

**EXAMINATION OUTLINE SUBMITTAL FOR THE
D. C. COOK INITIAL EXAMINATION - MARCH 2007**



**INDIANA
MICHIGAN
POWER**

A unit of American Electric Power

Indiana Michigan Power
Cook Nuclear Plant
One Cook Place
Bridgman, MI 49106
AEP.com

January 3, 2007

U. S. Nuclear Regulatory Commission
ATTN: Mr. Dell R. McNeil
Region III Examiner
2443 Warrenville Road, Suite 210
Lisle, Illinois 60532-4352

**Donald C. Cook Nuclear Plant Units 1 and 2
2007 NRC EXAM OUTLINE SUBMITTAL**

Enclosed you will find a copy of the Initial License Examination Outline for the planned March 2007 examination at Donald C. Cook Nuclear Plant (CNP). Also enclosed is the proposed examination schedule, based on 2 Instant Senior Reactor Operator (SROI), 2 Upgrade Senior Reactor Operator (SROU), and 6 Reactor Operator (RO) candidates.

The following items are enclosed in the sealed envelope:

- 1) Form ES-201-2, Examination Outline Quality Checklist
- 2) Form ES-201-3, Examination Security Agreement
- 3) CNP 2007 NRC Operating Examination Overview
- 4) Draft CNP 2007 ILT Examination Detailed Schedule
- 5) Written Examination Sample Methodology
- 6) Probabilistic Risk Assessment Input
- 7) Scenario Outlines Form ES-D-1 COOK07-01
- 8) Scenario Outlines Form ES-D-1 COOK07-02
- 9) ES-301-4, Simulator Checklist
- 10) ES-301-5, Transient and Event Checklist Set 1
- 11) ES-301-5, Transient and Event Checklist Set 2
- 12) ES-301-6, Competencies Checklist Set 1
- 13) ES-301-6, Competencies Checklist Set 2
- 14) ES-301-2, SRO (I) JPM Outline
- 15) ES-301-2, SRO (U) JPM Outline
- 16) ES-301-2, RO JPM Outline
- 17) ES-301-1, SRO Admin JPM Outline
- 18) ES-301-1, RO Admin JPM Outline
- 19) PWR Exam Outline, Form ES-401-2 (SRO)
- 20) Generic K/A Outline, Form ES-401-3 (SRO)
- 21) PWR Exam Outline, Form ES-401-2 (RO)

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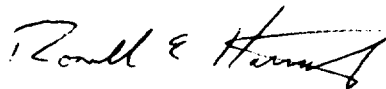
- 22) Generic K/A Outline, Form ES-401-3 (RO)
- 23) Form ES-401-4, Submittal (RO/SRO)
- 24) SRO Question/KA to CFR Cross-reference

A hard copy of all the examination materials is provided for your review. An electronic copy of documents without initials or signatures or other handwritten notations for the Public Document Room (ADAMS) has also been provided.

None of these materials are to go to the Public Document Room (ADAMS) until after the examination has been completed.

If you have any questions, please contact Ted Conrad or Steve Pettinger at (269) 466-3387 or myself at (269) 466-3407.

Sincerely,

A handwritten signature in black ink, appearing to read "Ronald E. Harrah". The signature is fluid and cursive, with the first name "Ronald" being more prominent.

Ronald E. Harrah
Operations Training Manager

JTC/jen

Enclosures

Facility: <u>DC COOK</u>		Date of Examination: <u>3-19-07</u>		
Item	Task Description	Initials		
		a	b*	c#
1. W R I T T E N	a. Verify that the outline(s) fit(s) the appropriate model, in accordance with ES-401.	gr	B	sm
	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.	gr	B	sm
	c. Assess whether the outline over-emphasizes any systems, evolutions, or generic topics.	gr	B	sm
	d. Assess whether the justifications for deselected or rejected K/A statements are appropriate.	gr	B	sm
2. S I M U L A T O R	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.	gr	B	sm
	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.	gr	B	sm
	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.	gr	B	sm
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.	gr	B	sm
	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	gr	B	sm
	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.	gr	B	sm
4. G E N E R A L	a. Assess whether plant-specific priorities (including PRA and IPE insights) are covered in the appropriate exam sections.	gr	B	sm
	b. Assess whether the 10 CFR 55.41/43 and 55.45 sampling is appropriate.	gr	B	sm
	c. Ensure that K/A importance ratings (except for plant-specific priorities) are at least 2.5.	gr	B	sm
	d. Check for duplication and overlap among exam sections.	gr	B	sm
	e. Check the entire exam for balance of coverage.	gr	B	sm
	f. Assess whether the exam fits the appropriate job level (RO or SRO).	gr	B	sm
a. Author		Printed Name/Signature		Date
b. Facility Reviewer (*)		JOHN T. CONRAD / <i>John T. Conrad</i>		11/28/06
c. NRC Chief Examiner (#)		ROBERT W. BENNETT / <i>Robert W. Bennett</i>		1/28/06
d. NRC Supervisor		DILL R. McNUFF / <i>Dill R. McNuff</i>		1/16/07
		ALVARO R. PETERSON / <i>Alvaro R. Peterson</i>		1/16/07
Note: # Independent NRC reviewer initial items in Column "c"; chief examiner concurrence required.				

Facility: <u>D.C. COOK U1/U2</u>		Date of Examination: <u>March 19-26, 2007</u>
Examination Level: RO <input checked="" type="checkbox"/> SRO <input type="checkbox"/>		Operating Test Number: <u>2007301</u>

Administrative Topic (see Note)	Type Code*	Describe activity to be performed
Conduct of Operations	S-N	NRC2007-A1 - Perform a Thermal Power Calculation KA SYS 015 A1.01 3.5/3.8
Conduct of Operations	S-D	NRC2007-A3 - Calculate RCS Time to Boil/Core Uncovery - Loss of RHR KA 2.1.25 2.8/3.1
Equipment Control		
Radiation Control	S-N	NRC2007-A5 - Perform a Containment Purge Release per OHP-4021-028-005 KA 2.3.9 2.5/3.8
Emergency Plan	S-D	NRC2007-A6 - Perform an Initial Dose Assessment per PMP-2080-EPP-108 KA 2.4.39 3.3/3.1

NOTE: All items (5 total) are required for SROs. RO applicants require only 4 items unless they are retaking only the administrative topics, when all 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 & RO retakes)
- (N)ew or (M)odified from bank (≥ 1)
- (P)revious 2 exams (≤ 1 ; randomly selected)

Facility: D.C. COOK U1/U2Date of Examination: March 19-26, 2007Examination Level: RO ☐ SRO ☒Operating Test Number: 2007301

Administrative Topic (see Note)	Type Code*	Describe activity to be performed
Conduct of Operations	S-N	NRC2007-A2-Review a Thermal Power Calculation KA SYS 015 A1.01 3.5/3.8
Conduct of Operations	S-D	NRC2007-A3 - Calculate RCS Time to Boil/Core Uncovery - Loss of RHR KA 2.1.25 2.8/3.1
Equipment Control	S-D	NRC2007-A4 - Perform Appendix R Surveillance 01-OHP-4030-066-4025 - CCW Portion KA 2.12.13 3.0/3.4 & APE 067 AA2.16 3.3/4.0
Radiation Control	S-N	NRC2007-A5 - Perform a Containment Purge Release per 02-OHP-4021-028-005 KA 2.3.9 2.5/3.8
Emergency Plan	S-D-P	NRC 2007-A7 - Perform an Emergency Plan Classification with PAR per PMP-2080-EPP-100 KA 2.4.41 2.3/4.1 (NRC 2004)

NOTE: All items (5 total) are required for SROs. RO applicants require only 4 items unless they are retaking only the administrative topics, when all 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 & RO retakes)
(N)ew or (M)odified from bank (≥ 1)
(P)revious 2 exams (≤ 1 ; randomly selected)

Facility: <u>D.C. COOK U1/U2</u>		Date of Examination: <u>March 19-26, 2007</u>
Exam Level: RO <input checked="" type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input type="checkbox"/>		Operating Test No.: <u>2007301</u>

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. MS / Isolate Ruptured Steam Generator per 02-OHP-4023-E-3	A-D-L-P-S NRC 2004	4P
b. AFW / Perform Turbine Driven AFW Pump Trip & Throttle Valve Operability Surveillance	D-P-S NRC 2006	4S
c. RD / Perform RCCA Operability Checks per OHP-4030.STP.015	D-S	1
d. CVCS / Establish Letdown IAW OHP-4023-SUP-15	A-L-N-S	2
e. DG / Restore Power to AC Emergency Buses (T21D from EDG) using 02-OHP-4023-SUP-012, Attachment D	D-L-S	6
f. CCW / Swap In-service CCW Pumps per OHP-4021.016-003	D-S	8
g. PCS / Verify Containment Isolation Phase A IAW OHP-4023-E-0, Attachment A	A-L-N	5
h. FW / Depressurize the RCS to Minimize Backflow/Refill the Pressurizer during SGTR OHP-4023-E-3	A-L-N	3

In-Plant Systems® (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)		
i. HVAC / Locally Restore CR Ventilation per 01-OHP-4025-R-14	D-E-P NRC 2004	7
j. AFW / S/G 2/3 Level Control through AFW Unit Crosstie per 02-OHP-4025-LS-3	N-E-R	4S
k. RCS / Perform RCS Isolation per 02-OHP 4025.LTI-5	A-D-E	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.	
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* 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)odified 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: <u>D.C. COOK U1/U2</u>	Date of Examination: <u>March 19-26, 2007</u>
Exam Level: RO <input type="checkbox"/> SRO-I <input checked="" type="checkbox"/> SRO-U <input type="checkbox"/>	Operating Test No.: <u>2007301</u>

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. MS / Isolate Ruptured Steam Generator per 02-OHP-4023-E-3	A-D-L-P-S NRC 2004	4P
b. AFW / Perform Turbine Driven AFW Pump Trip & Throttle Valve Operability Surveillance	D-P-S NRC 2006	4S
c. RD / Perform RCCA Operability Checks per OHP-4030.STP.015	D-S	1
d. CVCS / Establish Letdown IAW OHP-4023-SUP-15	A-L-N-S	2
e. DG / Restore Power to AC Emergency Buses (T21D from EDG) using 02-OHP-4023-SUP-012, Attachment D	D-L-S	6
f. CCW / Swap In-service CCW Pumps per OHP-4021.016-003	D-S	8
g. PCS / Verify Containment Isolation Phase A IAW OHP-4023-E-0, Attachment A	A-L-N	5
h.		

In-Plant Systems® (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)		
i. HVAC / Locally Restore CR Ventilation per 01-OHP-4025-R-14	D-E-P NRC 2004	7
j. AFW / S/G 2/3 Level Control through AFW Unit Crosstie per 02-OHP-4025-LS-3	N-E-R	4S
k. RCS / Perform RCS Isolation per 02-OHP 4025.LTI-5	A-D-E	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.		
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* 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	$\leq 9 / \leq 8 / \leq 4$
(E)mergency or abnormal in-plant	$\geq 1 / \geq 1 / \geq 1$
(L)ow-Power / Shutdown	$\geq 1 / \geq 1 / \geq 1$
(N)ew or (M)odified from bank including 1(A)	$\geq 2 / \geq 2 / \geq 1$
(P)revious 2 exams	$\leq 3 / \leq 3 / \leq 2$ (randomly selected)
(R)CA	$\geq 1 / \geq 1 / \geq 1$
(S)imulator	

Facility: <u>D.C. COOK U1/U2</u>		Date of Examination: <u>March 19-26, 2007</u>
Exam Level: RO <input type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input checked="" type="checkbox"/>		Operating Test No.: <u>2007301</u>
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.		
b.		
c. RD / Perform RCCA Operability Checks per OHP-4030.STP.015	D-S	1
d.		
e. DG / Restore Power to AC Emergency Buses (T21D from EDG) using 02-OHP-4023-SUP-012, Attachment D	D-L-S	6
f.		
g. PCS / Verify Containment Isolation Phase A IAW OHP-4023-E-0, Attachment A	A-L-N	5
h.		
In-Plant Systems® (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)		
i.		
j. AFW / S/G 2/3 Level Control through AFW Unit Crosstie per 02-OHP-4025-LS-3	N-E-R	4S
k. RCS / Perform RCS Isolation per 02-OHP 4025.LTI-5	A-D-E	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	$\leq 9 / \leq 8 / \leq 4$	
(E)mergency or abnormal in-plant	$\geq 1 / \geq 1 / \geq 1$	
(L)ow-Power / Shutdown	$\geq 1 / \geq 1 / \geq 1$	
(N)ew or (M)odified from bank including 1(A)	$\geq 2 / \geq 2 / \geq 1$	
(P)revious 2 exams	$\leq 3 / \leq 3 / \leq 2$ (randomly selected)	
(R)CA	$\geq 1 / \geq 1 / \geq 1$	
(S)imulator		

Facility: D.C. Cook U1/U2														Date of Exam: March 26, 2007				
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	A2	G*	Total		
1. Emergency & Abnormal Plant Evolutions	1	3	3	3	N/A			3	3	N/A			3	18	3	3	6	
	2	1	2	2				1	2				1	9	2	2	4	
	Tier Totals	4	5	5				4	5				4	27	5	5	10	
2. Plant Systems	1	3	2	3	3	2	2	3	3	2	2	3	28	3	2	5		
	2	1	1	0	1	1	1	1	1	1	1	1	10	0	2	3		
	Tier Totals	4	3	3	4	3	3	4	4	3	3	4	38	5	3	8		
3. Generic Knowledge and Abilities Categories					1		2		3		4		10	1	2	3	4	7
					2		3		3		2			2	2	1	2	
<p>Note:</p> <ol style="list-style-type: none"> 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). 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. 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. 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. 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. Select SRO topics for Tiers 1 and 2 from the shaded systems and K/A categories. * 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. 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. 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 Emergency and Abnormal Plant Evolutions - Tier 1/Group 1 (RO / SRO)						Form ES-401-2	
E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	IR	#
000007 (BW/E02&E10; CE/E02) Reactor Trip - Stabilization - Recovery / 1		R					K2.02 - RO - Breakers, relays and disconnects	2.6	1
000008 Pressurizer Vapor Space Accident / 3		R					K2.02 - RO - Sensors and detectors	2.7	1
000009 Small Break LOCA / 3			R				K3.11 - RO - Dangers associated with inadequate core cooling	4.4	1
000011 Large Break LOCA / 3	R						K1.01 - RO - Natural Circ & cooling - reflux boiling	4.1	1
000015/17 RCP Malfunctions / 4				R			A1.09 - RO - RCS temp detection subsystem	3.1	1
000022 Loss of Rx Coolant Makeup / 2	R						K1.02 - RO - Relationship of chg flow to press d/p between charging and RCS	2.7	1
000025 Loss of RHR System / 4					R		A2.05 - RO - Limitations on LPI flow	3.1	1
000026 Loss of Component Cooling Water / 8						R	2.1.8 - RO - Ability to coordinate personnel activities outside the control room.	3.8	1
000027 Pressurizer Pressure Control System Malfunction / 3					S		A2.18 - SRO - Operable control channel	3.5	1
000029 ATWS / 1			R				K3.01 - RO - Verifying a reactor trip - methods	4.2	1
000038 Steam Gen. Tube Rupture / 3					S		A2.05 - SRO - Causes and consequences of shrink & swell in S/G	2.9	1
000040 (BW/E05; CE/E05; W/E12) Steam Line Rupture - Excessive Heat Transfer / 4						S	2.4.45 - SRO - Ability to prioritize & interpret the significance of each annunciator or alarm	3.6	1
000054 (CE/E06) Loss of Main Feedwater / 4				R			A1.03 - RO - AFW auxiliaries - oil cooling water supplies	3.5	1
000055 Station Blackout / 6						R S	2.1.9 - RO - Ability to direct CR personnel actions 2.1.6 - SRO - Ability to supervise & manage	2.5 4.3	1 1
000056 Loss of Off-site Power / 6					R		A2.83 - RO - Instrument air pressure guage	2.7	1
000057 Loss of Vital AC Inst. Bus / 6					R		A2.06 - RO - AC instrument bus alarms	3.2	1
000058 Loss of DC Power / 6						S	2.1.7 - SRO - Ability to evaluate plant performance	4.4	1
000062 Loss of Nuclear Svc Water / 4				R			A1.07 - RO - Flow rates to the components	2.9	1
000065 Loss of Instrument Air / 8					S		A2.05 - SRO - When to commence plant S/D	4.1	1
W/E04 LOCA Outside Containment / 3						R	2.4.5 - RO - Knowledge of the org of procedures	2.9	1
W/E11 Loss of Emergency Coolant Recirc. / 4			R				K3.1 - RO - Operating characteristics during transient conditions	3.3	1
W/E05 Inadequate Heat Transfer - Loss of Secondary Heat Sink / 4		R					K2.1 - RO - Components/functions of control & safety systems	3.7	1
W/E12 - Steam Line Rupture - Excess Heat Transfer / 4	R						K1.1 - RO - Components: capacity, and function of emergency systems	3.4	1
K/A Category Totals:	3	3	3	3	3 3	3 3	Group Point Total:	18 6	

ES-401		PWR Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1/Group 2 (RO / SRO)							Form ES-401-2	
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			R				K3.02 - RO - Tech Spec limits	3.2	1	
000003 Dropped Control Rod / 1		R					K2.05 - RO - CRD power supplies/logic	2.5	1	
000005 Inoperable/Stuck Control Rod / 1										
000024 Emergency Boration / 1					S		A2.04 - SRO - Availability of BWST	4.2	1	
000028 Pressurizer Level Malfunction / 2										
000032 Loss of Source Range NI / 7				R			A1.01 - RO - Manual restoration of power	3.1	1	
000033 Loss of Intermediate Range NI / 7										
000036 (BW/A08) Fuel Handling Accident / 8										
000037 Steam Generator Tube Leak / 3						S	2.1.10 - SRO - Knowledge of conditions and limitations in the facility license	3.9	1	
000051 Loss of Condenser Vacuum / 4						R	2.1.23 - RO - Ability to perform procedures	3.9	1	
000059 Accidental Liquid RadWaste Rel. / 9						S	2.1.33 - SRO - Ability to recognize tech spec entry conditions	4.0	1	
000060 Accidental Gaseous Radwaste Rel. / 9										
000061 ARM System Alarms / 7			R				K3.02 - RO - Alarm response for ARM sys	3.4	1	
000067 Plant Fire On-site / 8					R		A2.02 - RO - Damper position	2.5	1	
000068 (BW/A06) Control Room Evac. / 8										
000069 (W/E14) Loss of CTMT Integrity / 5										
000074 (W/E06&E07) Inad. Core Cooling / 4	R					S	K.12 - RO - Procedures assoc w/ cooling A2.08 - SRO - Turbine bypass valve ops	3.1 4.6	1 1	
000076 High Reactor Coolant Activity / 9										
W/E01 & E02 Rediagnosis & SI Termination / 3										
W/E13 Steam Generator Over-pressure / 4										
W/E15 Containment Flooding / 5										
W/E16 High Containment Radiation / 9										
BW/A01 Plant Runback / 1										
BW/A02&A03 Loss of NNI-X/Y / 7										
BW/A04 Turbine Trip / 4										
BW/A05 Emergency Diesel Actuation / 6										
BW/A07 Flooding / 8										
BW/E03 Inadequate Subcooling Margin / 4										
BW/E08; W/E03 LOCA Cooldown - Depress. / 4										
BW/E09; CE/A13; W/E09&E10 Natural Circ. / 4						R	A2.1 - RO - Selection of procedures	3.2	1	
BW/E13&E14 EOP Rules and Enclosures										
CE/A11; W/E08 RCS Overcooling - PTS / 4		R					K2.2 - RO - Heat removal systems	3.6	1	
CE/A16 Excess RCS Leakage / 2										
CE/E09 Functional Recovery										
K/A Category Point Totals:	1	2	2	1	2	1	Group Point Total:		9 4	

PWR Examination Outline												Form ES-401-2		
Plant Systems - Tier 2/Group 1 (RO / SRO)														
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			R									K3.01 - RO - RCS	3.7	1
004 CVCS			R					R				K3.05 - RO - PZR LCS A3.05 - RCS pressure/temperature	3.8 3.9	2
005 Residual Heat Removal		R									R	K2.03 - RO - RCS boundary MOVs 2.2.27 - RO - Refueling	2.7 2.6	2
006 Emergency Core Cooling					R							K5.09 - RO - Thermodynamics	3.3	1
007 Pressurizer Relief/Quench Tank							R				R	A1.02 - RO - Quench tank pressure 2.1.9 - RO - Direct CR activities	2.7 2.5	2
008 Component Cooling Water	R										S	K1.02 - RO - Loads cooled by CCWS 2.4.24 - SRO - Loss of CCW	3.3 3.7	1 1
010 Pressurizer Pressure Control						R						K6.04 - RO - PRT	2.9	1
012 Reactor Protection					R			S				K5.01 - RO - DNB A2.03 - SRO - Incorrect channel byp.	3.3 3.7	1 1
013 Engineered Safety Features Actuation		R										K2.01 - RO - ESFAS/Safeguards equip	3.6	1
022 Containment Cooling								R S				A2.01 - RO - Fan motor over-current A2.05 - SRO - Major leak in CCS	2.5 3.5	1 1
025 Ice Condenser	R									R		K1.01 - RO - Containment Ventilation A4.02 - RO - Containment vent fans	2.7 2.7	2
026 Containment Spray				R						R		K4.05 - RO - Prevent clogging nozzles A4.01 - RO - CSS control	2.8 4.5	2
039 Main and Reheat Steam							R					A1.06 - RO - Main steam pressure	3.0	1
059 Main Feedwater							R					A1.07 - RO - Feed pump speed	2.5	1
061 Auxiliary/Emergency Feedwater						R						K6.01 - RO - Controllers & positioners	2.5	1
062 AC Electrical Distribution			R					S				K3.01 - RO - Major system loads A2.08 - SRO - Exceeding voltage limits	3.5 3.0	1 1
063 DC Electrical Distribution								R				A2.01 - RO - Grounds	2.5	1
064 Emergency Diesel Generator								R				A2.14 - RO - Effects of stopping EDG	2.7	1
073 Process Rad Monitoring				R								K4.01 - RO - Release termination	4.0	1
076 Service Water				R							R	K4.06 - RO - Service water train sep 2.1.33 - RO - Tech Spec entry	2.8 3.4	2
078 Instrument Air									R		S	A3.01 - RO - Air Pressure 2.1.8 - SRO - Coordinate outside acts	3.1 3.6	1 1
103 Containment	R											K1.02 - RO - Cont Isol/integrity	3.9	1
K/A Category Point Totals:	3	2	3	3	2	2	3	4 3	1	2	3 2	Group Point Total:		28 5

PWR Examination Outline													Form ES-401-2	
Plant Systems - Tier 2/Group 2 (RO / SRO)														
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														
002 Reactor Coolant							R					A1.13 - RO - Core exit thermocouples	3.4	1
011 Pressurizer Level Control								S				A2.07 - SRO - Isolation of letdown	3.3	1
014 Rod Position Indication														
015 Nuclear Instrumentation						R						K6.02 - RO - Discriminator/Comp circuits	2.6	1
016 Non-nuclear Instrumentation										R		A4.02 - RO - Recorders	2.7	1
017 In-core Temperature Monitor				R								K4.01 - RO - Input to subcooling monitors	3.4	1
027 Containment Iodine Removal														
028 Hydrogen Recombiner and Purge Control					R							K5.01 - RO - Explosive H2 concentration	3.4	1
029 Containment Purge														
033 Spent Fuel Pool Cooling														
034 Fuel Handling Equipment								R				A2.01 - RO - Dropped fuel element	3.6	1
035 Steam Generator														
041 Steam Dump/Turbine Bypass Control		R										K2.01 - ICS, normal/alternate power	2.8	1
045 Main Turbine Generator											R	2.1.30 - RO - Ability to locate and operate components	3.9	1
055 Condenser Air Removal														
056 Condensate								S				A2.04 - SRO - Loss of CND pumps	2.8	1
068 Liquid Radwaste									R			A3.02 - RO - Automatic Isolation	3.6	1
071 Waste Gas Disposal														
072 Area Radiation Monitoring	R											K1.04 - RO - Control room ventilation	3.3	1
075 Circulating Water														
079 Station Air											S	2.2.29 - SRO - SRO fuel handling resp	3.8	1
086 Fire Protection														
K/A Category Point Totals:	1	1	0	1	1	1	1	1	2	1	1	1	Group Point Total:	10/3

Facility: D. C. Cook U1/U2			Date of Exam: March 26, 2007			
Category	K/A #	Topic	RO		SRO-Only	
			IR	#	IR	#
1. Conduct of Operations	2.1.6	Ability to supervise and assume a management role during plant transients and upset conditions			4.3	1
	2.1.10	Knowledge of conditions and limitation in the facility lic.			3.9	1
	2.1.22	Ability to determine Mode of Operation	2.8	1		
	2.1.30	Ability to locate/operate components	3.9	1		
	2.1.					
	2.1.					
	Subtotal			2		2
2. Equipment Control	2.2.10	Knowledge of the process for determining if margin of safety is reduced			3.3	1
	2.2.22	Knowledge of LCOs and safety limits	3.4	1		
	2.2.23	Ability to track LCOs	2.6	1		
	2.2.26	Knowledge of refueling admin requirements			3.7	1
	2.2.30	Knowledge of RO duties in the control room during fuel handling	3.5	1		
	2.2.					
	Subtotal			3		2
3. Radiation Control	2.3.1	Knowledge of 10 CFR 20 & facility radiation controls	2.6	1		
	2.3.2	Knowledge of facility ALARA program			2.9	1
	2.3.4	Knowledge of rad exposure limits/contamination control	2.5	1		
	2.3.9	Knowledge of the process for performing a cnmt purge	2.5	1		
	2.3.					
	2.3.					
	Subtotal			3		1
4. Emergency Procedures / Plan	2.4.1	Knowledge of EOP entry conditions/Immediate actions			4.6	1
	2.4.4	Ability to recognize abnormal/emergency procedure entry conditions	4.0	1		
	2.4.14	Knowledge of general guidelines for EOP flowchart use	3.0	1		
	2.4.35	Knowledge of local aux operator tasks during emergency			3.5	1
	2.4.					
	2.4.					
	Subtotal			2		2
Tier 3 Point Total				10		7

Facility: D. C. Cook U1/U2Scenario No.: COOK 07-01Op-Test No.: 2007301

Examiners: _____

Operators: _____

Initial Conditions: IC 977 (from IC 35) 53% power, 8 GWD, 1139 ppm Boron, CBD @ 177.5 Steps,
Unit 1 is at 100%. Tave - 559.9, Tref 560.0, blender Setting 14.8.

Turnover: Shutdown #21 CW Pump for Oil Leak repairs and then perform power reduction to less
than 50% to allow for waterbox cleaning.

Event No.	Malf. No.	Event Type*	Event Description
1		N-BOP	Shutdown the #21 Circulating Water Pump
2		R-RO	Perform Power Reduction
3	CV016B to 100	I-RO TS	VCT Level Channel QLC 452 Fails HIGH
4	SW07A to 0	C-BOP	Main Turbine Oil Cooler Controller (WRV-970) fails LOW
5	CV13A	C-RO TS	East CCP Pump TRIPS
6	RX23H to 103 over 2 min	I-BOP TS	S/G 23 Level Instrument (BLP-131) Failing HIGH
7	RC01A at 50%	Major	Large Break Loss of Coolant Accident on Loop 1
8	RP19D-Preload	C-RO	Slave Relay Failure: 2E RHR and 2N SI Pumps Fail to Auto Start
9	RH01B	C-RO	2W RHR Pump Trips (at 35% RWST Level ~ 15 minutes after SI)
* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor			

Facility: D.C. Cook U1/U2Scenario No.: COOK 07-02Op-Test No.: 2007301

Examiners: _____

Operators: _____

Initial Conditions: IC-35 (979), MOL; 53% power, 1139 ppm Boron, 8 GWD, Equilibrium Xenon,
CBD @ 177.5 steps, Tave & Tref - 560.0°F

Turnover: The 2W MFP has been returned to service following work on its Oil Cooler. Shift Hotwell
Pumps and raise Power to 80% for next hold point.

Event No.	Malf. No.	Event Type*	Event Description
1		N-BOP	Start South Hotwell Pump and Stop North Hotwell Pump
2		R-RO	Raise Reactor Power and Turbine Load
3	RX05A @ 0	I-RO TS	Controlling Pressurizer Level Channel (NLP-151) fails LOW
4	RX20G @ 5E6 over 20 sec	I-BOP TS	#24 SG Steam Flow Transmitter (MFC-140) fails HIGH
5	RX09A @ 0 over 2 min	C-RO	Pressurizer Master Pressure Controller fails LOW
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	TC04C TC05C	C-BOP	Main Turbine Stop & Control Valve Stick Open
10	RP12A RP12B	C-ALL	Inadvertent SI on the reactor trip
* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor			

Facility: D.C. Cook U1/U2Scenario No.: COOK07-03Op-Test No.: 2007301

Examiners: _____

Operators: _____

Initial Conditions: IC978 (IC-36), 78% power, 8 GWD, 1069 ppm Boron, CBD @ 191 steps, Unit 1 is at 100%. Previous shift experiences a 0.3°F change for 1 step rod motion.

Turnover: Reduce power to 60% for waterbox cleaning.

Event No.	Malf. No.	Event Type*	Event Description
1	ED07A	C-RO TS	PZR HTR Transformer Fails (21PHA Fails)
2	NI10B @ 200	I-RO TS	Power range NI42 fails HIGH
3		R	Power reduction / Reduce Turbine Load
4	FW34A FW58B	C- BOP	North CB Pump trip; Middle CB pump fails to start in AUTO
5	RX17J to 0% over 10 sec	I-BOP TS	SG Pressure Channel MPP-240 Fails LOW
6	FW01D @ 20; 2 min Ramp	M	Feed Line Break Inside Containment (#24 SG)
7	RP07A RP07B	C- BOP	Steam Line Isolation fails to AUTO actuate
8	RP 16B	C-RO	CTS Train B - fails to actuate (AUTO/MANUAL) RPS relay K626-X3 failure (2 East CTS pump fails to start)
* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor			