO				
Category	K/A #	Topic	Imp.	Points
Conduct of Operations	2.1.04	Knowledge of staffing requirements	3.4	1
	2.1.12	Ability to apply T.S. for a system	4.0	1
	2.1.25	Ability to use reference materials	3.1	1
	2.1.32	Ability to explain & apply limits & precautions	3.8	1
	2.1.33	Ability to recognize entry conditions for T.S.	4.0	1
	2.1.			
	Total			5
Equipment Control	2.2.06	Knowledge of making changes to procedures	3.3	1
	2.2.13	Knowledge of tagging & clearance procedures	3.8	1
	2.2.25	Knowledge of bases for LCOs & safety limits	3.7	1
	2.2.26	Knowledge of refueling admin requirements	3.7	1
	2.2.			
	2.2.			
	Total			4
Radiation Control	2.3.04	Knowledge of rad limits & contamination ctrl	3.1	1
	2.3.06	Knowledge of approving a release permit	3.1	1
	2.3.08	Knowledge of performing a gaseous release	3.2	1
	2.3.11	Ability to control radiation releases	3.2	1
	2.3.			
	2.3.			
	Total			4
Emergency Procedures/ Plan	2.4.38	Ability to take actions in the E-Plan	4.0	1
	2.4.40	Knowledge of SRO responsibilities in E-Plan	4.0	1
	2.4.43	Knowledge of communications systems	3.5	1
	2.4.44	Knowledge of E-Plan PARs	4.0	1
	2.4.			
	2.4.			
	Total			4
Tier 3 Point Total (RO/SRO)				13/17