EXAMINATION OUTLINE SUBMITTAL FOR THE

POINT BEACH NUCLEAR PLANT INITIAL EXAMINATION

JULY 2007

April 10, 2007

NRC 2007-0016

Mr. Hironori Peterson, Chief
Operations Branch
U. S. Nuclear Regulatory Commission
2443 Warrenville Road, Suite 210
Lisle, IL 60532-4352

Point Beach Nuclear Plant, Units 1 and 2
Dockets 50-266 and 50-301
Renewed License Nos. DPR-24 and DPR-27

Initial Operator License Examination Outline

Reference: NRC to NMC Letter dated March 2, 2007

In accordance with the requirements listed in the referenced letter, Nuclear Management Company, LLC (NMC) is submitting the initial license examination outline for the Point Beach Nuclear Plant. This submittal is made in accordance with the provisions of NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," Revision 9. The initial license examination is scheduled for July 9-17, 2007. The following materials are enclosed:

- One Form ES-201-2, Examination Outline Quality Checklist
- Two Forms ES-301-1, Administrative topics Outline (one each for Reactor Operator [RO] and Senior Reactor Operator [SRO])"
- Two Forms ES-301-2, Control Room/In-Plant Systems Outline (RO and SRO)
- Three ES-301-5, Transient and Event Checklist (one for each crew)
- Four Forms ES-D-1, Scenario Outline (one for each projected scenario)
- Two Forms ES-401-2, Pressurized Water Reactor (PWR) SRO Examination Outline, and one associated Form ES-401-3, Generic Knowledge and Abilities Outline (Tier 3)
- One Form ES-401-4, Record of Rejected Knowledge, Skills and Abilities
- One Description of Random Sampling Methodology, and Knowledge and Ability Suppression Report

ENCLOSURE TO BE WITHHELD FROM PUBLIC DISCLOSURE UNTIL EXAMINATIONS ARE COMPLETE

Pursuant to the provisions of NUREG-1021, Revision 9, these materials shall be withheld from public disclosure until after the examinations are complete.

Please contact Mr. Randall Amundson at 920/755-6860 if you have questions regarding this submittal.

Dennis L. Koehl
Site Vice-President, Point Beach Nuclear Plant
Nuclear Management Company, LLC

Enclosure

Facility: Point Beach Nuclear Plant Date of Examination: 07/09/07

Item	Task Description	Initials a	b*	c#
1. WRITTEN	a. Verify that the outline(s) fit(s) the appropriate model, in accordance with ES-401.	R-1	T	nav
	b. Assess whether the outline was systematically and randomly prepared in accordance with Section D.1 of ES-401 and whether all K/A categories are appropriately sampled.	R-1	T	nav
	c. Assess whether the outline over-emphasizes any systems, evolutions, or generic topics.	R-1	T	nav
	d. Assess whether the justifications for deselected or rejected K/A statements are appropriate.	R-1	T	nav
2. SIMULATOR	a. Using Form ES-301-5, verify that the proposed scenario sets cover the required number of normal evolutions, instrument and component failures, technical specifications, and major transients.	R-1	T	nav
	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, and ensure that 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 that scenarios will not be repeated on subsequent days.	R-1	T	nav
	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.	R-1	T	nav
3. W/T	a. Verify that the systems walk-through outline meets the criteria specified on Form ES-301-2: (1) the outline(s) contain(s) the required number of control room and in-plant tasks distributed among the safety functions as specified on the form (2) task repetition from the last two NRC examinations is within the limits specified on the form (3) no tasks are duplicated from the applicants' audit test(s) (4) the number of new or modified tasks meets or exceeds the minimums specified on the form (5) the number of alternate path, low-power, emergency, and RCA tasks meet the criteria on the form.	R-1	T	nav
	b. Verify that the administrative outline meets the criteria specified on Form ES-301-1: (1) the tasks are distributed among the topics as specified on the form (2) at least one task is new or significantly modified (3) no more than one task is repeated from the last two NRC licensing examinations	R-1	T	nav
	c. Determine if there are enough different outlines to test the projected number and mix of applicants and ensure that no items are duplicated on subsequent days.	R-1	T	nav
4. GENERAL	a. Assess whether plant-specific priorities (including PRA and IPE insights) are covered in the appropriate exam sections.	R-1	T	nav
	b. Assess whether the 10 CFR 55.41/43 and 55.45 sampling is appropriate.	R-1	T	nav
	c. Ensure that K/A importance ratings (except for plant-specific priorities) are at least 2.5.	R-1	T	nav
	d. Check for duplication and overlap among exam sections.	R-1	T	nav
	e. Check the entire exam for balance of coverage.	R-1	T	nav
	f. Assess whether the exam fits the appropriate job level (RO or SRO).	R-1	T	nav

	Printed Name/Signature	Date
a. Author	Russell W. Joplin /	03/30/07
b. Facility Reviewer (*)	Thomas G. Larson /	03/30/07
c. NRC Chief Examiner (#)	Nicholas A. Valos / Nicholas A Valos Charles D. Zoia	04/16/07 04/17/07
d. NRC Supervisor	Dan Dell R. McNeil / Dell R. McNeil (for HA)	04/23/07

Note: # Independent NRC reviewer initial items in Column "c"; chief examiner concurrence required.

Facility: **Point Beach Nuclear Plant** Date of Examination: **7/11-7/15/2005**
Examination Level: **RO** Operating Test Number: **2007301**

Administrative Topic (see Note)	Type Code*	Describe activity to be performed:
Conduct of Operations	P, D, S (2005 NRC Exam)	Perform Initial Conditions for Reactor Startup Procedure
Conduct of Operations	M, R	Perform Shutdown Margin Calculation
Equipment Control		n/a
Radiation Control	D, R	Perform RCS Leak Rate Determination
Emergency Plan	D, S	Activate ERDS

NOTE: All items (5 total) are required for SROs. RO applicants require only 4 items unless they are retaking only the administrative topics, when 5 are required.

*Type Codes & Criteria:
(C)ontrol room, (S)imulator, or Class(R)oom
(D)irect from bank (≤3 for ROs; ≤4 for SROs and RO retakes)
(N)ew or (M)odified from bank (≥1)
(P)revious 2 exams (≤1; randomly selected)

Facility: **Point Beach Nuclear Plant**		Date of Examination: **7/11-7/15/2007**
Examination Level: **SRO**		Operating Test Number: **2007301**
Administrative Topic (see Note)	Type Code*	Describe activity to be performed:
Conduct of Operations	P, D, S (2005 NRC Exam)	Perform Initial Conditions for Reactor Startup Procedure
Conduct of Operations	M, R	Perform Shutdown Margin Calculation
Equipment Control	N, R	Complete Technical Specification and Administrative Action Condition Logsheet
Radiation Control	D, R	Perform RCS Leak Rate Determination
Emergency Plan	M, R	Perform Required Notifications (NARS Form)

NOTE: All items (5 total) are required for SROs. RO applicants require only 4 items unless they are retaking only the administrative topics, when 5 are required.

*Type Codes & Criteria:
(C)ontrol room, (S)imulator, or Class(R)oom
(D)irect from bank (≤3 for ROs; ≤4 for SROs and RO retakes)
(N)ew or (M)odified from bank (≥1)
(P)revious 2 exams (≤1; randomly selected)

Facility: **Point Beach Nuclear Plant**	Date of Examination: **7/11-7/15/2007**
Exam Level : **RO**	Operating Test No: **2007301**

Control Room Systems@ (8 for RO); (7 for SRO-I); (2 or 3 for SRO-U, Including 1 ESF)		
System / JPM Title	Type Code*	Safety Function
a. ***Control Rod Drive System*** / Respond To Uncontrolled Rod Motion. (2003 Exam)	A, D, P, L, S	1
b. ***Chemical & Volume Control System*** / Manually Makeup to the VCT	A, M, S	2
c. ***Pressurizer Pressure Control System*** / Place LTOP in service (2005 exam)	A, D, P, L, S	3
d. ***Main Turbine Generator System*** / Respond to Turbine Trip	A, D, S	4S
e. ***Reactor Coolant Pump*** / RCP Malfunction	A, D, S	4P
f. ***Containment Spray System*** / Adjust Containment Sump pH. (2005 Exam)	D, L, P, S	5
g. ***AC Electrical Distribution*** / ECA-0.0, Att. E start the Gas Turbine	A, L, N, S	6
h. ***Instrumentation*** / Return PT-431 to Service	N, S	7
In-Plant Systems@ (3 for RO; 3 for SRO-I; 3 or 2 for SRO-U)		
i. ***Shift EDG Control Power*** / OP-11A G-01 restore normal DC	D	6
j. ***Minimize Service Water Loads*** / Isolate SW loads per AOP-9C Att A	E, M	4S
k. ***Locally Operate a Charging Pump*** /Local control of VFD pump AOP-10C	E, N, R	2

@ All RO and SRO-I control room (and in-plant) systems must be different and serve different safety functions; all 5 SRO-U systems must serve different safety functions; in-plant systems and functions may overlap those tested in the control room.

* Type Codes	Criteria for RO / SRO-I / SRO-U
(A)lternate path	4-6 / 4-6 / 2-3
(C)ontrol room	
(D)irect from bank	≤9 / ≤8 / ≤4
(E)mergency or abnormal in-plant	≥1 / ≥1 / ≥1
(L)ow-power / Shutdown	≥1 / ≥1 / ≥1
(N)ew or (M) from bank including 1(A)	≥2 / ≥2 / ≥1
(P)revious 2 exams	≤3 / ≤3 / ≤2 (randomly selected)
(R)CA	≥1 / ≥1 / ≥1
(S)imulator	

Facility: **Point Beach Nuclear Plant**	Date of Examination: **7/11-7/15/2007**
Exam Level : **SRO**	Operating Test No: **2007301**

Control Room Systems@ (8 for RO); (7 for SRO-I); (2 or 3 for SRO-U, Including 1 ESF)

System / JPM Title	Type Code*	Safety Function
a. ***Control Rod Drive System*** / Respond To Uncontrolled Rod Motion. (2003 Exam)	A, D, P, L, S	1
b.		
c. ***Pressurizer Pressure Control System*** / Place LTOP in service (2005 exam)	A, D, P, L, S	3
d. ***Main Turbine Generator System*** / Respond to Turbine Trip	A, D, S	4S
e. ***Reactor Coolant Pump*** / RCP Malfunction	A, D, S	4P
f. ***Containment Spray System*** / Adjust Containment Sump pH. (2005 Exam)	D, L, P, S	5
g. ***AC Electrical Distribution*** / ECA-0.0, Att. E start the Gas Turbine	A, L, N, S	6
h. ***Instrumentation*** / Return PT-431 to Service	N, S	7

In-Plant Systems@ (3 for RO; 3 for SRO-I; 3 or 2 for SRO-U)

i. ***Shift EDG Control Power*** / OP-11A G-01 restore normal DC	D	6
j. ***Minimize Service Water Loads*** / Isolate SW loads per AOP-9C Att A	E, M	4S
k. ***Locally Operate a Charging Pump*** /Local control of VFD pump AOP-10C	E, N, R	2

@ All RO and SRO-I control room (and in-plant) systems must be different and serve different safety functions; all 5 SRO-U systems must serve different safety functions; in-plant systems and functions may overlap those tested in the control room.

* Type Codes	Criteria for RO / SRO-I / SRO-U
(A)lternate path	4-6 / 4-6 / 2-3
(C)ontrol room	
(D)irect from bank	≤9 / ≤8 / ≤4
(E)mergency or abnormal in-plant	≥1 / ≥1 / ≥1
(L)ow-power / Shutdown	≥1 / ≥1 / ≥1
(N)ew or (M) from bank including 1(A)	≥2 / ≥2 / ≥1
(P)revious 2 exams	≤3 / ≤3 / ≤2 (randomly selected)
(R)CA	≥1 / ≥1 / ≥1
(S)imulator	

Facility Name:Point Beach Nuclear Plant Date of Exam:7/9/07-7/19/07

Tier	Group	RO K/A Category Points												SRO-Only Points			
		K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G *	Total	A 2	G *	Total
1. Emergency & Abnormal Plant Evolutions	1	2	3	3				3	3			4	18	3	3	6
	2	2	2	1	N/A			1	1	N/A		2	9	2	2	4
	Tier Totals	4	5	4				4	4			6	27	5	5	10
2. Plant Systems	1	2	3	3	3	3	3	3	2	2	2	2	28	2	3	5
	2	1	0	1	1	1	1	1	1	1	1	1	10	0 / 1	2	3
	Tier Totals	3	3	4	4	4	4	4	3	3	3	3	38	3	5	8
3. Generic Knowledge and Abilities Categories		1			2			3			4		10	1	2	3	4	7
		2			3			2			3			2	1	2	2	

Note:
1. Ensure that at least two topics from every applicable K/A category are sampled within each tier of the RO and SRO-only outlines (i.e., except for one category in Tier 3 of the SRO-only outline, the "Tier Totals" in each K/A category shall not be less than two).
2. The point total for each group and tier in the proposed outline must match that specified in the table. The final point total for each group and tier may deviate by ±1 from that specified in the table based on NRC revisions. The final RO exam must total 75 points and the SRO-only exam must total 25 points.
3. Systems/evolutions within each group are identified on the associated outline; systems or evolutions that do not apply at the facility should be deleted and justified; operationally important, site-specific systems that are not included on the outline should be added. Refer to ES-401, Attachment 2, for guidance regarding the elimination of inappropriate K/A statements.
4. Select topics from as many systems and evolutions as possible; sample every system or evolution in the group before selecting a second topic for any system or evolution.
5. Absent a plant-specific priority, only those K/As having an importance rating (IR) of 2.5 or higher shall be selected. Use the RO and SRO ratings for the RO and SRO-only portions, respectively.
6. *Select SRO topics for Tiers 1 and 2 from the shaded systems and K/A categories.*
7. * The generic (G) 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.
8. On the following pages, enter the K/A numbers, a brief description of each topic, the topics' importance ratings (IRs) for the applicable license level, and the point totals (#) for each system and category. Enter the group and tier totals for each category in the table above; if fuel handling equipment is sampled in other than Category A2 or G* on the SRO-only exam, enter it on the left side of Column A2 for Tier 2, Group 2 (Note #1 does not apply). Use duplicate pages for RO and SRO-only exams.
9. For Tier 3, select topics from Section 2 of the K/A catalog, and enter the K/A numbers, descriptions, IRs, and point totals (#) on Form ES-401-3. Limit SRO selections to K/As that are linked to *10 CFR* 55.43.

ES-401 PWR Examination Outline Form ES-401-2

Emergency and Abnormal Plant Evolutions - Tier 1/Group 1 (RO)

Q#	E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	IR	#
1	000007 Reactor Trip - Stabilization - Recovery / 1				04			RCP operation and flow rates	3.6	1
2	000008 Pressurizer Vapor Space Accident / 3					12		PZR level indicators	3.4	1
3	000009 Small Break LOCA / 3						04.31	Knowledge of annunciators alarms and indications, and use of the response instructions.	3.3	1
4	000011 Large Break LOCA / 3	01						Natural circulation and cooling, including reflux boiling	4.1	1
5	000015 RCP Malfunctions / 4		10					RCP indicators and controls	2.8	1
	000017 RCP Malfunctions (Loss of RC Flow) / 4									
6	000022 Loss of Rx Coolant Makeup / 2			07				Isolating charging	3.0	1
7	000025 Loss of RHR System / 4				02			RCS inventory	3.8	1
8	000026 Loss of Component Cooling Water / 8					04		The normal values and upper limits for the temperatures of the components cooled by CCW	2.5	1
9	000027 Pressurizer Pressure Control System Malfunction / 3						01.28	Knowledge of the purpose and function of major system components and controls.	3.2	1
	000029 ATWS / 1									0
	000038 Steam Gen. Tube Rupture / 3									0
10	000040 Steam Line Rupture - Excessive Heat Transfer / 4	06						High-energy steam line break considerations	3.7	1
	WE12 Uncontrolled Depressurization of all Steam Generators / 4									
11	000054 (CE/E06) Loss of Main Feedwater / 4			01				Reactor and/or turbine trip, manual and automatic	4.1	1
	000055 Station Blackout / 6									0
12	000056 Loss of Off-site Power / 6			01				Order and time to initiation of power for the load sequencer	3.5	1
13	000057 Loss of Vital AC Inst. Bus / 6				01			Manual inverter swapping	3.7	1
14	000058 Loss of DC Power / 6					02		125V dc bus voltage, low/critical low, alarm	3.3	1
15	000062 Loss of Nuclear Svc Water / 4						01.02	Knowledge of operator responsibilities during all modes of plant operation.	3.0	1
16	000065 Loss of Instrument Air / 8						01.23	Ability to perform specific system and integrated plant procedures during all modes of plant operation.	3.9	1
	W/E04 LOCA Outside Containment / 3									0
17	W/E11 Loss of Emergency Coolant Recirc. / 4		01					Components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features	3.6	1
18	BW/E04; W/E05 Inadequate Heat Transfer - Loss of Secondary Heat Sink / 4		02					Facility's heat removal systems, including primary coolant, emergency coolant, the decay heat removal systems, and relations between the proper operation of these systems to the operation of the facility	3.9	1
	K/A Category Totals:	2	3	3	3	3	4	Group Point Total:		18

ES-401 PWR Examination Outline Form ES-401-2

Emergency and Abnormal Plant Evolutions - Tier 1/Group 2 (RO)

Q#	E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	IR	#
	000001 Continuous Rod Withdrawal / 1									0
19	000003 Dropped Control Rod / 1						01. 30	Ability to locate and operate components, including local controls.	3.9	1
	000005 Inoperable/Stuck Control Rod / 1									0
20	000024 Emergency Boration / 1	04						Low temperature limits for boron concentration	2.8	1
21	000028 Pressurizer Level Malfunction / 2		02					Sensors and detectors	2.6	1
	000032 Loss of Source Range NI / 7									0
	000033 Loss of Intermediate Range NI / 7									0
	000036 Fuel Handling Accident / 8									0
	000037 Steam Generator Tube Leak / 3									0
22	000051 Loss of Condenser Vacuum / 4			01				Loss of steam dump capability upon loss of condenser vacuum	2.8	1
	000059 Accidental Liquid RadWaste Rel. / 9									0
23	000060 Accidental Gaseous Radwaste Rel. / 9				02			Ventilation system	2.9	1
	000061 ARM System Alarms / 7									0
24	000067 Plant Fire On-site / 8					02		Damper position	2.5	1
	000068 Control Room Evac. / 8									0
	000069 Loss of CTMT Integrity / 5									1
25	W/E14 High Containment Pressure / 5						04. 04	Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures.	4.0	
	000074 Inad. Core Cooling / 4									0
	W/E06 Degraded Core Cooling / 4									
	W/E07 Saturated Core Cooling / 4									
	000076 High Reactor Coolant Activity / 9									0
	W/E01 Rediagnosis / 3									0
	W/E02 SI Termination / 3									
	W/E13 Steam Generator Over-pressure / 4									0
	W/E15 Containment Flooding / 5									0
26	W/E16 High Containment Radiation / 9	01						Components, capacity, and function of emergency systems	2.7	1
	W/E03 LOCA Cooldown - Depress. / 4									0
	W/E09 Natural Circulation Operations / 4									0
	W/E10 Natural Circulation with Steam Voide in Vessel with/without RVLIS. / 4									
27	W/E08 RCS Overcooling - PTS / 4		01					Components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features	3.4	1
	K/A Category Totals:	2	2	1	1	1	2	Group Point Total:		9

ES-401 *PWR Examination Outline* *Form ES-401-2*

Plant Systems - Tier 2/Group 1 (RO)

Q#	System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	K/A Topic(s)	IR	#
28,29	003 Reactor Coolant Pump				07	02							Minimizing RCS leakage (mechanical seals); Effects of RCP coastdown on RCS parameters	3.2; 2.8	2
30,31	004 Chemical and Volume Control					19	26						Concept of SDM; Methods of pressure control of solid plant (PZR relief and water inventory)	3.5; 3.8	2
32,33	005 Residual Heat Removal						03	02					RHR heat exchanger; RHR flow rate	2.5; 3.3	2
34,35	006 *Emergency Core Cooling*							16	02				RCS temperature, including superheat, saturation, and subcooled; Loss of flow path	4.1; 3.9	2
36	007 Pressurizer Relief/Quench Tank									01			Components which discharge to the PRT	2.7	1
37	008 Component Cooling Water										06		Remote operation of hand-operated throttle valves to regulate CCW flow rate	2.5	1
38	010 Pressurizer Pressure Control											01.32	Ability to explain and apply all system limits and precautions.	3.4	1
39	012 Reactor Protection	06											T/G	3.1	1
40	013 Engineered Safety Features Actuation		01										ESFAS/safeguards equipment control	3.6	1
41	022 Containment Cooling			02									Containment instrumentation readings	3.0	1
	025 Ice Condenser														0
42	026 Containment Spray				04								Reduction of temperature and pressure in containment after a LOCA by condensing steam, to reduce radiological hazard, and protect equipment from corrosion damage (spray)	3.7	1
43	039 Main and Reheat Steam					08							Effect of steam removal on reactivity	3.6	1
44	059 Main Feedwater							03					Power level restrictions for operation of MFW pumps and valves	2.7	1
45	061 Auxiliary/Emergency Feedwater						01						Controllers and positioners	2.5	1
46	062 AC Electrical Distribution								10				Effects of switching power supplies on instruments and controls	3.0	1
47	063 DC Electrical Distribution									01			Meters, annunciators, dials, recorders, and indicating lights	2.7	1
48	064 Emergency Diesel Generator										12		Synchroscope	2.7	1
49	073 Process Radiation Monitoring											01.30	Ability to locate and operate components, including local controls.	3.9	1
50,51	076 Service Water	08	01										*RHR system; Service water*	3.5; 2.7	2
52,53	078 Instrument Air		01	01									Instrument Air Compressor; Containment Air System	2.7; 3.1	2
54,55	103 Containment			01	06								Loss of containment integrity under shutdown conditions; Containment isolation system	3.3; 3.1	2
	K/A Category Totals:	2	3	3	3	3	3	3	2	2	2	2	Group Point Total:		28

ES-401 PWR Examination Outline Form ES-401-2

Plant Systems - Tier 2/Group 2 (RO)

Q#	System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	K/A Topic(s)	IR	#
56	001 Control Rod Drive					1 8							Anticipation of criticality at any time when adding positive reactivity during startup	4.2	1
57	002 Reactor Coolant						0 6						Sensors and detectors	2.5	1
58	011 Pressurizer Level Control			0 2									RCS	3.5	1
	014 Rod Position Indication														0
	015 Nuclear Instrumentation														0
	016 Non-nuclear Instrumentation														0
	017 In-core Temperature Monitor														0
	027 Containment Iodine Removal														0
	028 Hydrogen Recombiner and Purge Control														0
59	029 Containment Purge							0 2					*Radiation levels*	3.4	1
	033 Spent Fuel Pool Cooling								0 3				Abnormal spent fuel pool water level or loss of water level	3.1	1
60	*034 Fuel Handling Equipment*														0
61	035 Steam Generator									0 1			S/G water level control	4.0	1
62	041 Steam Dump/Turbine Bypass Control										0 6		Atmospheric relief valve controllers	2.9	1
	045 Main Turbine Generator														0
	055 Condenser Air Removal														0
63	056 Condensate											04. 49	Ability to perform without reference to procedures those actions that require immediate operation of system components and controls.	4.0	1
64	068 Liquid Radwaste	0 2											Waste gas vent header	2.5	1
	071 Waste Gas Disposal														0
65	072 Area Radiation Monitoring				0 1								Containment ventilation isolation	3.3	1
	075 Circulating Water														0
	079 Station Air														0
	086 Fire Protection														0
	K/A Category Totals:	1	0	1	1	1	1	1	1	1	1	1	Group Point Total:		10

ES-401 PWR Examination Outline Form ES-401-2

Emergency and Abnormal Plant Evolutions - Tier 1/Group 1 (SRO)

Q#	E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	IR	#
	000007 Reactor Trip - Stabilization - Recovery / 1									0
S1	000008 Pressurizer Vapor Space Accident / 3						01. 33	Ability to recognize indications for system operating parameters which are entry-level conditions for technical specifications.	4.0	1
	000009 Small Break LOCA / 3									0
	000011 Large Break LOCA / 3									0
S2	000015 RCP Malfunctions / 4					1 1		When to jog RCPs during ICC	3.8	1
	000017 RCP Malfunctions (Loss of RC Flow) / 4									
	000022 Loss of Rx Coolant Makeup / 2									0
	000025 Loss of RHR System / 4									0
	000026 Loss of Component Cooling Water / 8									0
S3	000027 Pressurizer Pressure Control System Malfunction / 3						02. 22	Knowledge of limiting conditions for operations and safety limits.	4.1	1
	000029 ATWS / 1									0
	000038 Steam Gen. Tube Rupture / 3									0
	000040 Steam Line Rupture - Excessive Heat Transfer / 4									1
S4	WE12 Uncontrolled Depressurization of all Steam Generators / 4					0 1		Facility conditions and selection of appropriate procedures during abnormal and emergency operations	4.0	
	000054 (CE/E06) Loss of Main Feedwater / 4									0
	000055 Station Blackout / 6									0
	000056 Loss of Off-site Power / 6									0
	000057 Loss of Vital AC Inst. Bus / 6									0
	000058 Loss of DC Power / 6									0
	000062 Loss of Nuclear Svc Water / 4									0
S5	000065 Loss of Instrument Air / 8						04. 49	Ability to perform without reference to procedures those actions that require immediate operation of system components and controls.	4.0	1
	W/E04 LOCA Outside Containment / 3									0
S6	W/E11 Loss of Emergency Coolant Recirc. / 4					0 2		Adherence to appropriate procedures and operation within the limitations in the facility's license and amendments	4.2	1
	BW/E04; W/E05 Inadequate Heat Transfer - Loss of Secondary Heat Sink / 4									0
	K/A Category Totals:	0	0	0	0	3	3	Group Point Total:		6

ES-401 PWR Examination Outline Form ES-401-2

Emergency and Abnormal Plant Evolutions - Tier 1/Group 2 (SRO)

Q#	E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	IR	#
S7	000001 Continuous Rod Withdrawal / 1						01. 33	Ability to recognize indications for system operating parameters which are entry-level conditions for technical specifications.	4.0	1
	000003 Dropped Control Rod / 1									0
	000005 Inoperable/Stuck Control Rod / 1									0
	000024 Emergency Boration / 1									0
	000028 Pressurizer Level Malfunction / 2									0
	000032 Loss of Source Range NI / 7									0
	000033 Loss of Intermediate Range NI / 7									0
	000036 Fuel Handling Accident / 8									0
	000037 Steam Generator Tube Leak / 3									0
	000051 Loss of Condenser Vacuum / 4									0
S8	000059 Accidental Liquid RadWaste Rel. / 9					05		The occurrence of automatic safety actions as a result of a high PRM system signal	3.9	1
	000060 Accidental Gaseous Radwaste Rel. / 9									0
	000061 ARM System Alarms / 7									0
	000067 Plant Fire On-site / 8									0
	000068 Control Room Evac. / 8									0
S9	000069 Loss of CTMT Integrity / 5						02. 25	Knowledge of bases in technical specifications for limiting conditions for operations and safety limits.	3.7	1
	W/E14 High Containment Pressure / 5									
	000074 Inad. Core Cooling / 4									0
	W/E06 Degraded Core Cooling / 4									
	W/E07 Saturated Core Cooling / 4									
	000076 High Reactor Coolant Activity / 9									0
	W/E01 Rediagnosis / 3									0
	W/E02 SI Termination / 3									
	W/E13 Steam Generator Over-pressure / 4									0
	W/E15 Containment Flooding / 5									0
	W/E16 High Containment Radiation / 9									0
	W/E03 LOCA Cooldown - Depress. / 4									0
S10	W/E09 Natural Circulation Operations / 4					01		Facility conditions and selection of appropriate procedures during abnormal and emergency operations	3.8	1
	W/E10 Natural Circulation with Steam Voide in Vessel with/without RVLIS. / 4									
	W/E08 RCS Overcooling - PTS / 4									0
	K/A Category Totals:	0	0	0	0	2	2	Group Point Total:		4

ES-401 PWR Examination Outline Form ES-401-2
Plant Systems - Tier 2/Group 1 (SRO)

Q#	System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	K/A Topic(s)	IR	#
	003 Reactor Coolant Pump														0
	004 Chemical and Volume Control														0
	005 Residual Heat Removal														0
	006 Emergency Core Cooling														0
	007 Pressurizer Relief/Quench Tank														0
	008 Component Cooling Water														0
	010 Pressurizer Pressure Control														0
	012 Reactor Protection														0
S11	013 Engineered Safety Features Actuation											04. 49	Ability to perform without reference to procedures those actions that require immediate operation of system components and controls.	4.0	1
	022 Containment Cooling														0
	025 Ice Condenser														0
S12	026 *Containment Spray*								0 7				Loss of containment spray pump suction when in recirculation mode, possibly caused by clogged sump screen, pump inlet high temperature exceeded cavitation, voiding), or sump level below cutoff (interlock) limit	3.9	1
	039 Main and Reheat Steam														0
S13	059 Main Feedwater											04. 30	Knowledge of which events related to system operations/status should be reported to outside agencies.	3.6	1
S14	061 Auxiliary/Emergency Feedwater								0 7				Air or MOV failure	3.5	1
S15	062 AC Electrical Distribution											04. 04	Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures.	4.3	1
	063 DC Electrical Distribution														0
	064 Emergency Diesel Generator														0
	073 Process Radiation Monitoring														0
	076 Service Water														0
	078 Instrument Air														0
	103 Containment														0
	K/A Category Totals:	0	0	0	0	0	0	0	2	0	0	3	Group Point Total:		5

ES-401 PWR Examination Outline Form ES-401-2
Plant Systems - Tier 2/Group 2 (SRO)

Q#	System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	K/A Topic(s)	IR	#
	001 Control Rod Drive														0
S16	002 Reactor Coolant											04. 06	Knowledge symptom based EOP mitigation strategies.	4.0	1
	011 Pressurizer Level Control														0
	014 Rod Position Indication														0
S17	015 Nuclear Instrumentation								0 2				Faulty or erratic operation of detectors or compensating components	3.5	1
	016 Non-nuclear Instrumentation														0
	017 In-core Temperature Monitor														0
	027 Containment Iodine Removal														0
	028 Hydrogen Recombiner and Purge Control														0
	029 Containment Purge														0
	033 Spent Fuel Pool Cooling														0
	034 Fuel Handling Equipment														0
	035 Steam Generator														0
	041 Steam Dump/Turbine Bypass Control														0
	045 Main Turbine Generator														0
	055 Condenser Air Removal														0
	056 Condensate														0
	068 Liquid Radwaste														0
	071 Waste Gas Disposal														0
	072 Area Radiation Monitoring														0
	075 Circulating Water														0
	079 Station Air														0
S18	086 Fire Protection											01. 02	Knowledge of operator responsibilities during all modes of plant operation.	4.0	1
	K/A Category Totals:	0	0	0	0	0	0	0	1	0	0	2	Group Point Total:		3

ES-401	Generic Knowledge and Abilities Outline (Tier 3)						Form ES-401-3
Facility Name:Point Beach Nuclear Plant		Date of Exam:7/9/07-7/19/07					
				RO		SRO-Only	
Q#	Category	K/A #	Topic	IR	#	IR	#
66	1. Conduct of Operations	2.1. 19	Ability to use plant computer to obtain and evaluate parametric information on system or component status.	3.0	1		
67		2.1. 28	Knowledge of the purpose and function of major system components and controls.	3.2	1		
S19		2.1. 13	Knowledge of facility requirements for controlling vital / controlled access.			2.9	1
S20		2.1. 22	Ability to determine Mode of Operation.			3.3	1
		2.1.					
		2.1.					
		Subtotal			2		2
68	2. Equipment Control	2.2. 22	Knowledge of limiting conditions for operations and safety limits.	3.4	1		
69		2.2. 30	Knowledge of RO duties in the control room during fuel handling such as alarms from fuel handling area, communication with fuel storage facility, systems operated from the control room in support of fueling operations, and supporting instrumentation.	3.5	1		
70		2.2. 34	Knowledge of the process for determining the internal and external effects on core reactivity.	2.8	1		
S21		2.2. 09	Knowledge of the process for determining if the proposed change, test or experiment increases the probability of occurrence or consequences of an accident during the change, test or experiment.			3.3	1
		2.2.					
		2.2.					
		Subtotal			3		1
71	3. Radiation Control	2.3. 01	Knowledge of 10 CFR: 20 and related facility radiation control requirements.	2.6	1		
72		2.3. 10	Ability to perform procedures to reduce excessive levels of radiation and guard against personnel exposure.	2.9	1		
S22		2.3. 04	Knowledge of radiation exposure limits and contamination control, including permissible levels in excess of those authorized.			3.1	1
S23		2.3. 08	Knowledge of the process for performing a planned gaseous radioactive release.			3.2	1
		2.3.					
		2.3.					
		Subtotal			2		2
73	4. Emergency Procedures / Plan	2.4. 08	Knowledge of how the event-based emergency/abnormal operating procedures are used in conjunction with the symptom-based EOPs.	3.0	1		
74		2.4. 34	Knowledge of RO tasks performed outside the main control room during emergency operations including system geography and system implications.	3.8	1		
75		2.4. 50	Ability to verify system alarm setpoints and operate controls identified in the alarm response manual.	3.3	1		
S24		2.4. 09	Knowledge of low power /shutdown implications in accident (e.g. LOCA or loss of RHR) mitigation strategies.			3.9	1
S25		2.4. 49	Ability to perform without reference to procedures those actions that require immediate operation of system components and controls.			4.0	1
		2.4.					
		Subtotal			3		2
Tier 3 Point Total					10		7

Facility: **Point Beach** Scenario No.: **1** OP-Test No.: **2007301**

Examiners: _____ Operators: _____

_____ _____

_____ _____

Initial Conditions: Unit 1 is at 100% power MOL 8010 MWD/MT. Boron Concentration is 756 PPM. Unit 2 is at 100% power.

Turnover: 1P-15A Safety Injection Pump is OOS. The oiler on the inboard pump bearing was damaged and a Maintenance crew is working the job to completion. TSAC 3.5.2.A was entered 6 hours ago and the pump is expected back for operability testing in about 3 hours. 1W-3A CRDM Shroud Fan is OOS due to motor bearing failure.

Today is Sunday, present clock time is real time. An RP Tech and Chemistry Tech are on-site. A crew of Maintenance personnel are working 1P-15A to completion.

The objective of the shift is to maintain stable plant conditions.

Event No.	Malf. No.	Event Type*	Event Description
1		C – BOP TS-SRO	P-32A Service Water Pump Trip (with reduced head capacity on two running SW pumps)
2		C – RO C – SRO TS-SRO	Steam Generator Tube Leak on 'A' SG
3		R - RO N – BOP N – SRO	Downpower due to SGTL on 'A' SG
4		I – RO I – SRO TS-SRO	1PT-485, Turbine First Stage Pressure Transmitter Fails High
5		M-ALL	SGTR on 'A' SG
6		C - RO	Reactor Trip manual push buttons on 1C04 fail to operate
7		C-BOP	P-38B MDAFW Pump and 1P-29 TDAFW Pump fail to auto start

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

Facility: **Point Beach** Scenario No.: **2** OP-Test No.: **2007301**

Examiners: _____ Operators: _____

_____ _____

_____ _____

Initial Conditions: Unit 1 is at 47% power, performing OP-1C, Startup to Power Operation at Step 5.125. Unit 1 is at BOL with a boron Concentration of 1530 PPM. Unit 1 rod control is in Manual. Unit 2 is at 100% power.

Turnover: 1P-15A Safety Injection Pump is OOS. The oiler on the inboard pump bearing was damaged and a Maintenance crew is working the job to completion. TSAC 3.5.2.A was entered 6 hours ago and the pump is expected back for operability testing in about 3 hours. 1W-3A CRDM Shroud Fan is OOS due to motor bearing failure.

Today is Sunday, present clock time is real time. An RP Tech and Chemistry Tech are on-site. A crew of Maintenance personnel are working 1P-15A to completion.

The objective of the shift is to maintain stable plant conditions and raise Unit 1 to full load when requested.

Event No.	Malf. No.	Event Type*	Event Description
1		I - RO I - SRO TS -SRO	LT-141, VCT Level Channel Fails High
2		R-RO N-BOP N-SRO	1W-3B CRDM Shroud Fan Trips/Rapid power reduction
3		C – RO C – SRO TS -SRO	Loop 'A' RTD Bypass Line Leak at 25 GPM
4		M – ALL	Small Break LOCA (300 GPM)
5		C – ALL	All Automatic and manual trips fail. (ATWS)
6		C - BOP	1P-15B Fails to Auto Start

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

Facility: **Point Beach** Scenario No.: **3** OP-Test No.: **2007301**

Examiners: _____ Operators: _____

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_____ _____

Initial Conditions: Unit 1 is at ~3% power MOL 8010 MWD/MT preparing to raise power and roll the turbine. Boron Concentration is 1173 PPM. Unit 2 is at 100% power.

Turnover: 1P-15A Safety Injection Pump is OOS. The oiler on the inboard pump bearing was damaged and a Maintenance crew is working the job to completion. TSAC 3.5.2.A was entered 6 hours ago and the pump is expected back for operability testing in about 3 hours. 1W-3A CRDM Shroud Fan is OOS due to motor bearing failure.

Today is Sunday, present clock time is real time. An RP Tech and Chemistry Tech are on-site. A crew of Maintenance personnel are working 1P-15A to completion.

The objective of the shift is to continue Unit 1 power ascension. LCO 3.0.4.b was utilized and a risk assessment was completed to allow entry into Mode 1 with 1P-15A OOS.

Event No.	Malf. No.	Event Type*	Event Description
1		R – RO N – BOP N - SRO	OP-1C Up Power from 3% to ~12%
2		I – RO I – SRO TS-SRO	T-404A, Loop B T Hot Fails High.
3		C – RO C – SRO TS- SRO	1P-2A, 'A' Charging Pump Winding Ground and pump trip.
4		C – RO C – SRO	Steam Leak from 'B' SG I/S Containment w/ Auto Rx Trip Failure
5		M – ALL	Steam Line Break on 'B' SG
6		C - BOP	1SI-10X and 20X relays fail to actuate causing a failure of MSIVs to close and a failure of Feedwater Isolation.

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

Facility: **Point Beach** Scenario No.:**Backup** OP-Test No.: **2007301**

Examiners: _____ Operators: _____

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Initial Conditions: Unit 1 is at 100% Power, MOL 1810 MWD/MTU. Unit 1 boron is at 756 ppm. Unit 2 is at 100% Power. Present clock time is real time.

Turnover: G-01 EDG is out of service for annual maintenance. It was taken out of service 3 days ago and is expected to be returned to service in 3 days. G-02 is aligned to 4.16 kV buses 1A-05 and 2A-05 IAW OI-35A.

P-38B, Electric Auxiliary Feedwater Pump was declared inoperable 4 hours ago due to recirculation line cracks and has just been tagged out for repair.

A Severe Thunderstorm Watch is in effect for the next 4 hours.

Unit 1 is making preparations for reducing power for testing of the Atmospheric and Condenser Steam Dumps.

The objective of the shift is to reduce power to <95% for stroke testing of the dumps.

OP-2A, "Normal Power Operation" is the procedure in effect for the downpower (<10% load reduction).

Event No.	Malf. No.	Event Type*	Event Description
1		R - RO N - BOP N- SRO	Perform a down-power IAW OP-2A.
2		I - RO I - SRO TS- SRO	LT-428, Pressurizer Level Transmitter (controlling channel) fails low.
3		C - ALL	Loss of Condenser Vacuum
4		M– ALL	Condenser Vacuum degrades to reactor trip criteria.
5		C - RO SRO	Main Turbine Fails to AUTO & MANUALLY Trip.
6		C - BOP TS- SRO	1P-29, Turbine Driven Auxiliary Feedwater Pump trips on overspeed.
7		C - BOP TS- SRO	Trip of P-38A, 'A' MDAFWP
8		M - ALL	Loss of Heat Sink that is recoverable using Main Feedwater.

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

POINT BEACH 2007 INITIAL LICENSE EXAM
OPERATING OUTLINE COMMENTS

#	Source	Comment	Resolution
1.	**ALL Admin JPMs**	No K/As were identified that can be associated with importance factor values or with the applicable portion of Section 2 of the K/A catalog. For example, Admin JPMs associated with Conduct of Operations are required to be associated with K/As from Section 2.1 of the K/A catalog, and have an importance factor $\geq$ 2.5. NOTE: This comment applies to both the RO and SRO outlines.	Missing K/As were identified.
2.	**ALL Control Room and In-Plant JPMs**	No K/As were identified to evaluate test item importance factors $\geq$ 2.5, balance of coverage, or overlap, as required. NOTE: This comment applies to both the RO and SRO outlines.	Missing K/As were identified.
3.	**Admin JPM B (SRO) - Perform Shutdown Margin Calculation**	While an SRO could be expected to perform a Shutdown Margin calculation, it is more job-appropriate (i.e. Content Validity) for the SRO to review and approve completed Shutdown Margin Calculations instead.	JPM changed so that the SRO candidates are now expected to verify a completed Shutdown Margin calculation.
4.	**Scenario No. 1**	For Event 2, why would the BOP get credit for a SG Tube Leak (in addition to credit being given to the RO)?	The revised outline for Event 2 only has credit being given to the RO.
5.	**Scenario No. 1**	For Event 4, why would the BOP get credit for a 1PT-485 failure (in addition to credit being given to the RO)?	The revised outline for Event 4 only has credit being given to the RO.
6.	**Scenario No. 3**	For Event 4, why would the BOP get credit for a steam leak with a failure of the reactor to trip (in addition to credit being given to the RO)?	The revised outline for what is now Event 5 only has credit being given to the RO.
7.	**Scenario No. 3**	For Event 5, should this say "SLB" (steam line break) instead of "SLR"?	The revised outline no longer says "SLR," and instead says "steam line break."

POINT BEACH JULY 2007 INITIAL LICENSE EXAM
OPERATING EXAM COMMENTS

#	Source	Comment	Resolution
1.	**Admin JPM A (Perform Mode Change Checklist) RO and SRO**	1) On page 1, Change "Time for Completion" from 15 to 25 minutes. 2) On page 3 and page 9, include in the initiating cues that another operator will address any unrelated alarms. 3) On page 5, step 3, add an evaluator note that the BAT concentration is 3.75%. [Comments during onsite validation]	Comments incorporated.
2.	**Admin JPM B (Perform Shutdown Margin Calculation) RO**	1) On page 3, delete the NOTE in the Initiating Cue about this being a time critical JPM. Instead, add another bullet to the Initiating Cue to pages 3 and 11 that says: "This JPM is time critical." 2) On page 4, what is the basis for the 60 minutes to perform the SDM calculation? 3) On page 5, step 4 should be a Critical Step, since this information is used in step 15, which is a Critical Step.	1) and 2) The JPM was changed to not being time critical, since the 60 minutes was based on the Shutdown Margin being performed and reviewed within 60 minutes, while this JPM only performs the SDM calculation. With a Time for Completion of 20 minutes, 60 minutes would be 3 times the expected time for completion, which would require action to terminate the JPM if progress was not being made. 3) Step 4 was changed to be a Critical Step.
3.	**Admin JPM B (Perform Shutdown Margin Calculation) RO**	1) On page 4, Change step 2 to be a critical step by having the candidate determine core burn-up from ROD 1.1. 2) On page 3 and page 11, delete the value of core burn-up provided in the initiating cues. [Comments during onsite validation]	Comments incorporated.