

TURKEY POINT EXAM

















50-250, 251/2000-301

NOVEMBER 27 - DECEMBER 1,

DECEMBER 11 - 15, 2000

-- ADMINISTRATIVE DOCUMENTS -- ALL IN ONE ADAMS DOCUMENT

- [] ES-201-1 - Exam Preparation Checklist
- [] ES-201-2 - Exam Outline Quality Checklist
- [] ES-201-3 - Exam Security Agreements
- [] ES-301-1 - Admin Topics Outline
- [] ES-301-2 - Control Room Systems & Facility
Walk-through Test Outline
- [] ES-301-3 - Operating Test Quality Checklist
- [] ES-301-4 - Simulator Scenario Quality Checklist
- [] ES-301-5 - Transient & Event Checklist
- [] ES-301-6 - Competencies Checklist
- [] ES-401-7 - Written Exam Quality Checklist
- [] ES-401-9 - Written Exam Review Worksheet
- [] ES-403-1 - Written Exam Grading Quality Checklist
- [] ES-501-1 - Post Exam Check Sheet

Facility: <u>TURKEY POINT</u>		Date of Examination: <u>11/26 - 12/15/00</u>
Examinations Developed by: <u>Facility</u> / <u>NRC</u> (circle one)		
Target Date*	Task Description / Reference	Chief Examiner's Initials
-180	1. Examination administration date confirmed (C.1.a; C.2.a & b)	
-120	2. NRC examiners and facility contact assigned (C.1.d; C.2.e)	
-120	3. Facility contact briefed on security & other requirements (C.2.c)	
-120	4. Corporate notification letter sent (C.2.d)	
[-90]	[5. Reference material due (C.1.e; C.3.c)]	
-75	6. Integrated examination outline(s) due (C.1.e & f; C.3.d)	
-70	7. Examination outline(s) reviewed by NRC and feedback provided to facility licensee (C.2.h; C.3.e)	
-45	8. Proposed examinations, supporting documentation, and reference materials due (C.1.e, f, g & h; C.3.d)	
-30	9. Preliminary license applications due (C.1.i; C.2.g; ES-202)	
-14	10. Final license applications due and assignment sheet prepared (C.1.i; C.2.g; ES-202)	
-14	11. Examination approved by NRC supervisor for facility licensee review (C.2.h; C.3.f)	
-14	12. Examinations reviewed with facility licensee (C.1.j; C.2.f & h; C.3.g)	
-7	13. Written examinations and operating tests approved by NRC supervisor (C.2.i; C.3.h)	
-7	14. Final applications reviewed; assignment sheet updated; waiver letters sent (C.2.g, ES-204)	
-7	15. Proctoring/written exam administration guidelines reviewed with facility licensee and authorization granted to give written exams (if applicable) (C.3.k)	
-7	16. Approved scenarios, job performance measures, and questions distributed to NRC examiners (C.3.i)	
<p>* Target dates are keyed to the examination date identified in the corporate notification letter. They are for planning purposes and may be adjusted on a case-by-case basis in coordination with the facility licensee.</p> <p>[] Applies only to examinations prepared by the NRC.</p>		

Facility: TURKEY POINT		Date of Examination: 11/26 - 12/15/00		
Item	Task Description	Initials		
		a	b*	c
W R I T T E N	1. a. Verify that the outline(s) fit(s) the appropriate model per ES-401.	Ⓟ	NA	Ⓟ
	b. Assess whether the outline was systematically prepared and whether all knowledge and ability categories are appropriately sampled.	Ⓟ	NA	Ⓟ
	c. Assess whether the outline over-emphasizes any systems, evolutions, or generic topics.	Ⓟ	NA	Ⓟ
	d. Assess whether the repetition from previous examination outlines is excessive.	Ⓟ	NA	Ⓟ
S I M	2. a. Using Form ES-301-5, verify that the proposed scenario sets cover the required number of normal evolutions, instrument and component failures, and major transients.	Ⓟ	NA	Ⓟ
	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; ensure 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 scenarios will not be repeated over successive days.	Ⓟ	NA	Ⓟ
	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.	Ⓟ	NA	Ⓟ
W / T	3. a. Verify that: (1) the outline(s) contain(s) the required number of control room and in-plant tasks, (2) no more than 30% of the test material is repeated from the last NRC examination, (3)* no tasks are duplicated from the applicants' audit test(s), and (4) no more than 80% of any operating test is taken directly from the licensee's exam banks.	Ⓟ	NA	Ⓟ
	b. Verify that: (1) the tasks are distributed among the safety function groupings as specified in ES-301, (2) one task is conducted in a low-power or shutdown condition, (3) 40% of the tasks require the applicant to implement an alternate path procedure, (4) one in-plant task tests the applicant's response to an emergency or abnormal condition, and (5) the in-plant walk-through requires the applicant to enter the RCA.	Ⓟ	NA	Ⓟ
	c. Verify that the required administrative topics are covered, with emphasis on performance-based activities.	Ⓟ	NA	Ⓟ
	d. Determine if there are enough different outlines to test the projected number and mix of applicants and ensure that no items are duplicated on successive days.	Ⓟ	NA	Ⓟ
G E N E R A L	4. a. Assess whether plant-specific priorities (including PRA and IPE insights) are covered in the appropriate exam section.	Ⓟ	NA	Ⓟ
	b. Assess whether the 10 CFR 55.41/43 and 55.45 sampling is appropriate.	Ⓟ	NA	Ⓟ
	c. Ensure that K/A importance ratings (except for plant-specific priorities) are at least 2.5.	Ⓟ	NA	Ⓟ
	d. Check for duplication and overlap among exam sections.	Ⓟ	NA	Ⓟ
	e. Check the entire exam for balance of coverage.	Ⓟ	NA	Ⓟ
	f. Assess whether the exam fits the appropriate job level (RO or SRO).	Ⓟ	NA	Ⓟ
a. Author		Printed Name / Signature		Date
b. Facility Reviewer(*)		STEVEN D. ROSE / <i>[Signature]</i>		11/22/00
c. Chief Examiner		NA		—
d. NRC Supervisor		D. CHARLES PHINE / <i>[Signature]</i>		11/22/00
		MIKE ERNSTES / <i>[Signature]</i>		11/19/01
(*) Not applicable for NRC-developed examinations.				

1. Pre-Examination

I acknowledge that I have acquired specialized knowledge about the NRC licensing examinations scheduled for the week(s) of 11/27/00 ^{12/11/00} as of the date of my signature. I agree that I will not knowingly divulge any information about these examinations to any persons who have not been authorized by the NRC chief examiner. I understand that I am not to instruct, evaluate, or provide performance feedback to those applicants scheduled to be administered these licensing examinations from this date until completion of examination administration, except as specifically noted below and authorized by the NRC. Furthermore, I am aware of the physical security measures and requirements (as documented in the facility licensee's procedures) and understand that violation of the conditions of this agreement may result in cancellation of the examinations and/or an enforcement action against me or the facility licensee. I will immediately report to facility management or the NRC chief examiner any indications or suggestions that examination security may have been compromised.

2. Post-Examination

To the best of my knowledge, I did not divulge to any unauthorized persons any information concerning the NRC licensing examinations administered during the week(s) of 11/27/00 ^{12/11/00}. From the date that I entered into this security agreement until the completion of examination administration, I did not instruct, evaluate, or provide performance feedback to those applicants who were administered these licensing examinations, except as specifically noted below and authorized by the NRC.

PRINTED NAME	JOB TITLE / RESPONSIBILITY	SIGNATURE (1)	DATE	SIGNATURE (2)	DATE	NOTE
1. GLEN BLINDE	LIC. OPERATOR INSTRUCTOR		12/14/00		12/14/00	
2. Richard Bretton	OPS TRNG SUP - Lead		12-15-00		12-15-00	
3. E. DOLSON	SIMULATOR ENGINEER		12/27/00		12/27/00	
4. R.N. JACOB	SIMULATOR ENGINEER		12-18-00		12-18-00	
5. D.L. Eddinger	Nuclear Plant Supervisor		1/3/01		1/3/01	
6. M.A. Young	RCO VALIDATOR		1/16/01		1/16/01	
7. J.E. MOELLER	RCO VALIDATOR		12-27-00		12-27-00	
8. W.C. Miller	Ops Instructor/Validator		12-14-00		12-14-00	
9. M. LACAL	TRAINING MANAGER		12/15/00		12/15/00	
10. JAY G. VANHULZEN	RCO VALIDATOR		12/18/00		12/18/00	
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12.						
13.						
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NOTES:

1. Pre-Examination

I acknowledge that I have acquired specialized knowledge about the NRC licensing examinations scheduled for the week(s) of 12/11/00 as of the date of my signature. I agree that I will not knowingly divulge any information about these examinations to any persons who have not been authorized by the NRC chief examiner. I understand that I am not to instruct, evaluate, or provide performance feedback to those applicants scheduled to be administered these licensing examinations from this date until completion of examination administration, except as specifically noted below and authorized by the NRC. Furthermore, I am aware of the physical security measures and requirements (as documented in the facility licensee's procedures) and understand that violation of the conditions of this agreement may result in cancellation of the examinations and/or an enforcement action against me or the facility licensee. I will immediately report to facility management or the NRC chief examiner any indications or suggestions that examination security may have been compromised.

2. Post-Examination

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	PRINTED NAME	JOB TITLE / RESPONSIBILITY	SIGNATURE (1)	DATE	SIGNATURE (2)	DATE	NOTE
1.	<u>Michael Wright</u>	<u>Ops Sec/</u>	<u>Michael Wright</u>	<u>12-13-00</u>	<u>Michael Wright</u>	<u>12/14/00</u>	<u>①</u>
2.	<u>TERRY JONES</u>	<u>OPERATIONS MANAGER</u>	<u>Terry Jones</u>	<u>12-13-00</u>	<u>Terry Jones</u>	<u>12/15/00</u>	<u>①</u>
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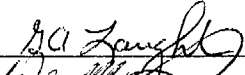
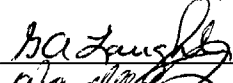

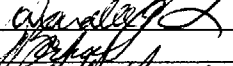
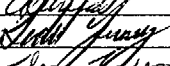
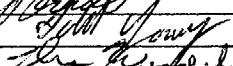
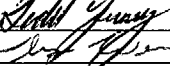
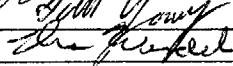
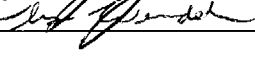
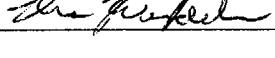
NOTES: ① DISCUSS JPM # 0105 0004309, RESPOND TO LOSS OF RHR WITH MEMBER OF EXAM TEAM ONLY.

1. Pre-Examination

I acknowledge that I have acquired specialized knowledge about the NRC licensing examinations scheduled for the week(s) of 11/27/00 as of the date of my signature. I agree that I will not knowingly divulge any information about these examinations to any persons who have not been authorized by the NRC chief examiner. I understand that I am not to instruct, evaluate, or provide performance feedback to those applicants scheduled to be administered these licensing examinations from this date until completion of examination administration, except as specifically noted below and authorized by the NRC. Furthermore, I am aware of the physical security measures and requirements (as documented in the facility licensee's procedures) and understand that violation of the conditions of this agreement may result in cancellation of the examinations and/or an enforcement action against me or the facility licensee. I will immediately report to facility management or the NRC chief examiner any indications or suggestions that examination security may have been compromised.

2. Post-Examination

To the best of my knowledge, I did not divulge to any unauthorized persons any information concerning the NRC licensing examinations administered during the week(s) of 11-27-00. From the date that I entered into this security agreement until the completion of examination administration, I did not instruct, evaluate, or provide performance feedback to those applicants who were administered these licensing examinations, except as specifically noted below and authorized by the NRC.

PRINTED NAME	JOB TITLE / RESPONSIBILITY	SIGNATURE (1)	DATE	SIGNATURE (2)	DATE NOTE
1. GREGORY A. LAUGHLIN	INITIAL OP TRAINING SUPERVISOR		11/27/00		12-1-00 1
2. Wendell Provatt	Operations Supv		11/30/00		12/1/00 1
3. Aubie Brankton	STA		11/30/00		12/1/00 2
4. Bob Young	PNRS		11/27/00		12/1/00 3
5. TOM WENDELN	STA		11/29/00		12/1/00 2
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NOTES: 1. Observe Simulator Evaluations ONLY
 2. STA for simulator evaluations
 3. Surrogate

Facility: Turkey Point		Date of Examination: _____
Examination Level (circle one): RO / SRO		Operating Test Number: _____
Administrative Topic/Subject Description		Describe method of evaluation: 1. ONE Administrative JPM, OR 2. TWO Administrative Questions
A.1	Conduct of Operations	Prepare On The Spot Change for Procedure GEN 2.1.20 (4.3/4.2)
	Conduct of Operations	Perform 1/M Plot GEN 2.1.7 (3.7/4.4)
A.2	Equipment Control	Propose Clearance Boundary 2.2.13 (3.6/3.8)
A.3	Radiation Control	Calculate Worker Exposure and Apply Administrative Guidelines GEN 2.3.1 (2.6/3.0)
A.4	Emergency Plan	Announce Declaration of Alert GEN 2.4.43 (2.8/3.5)

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: 2.1.20 (4.3/4.2)
Examiner:	10 CFR 55.45 Ref: a(13)

Evaluation Method: <input checked="" type="checkbox"/> Performed <input type="checkbox"/> Simulated	Evaluation Location: <input type="checkbox"/> Simulator <input checked="" type="checkbox"/> Classroom <input type="checkbox"/> Plant
Overall JPM Evaluation <input type="checkbox"/> SAT <input type="checkbox"/> UNSAT	
Examiner Comments	

Turkey Point
JPM No. A.1.a
Prepare On The Spot Change for Procedure

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: 2.1.20 (4.3/4.2)
Examiner:	10 CFR 55.45 Ref: a(13)

Initial Conditions: Unit 3 is completing a refueling outage. It is 0100 in the morning. Operators are preparing to execute 3-OP-041.2, "Pressurizer Operation." Because of emergent work involving high levels of contamination and radiography, the NPS desires to enter 3-OP-041.2 without completing all of the prerequisites on a one-time basis. Specifically, the NPS wishes to begin drawing a bubble prior to the completion of valve lineups on valves 3-574, PCV-3-455A PACKING LEAKOFF ISOLATION VALVE, and 3-575, PCV-455B PACKING LEAKOFF ISOLATION VALVE. There is no reason to believe that these valves are out of their required positions.

The NPS has prepared a On The Spot Change (OTSC) to 3-OP-041.2, with edits which allow deferring lineups on the two valves in question until later in the procedure, as opposed to requiring the lineups as a prerequisite to beginning drawing a bubble.

Assigned Task: The NPS has directed you to prepare an OTSC form as the ORIGINATOR.

Turkey Point
JPM No. A.1.a
Prepare On The Spot Change for Procedure

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: 2.1.20 (4.3/4.2)
Examiner:	10 CFR 55.45 Ref: a(13)

Initial Conditions: Unit 3 is completing a refueling outage. It is 0100 in the morning. Operators are preparing to execute 3-OP-041.2, "Pressurizer Operation." Because of emergent work involving high levels of contamination and radiography, the NPS desires to enter 3-OP-041.2 without completing all of the prerequisites on a one-time basis. Specifically, the NPS wishes to begin drawing a bubble prior to the completion of valve lineups on valves 3-574, PCV-3-455A PACKING LEAKOFF ISOLATION VALVE, and 3-575, PCV-455B PACKING LEAKOFF ISOLATION VALVE. There is no reason to believe that these valves are out of their required positions.

The NPS has prepared a On The Spot Change (OTSC) to 3-OP-041.2, with edits which allow deferring lineups on the two valves in question until later in the procedure, as opposed to requiring the lineups as a prerequisite to beginning drawing a bubble.

Assigned Task: The NPS has directed you to prepare an OTSC form as the ORIGINATOR.

Task Standard:

REQUIRED MATERIALS:

Provide applicant with a marked-up copy of 3-OP-041.2, "Pressurizer Operation," as follows:

- On page 9, add an asterisk to step 3.3.2.
- At the bottom of page 9, add an asterisk note which reads "Completion of valve lineups on valves 3-574, PCV-3-455A PACKING LEAKOFF ISOLATION VALVE, and 3-575, PCV-3-455B PACKING LEAKOFF ISOLATION VALVE, may be deferred until a pressurizer bubble has been drawn. Valve lineups shall be complete prior to completing step 5.1.2.14."

Turkey Point
JPM No. A.1.a
Prepare On The Spot Change for Procedure

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: 2.1.20 (4.3/4.2)
Examiner:	10 CFR 55.45 Ref: a(13)

- On page 16, add a "CK'D" line and step 13.a as follows:
"_____ 13.a Verify that all valve lineups are complete."
- On page 52, add double asterisks to component numbers 3-574 and 3-575.
- At the bottom of page 52, add a double asterisk note that reads "Completion of these valve lineups on these valves shall be completed prior to step 5.1.2.14."

Standard:

☐ Obtain 0-ADM-102 [CRITICAL STEP]

☐ On Form 458:

☐ Applicant asks for OTSC number. EXAMINER PROMPT: Provide number 00-150. [1% CREDIT]

☐ Write "Pressurizer Operation" in the Procedure Title line. [1% CREDIT]

☐ Write 3-OP-041.2 in the Procedure Number line [1% CREDIT]

☐ Write "8/31/99" in the Current Revision Date line [1% CREDIT]

☐ Check "Safety Related" [1% CREDIT]

☐ Applicant performs OTSC Checklist on Page 4 of 7 of attachment 1 (OTSC Checklist Section 1) to 0-ADM-102. OTSC number should be placed on form [1% CREDIT]. All Checklist items should be checked "no" [8% CREDIT] and the form should be signed and dated. [1% CREDIT]

☐ Applicant performs OTSC Change of Intent Guidelines and Prior Approval Requirements (Section 2, Part A).

☐ Name and OTSC Number added [1% CREDIT]

☐ All blocks checked "no" EXCEPT number 10, which is "yes." NOTE - It is possible, but not required, that applicant may check number 7. [74% CREDIT]

Turkey Point
JPM No. A.1.a
Prepare On The Spot Change for Procedure

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: 2.1.20 (4.3/4.2)
Examiner:	10 CFR 55.45 Ref: a(13)

- ☐ "Responsible Dept Head" should be checked. **[2% CREDIT]**
- ☐ "PNSC REQUIRED" block should NOT be checked. **[1% CREDIT]**
- ☐ Check "One Time Only" block **[1% CREDIT]**
- ☐ Check "Prior Approval Required." **[CRITICAL STEP]**
- ☐ No source for "Commitment Source" should be checked. **[1% CREDIT]**
- ☐ Under "reason for Request," something like "To allow Pzr bubble to be drawn without completing all prerequisites" should be checked. **[1% CREDIT]**
- ☐ Under "Describe Details of Request," either a description of the change, or something like "see markup" should be added. **[1% CREDIT]**
- ☐ "No" should be checked on "Is request due to a PC/M?" **[1% CREDIT]**
- ☐ "No" should be checked on "Does request affect an As Left valve/breaker alignment?" **[1% CREDIT]**
- ☐ The applicant should sign and date the form, and check "No Basis Document change necessary." **[1% CREDIT]**

**Turkey Point
JPM No. A.1.b
Perform 1/M Plot**

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: 2.1.7 (3.7/4.4)
Examiner:	10 CFR 55.45 Ref: a(13)

Evaluation Method: <input checked="" type="checkbox"/> Performed <input type="checkbox"/> Simulated	Evaluation Location: <input type="checkbox"/> Simulator <input checked="" type="checkbox"/> Classroom <input type="checkbox"/> Plant
Overall JPM Evaluation <input type="checkbox"/> SAT <input type="checkbox"/> UNSAT	
Examiner Comments	

**Turkey Point
JPM No. A.1.b
Perform 1/M Plot**

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: 2.1.7 (3.7/4.4)
Examiner:	10 CFR 55.45 Ref: a(13)

Initial Conditions: A Unit 3 startup is in progress per 3-GOP-301, "Hot Standby to Power Operation," through Step 5.15.3. The RCO is preparing to withdraw control banks to bring the reactor critical. Currently, conditions are as follows:

- The RCS is at NOP and no-load Tavg.
- source range instrument N-31 indicates highest at 220 cps.
- Intermediate range instrument N-35 indicates 1×10^{-11} A.
- The ECC predicts criticality with control bank D at 96 steps.
- Current core burnup for this cycle (cycle 18) is 150 MWD/MTU

Assigned Task: You have been directed to perform a 1/M plot for the approach to criticality per 3-GOP-301, applying all appropriate precautions. I will provide data obtained after each flux doubling.

**Turkey Point
JPM No. A.1.b
Perform 1/M Plot**

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: 2.1.7 (3.7/4.4)
Examiner:	10 CFR 55.45 Ref: a(13)

Initial Conditions: A Unit 3 startup is in progress per 3-GOP-301, "Hot Standby to Power Operation," through Step 5.15.3. The RCO is preparing to withdraw control banks to bring the reactor critical. Currently, conditions are as follows:

- The RCS is at NOP and no-load Tavg.
- source range instrument N-31 indicates highest at 220 cps.
- Intermediate range instrument N-35 indicates 1×10^{-11} A.
- The ECC predicts criticality with control bank D at 96 steps.
- Current core burnup for this cycle (cycle 18) is 150 MWD/MTU

Assigned Task: You have been directed to perform a 1/M plot for the approach to criticality per 3-GOP-301, applying all appropriate precautions. I will provide data obtained after each flux doubling.

Task Standard:

☐ Examiner Prompts:

Bank Position	Doubling	SR Counts (cps)	IR Power (Amps)
C/64	1	440	1.1E-11
D/56	2	880	1.3E-11
D/116	3	1760	1.9E-11

C:\WINDOWS\Profiles\msm\Desktop\Turkey Point\Turkey Point_Admin_JPM_A1b_ROSRO.wpd

**Turkey Point
JPM No. A.1.b
Perform 1/M Plot**

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: 2.1.7 (3.7/4.4)
Examiner:	10 CFR 55.45 Ref: a(13)

- ☐ Applicant should pull 3-GOP-301 and review as a minimum step 4.27 and 5.15.5, and must obtain Attachment 1, pages 1, 2, and 3 of 3.
- ☐ Inverse Count Rate Data and Plot Sheet should wind up filled out as follows:

Doubling		Count Rate (CPS/Amps)		1/M (Co/Ci)		Actual Rod Height		Predicted Rod Height	
No.	CPS	N-3(1)	N-3(5)	I	II	Bank	Step	I	II
C ₀	220	220	1E-11	1.0	1.0	A	0	D/32	
C ₁	440	440	1.1E-11	.50	.9	C	64	D/230	D/230
C ₂	880	880	1.3E-11	.25	.75	C	152	D/180	D/230
C ₃	1760	1760	1.9E-11	.125	.5263	C	180	D/180	D/230

Plot sheet should be filled out to obtain predicted rod heights.

Correct Calculation of 1/M values, and extrapolation of predicted critical rod heights (within the readability of the plot sheet - ½ of 1 minimum subdivision) are considered **CRITICAL TASKS**.

- ☐ After 3rd doubling, applicant should compare data to precautions in 4.27 and note that the difference between the predicted critical position from the ECC and the predicted position after the 3rd doubling represents a 352 pcm difference (obtained by comparing HZP numbers from the Cycle 18, 150 MWD/MTU for Bank C&D overlap integral worth, Figure 5 of Section 2 of the plant curve book), which, per 4.27.3, requires NPS or designee permission to proceed to criticality. **CRITICAL TASK**
- ☐ Whether or not applicant identifies the need for NPS permission to proceed, terminate the JPM at this point. Collect all Attachment 1 sheets from applicant.

UNIT 3 CYCLE 18 - 150 MWD/MTU

INTEGRAL ROD WORTH vs STEPS WITHDRAWN

C and D IN OVERLAP HZP - No Xe HFP - Eq Xe

BANKS				BANKS				BANKS			
D		C		D		C		D		C	
		HFP				HFP				HFP	
0	0	1800	1995	0	122	1147	1242	114	230	379	360
0	2	1800	1995	0	124	1136	1228	116	230	370	352
0	6	1799	1994	0	126	1124	1213	118	230	360	344
0	8	1799	1990	0	128	1112	1199	120	230	352	337
0	10	1799	1986	2	130	1101	1190	122	230	343	330
0	12	1797	1982	4	132	1089	1174	124	230	334	321
0	14	1795	1978	6	134	1076	1158	126	230	325	311
0	16	1795	1972	8	136	1063	1144	128	230	319	305
0	18	1794	1965	10	138	1050	1129	130	230	312	298
0	20	1791	1956	12	140	1037	1113	132	230	301	289
0	22	1788	1947	14	142	1024	1096	134	230	290	280
0	24	1785	1938	16	144	1010	1079	136	230	282	273
0	26	1782	1928	18	146	995	1061	138	230	274	265
0	28	1780	1916	20	148	983	1047	140	230	268	257
0	30	1778	1903	22	150	971	1032	142	230	261	249
0	32	1774	1892	24	152	955	1011	144	230	251	241
0	34	1769	1881	26	154	938	990	146	230	240	233
0	36	1762	1867	28	156	925	973	148	230	234	227
0	38	1755	1852	30	158	911	956	150	230	228	221
0	40	1748	1839	32	160	896	937	152	230	218	212
0	42	1740	1825	34	162	881	917	154	230	208	203
0	44	1731	1811	36	164	866	898	156	230	202	197
0	46	1722	1796	38	166	851	879	158	230	195	190
0	48	1711	1781	40	168	837	862	160	230	187	182
0	50	1699	1766	42	170	823	845	162	230	178	173
0	52	1690	1754	44	172	809	826	164	230	171	166
0	54	1680	1741	46	174	795	807	166	230	164	158
0	56	1664	1723	48	176	781	791	168	230	157	153
0	58	1648	1705	50	178	767	775	170	230	150	147
0	60	1634	1691	52	180	752	757	172	230	142	138
0	62	1620	1677	54	182	737	739	174	230	134	129
0	64	1602	1661	56	184	722	721	176	230	128	123
0	66	1584	1644	58	186	706	702	178	230	121	116
0	68	1568	1629	60	188	693	686	180	230	113	110
0	70	1552	1613	62	190	679	670	182	230	104	104
0	72	1535	1599	64	192	664	653	184	230	98	98
0	74	1518	1585	66	194	648	635	186	230	91	91
0	76	1500	1568	68	196	635	620	188	230	84	84
0	78	1481	1551	70	198	622	605	190	230	76	76
0	80	1466	1539	72	200	608	588	192	230	69	70
0	82	1451	1526	74	202	594	571	194	230	62	63
0	84	1433	1510	76	204	580	556	196	230	57	58
0	86	1414	1493	78	206	566	540	198	230	51	52
0	88	1399	1479	80	208	554	527	200	230	44	46
0	90	1383	1465	82	210	541	514	202	230	37	39
0	92	1366	1450	84	212	528	500	204	230	31	33
0	94	1349	1435	86	214	515	486	206	230	25	27
0	96	1333	1420	88	216	505	475	208	230	20	22
0	98	1317	1404	90	218	495	463	210	230	15	17
0	100	1303	1393	92	220	485	454	212	230	12	14
0	102	1289	1381	94	222	475	444	214	230	8	10
0	104	1272	1365	96	224	465	435	216	230	7	7
0	106	1255	1348	98	226	454	426	218	230	5	4
0	108	1243	1335	100	228	446	419	220	230	4	3
0	110	1230	1322	102	230	438	412	222	230	2	2
0	112	1216	1308	104	230	427	402	224	230	2	1
0	114	1201	1293	106	230	415	392	226	230	1	0
0	116	1188	1280	108	230	407	385	228	230	1	0
0	118	1174	1266	110	230	399	377	230	230	0	0
0	120	1161	1254	112	230	389	369				

3-GOP-301

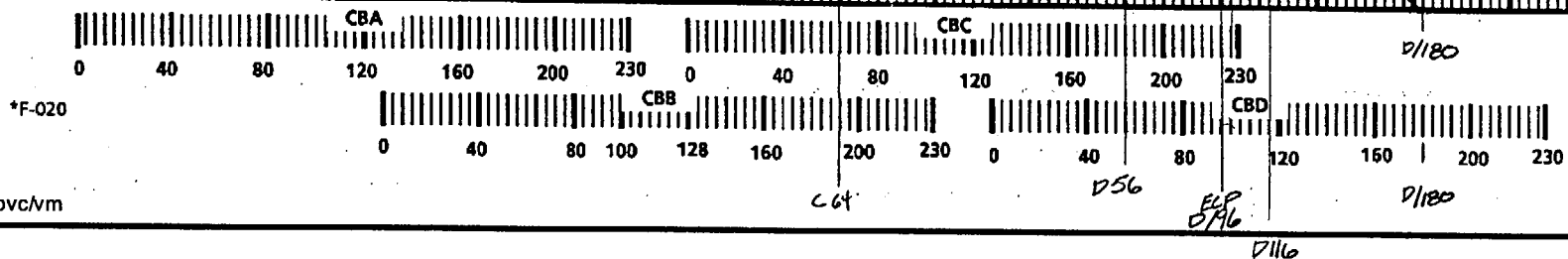
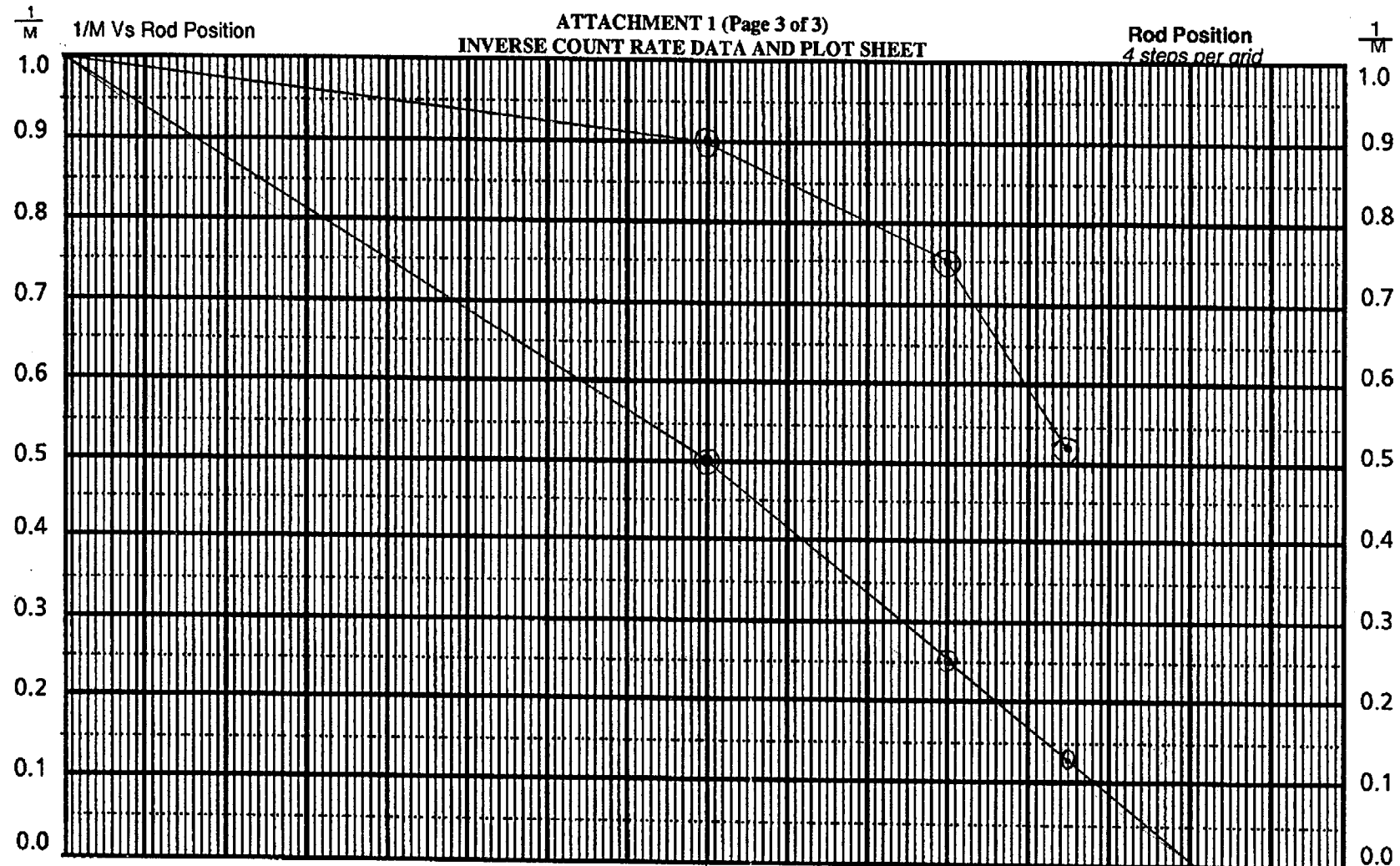
Hot Standby to Power Operation

A.1.6 KEY

1/M Vs Rod Position

ATTACHMENT 1 (Page 3 of 3)
INVERSE COUNT RATE DATA AND PLOT SHEET

Rod Position
4 steps per grid



Turkey Point

JPM No. A.2

Propose Clearance Boundary

Applicant:

Evaluation Date:

Application Level: RO/SRO

K/A: 2.2.13 (3.6/3.8)

Examiner:

10 CFR 55.45 Ref: a(12)

Evaluation Method:

Evaluation Location:

[XX] Performed

☐ Simulator

[XX] Classroom

☐ Simulated

☐ Plant

Overall JPM Evaluation

[] SAT

[] UNSAT

Examiner Comments

**Turkey Point
JPM No. A.2
Propose Clearance Boundary**

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: 2.2.13 (3.6/3.8)
Examiner:	10 CFR 55.45 Ref: a(12)

Initial Conditions: Unit 4 is operating at full power. The NPS has directed that the 4C CCW pump be removed from service and a clearance repaired to allow for the inspection of the hydraulic end of the pump (the hydraulic end will need to be drained).

Assigned Task: The ANPS has directed you to propose the clearance boundary, including placement and restoration configurations and sequences. No computer support is available. Record the proposed clearance boundary on the attached form.

**Turkey Point
JPM No. A.2
Propose Clearance Boundary**

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: 2.2.13 (3.6/3.8)
Examiner:	10 CFR 55.45 Ref: a(12)

Equipment ID	Equipment Description	Equipment Location	Tag Ser.	Tag Type	Place Seq.	Place Config.	Placement 1 st Verif.	Verif. Date	Placement 2 nd Verif.	Verif. Date	Rest. Seq.	Rest. Config.	Rest. 1 st Verif.	Verif. Date	Rest. 2 nd Verif.	Verif. Date	Notes

**Turkey Point
JPM No. A.2
Propose Clearance Boundary**

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: 2.2.13 (3.6/3.8)
Examiner:	10 CFR 55.45 Ref: a(12)

Initial Conditions: Unit 4 is operating at full power. The NPS has directed that the 4C CCW pump be removed from service and a clearance repaired to allow for the inspection of the hydraulic end of the pump (the hydraulic end will need to be drained).

Assigned Task: The ANPS has directed you to propose the clearance boundary, including placement and restoration configurations and sequences. No computer support is available. Record the proposed clearance boundary on the attached form.

Task Standard:

The correct clearance boundary is shown on the attached sheet. Grade as follows:

- ☐ The breaker for the pump must appear first in order of actually danger tagged components and be restored last. **[CRITICAL TASK]**
- ☐ Suction and discharge valves must be included. **[CRITICAL TASK]**
- ☐ Each vent/drain valve is worth 20% credit, including the attachment of the drain hose. If reference material is not available to designate equipment IDs, examiners should provide them when asked by the applicants.

**Turkey Point
JPM No. A.2
Propose Clearance Boundary**

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: 2.2.13 (3.6/3.8)
Examiner:	10 CFR 55.45 Ref: a(12)

Equipment ID	Equipment Description	Equipment Location	Tag Ser.	Tag Type	Place Seq.	Place Config.	Placement 1 st Verif.	Verif. Date	Placement 2 nd Verif.	Verif. Date	Rest. Seq.	Rest. Config.	Rest. 1 st Verif.	Verif. Date	Rest. 2 nd Verif.	Verif. Date	Notes
4P211C-CONTROL SWITCH	4C CCW PUMP CONTROL SWITCH U-4 VPB 4C05	UNIT 4 CONTROL ROOM VERT PANEL B	1	Info tag	1	HANG INFO TAG					8	REMOVE INFO TAG					
4AD04	4.16KV BKR TO CCW PUMP 4C	430_SWITCHGEAR ROOM 4D	2	Danger	2	RACK BREAKER OUT					7	RACK BREAKER IN					
4-701C	ISO VLV TO CCW PUMP C INLET	202_COMPONENT COOLING PUMP ROOM	3	Danger	3	CLOSE					6	OPEN					
4-703C	STOP VLV FOR CCW PUMP C DISCH	202_COMPONENT COOLING PUMP ROOM	4	Danger	4	CLOSE					5	OPEN					
4-702F	CCW PUMP 4C DISCHARGE DRAIN	202_COMPONENT COOLING PUMP ROOM	5	Danger	5	OPEN					4	CLOSE					
4-1013-HOSE	CCW PUMP 4C DISCHARGE DRAIN HOSE	UNIT 4 CCW ROOM	6	No Tag	6	DRAIN LINE INSTALLED					3	REMOVE DRAIN LINE					
4-1013	CCW PUMP 4C DISCHARGE DRAIN	202_COMPONENT COOLING PUMP ROOM	7	Danger	7	OPEN					2	CLOSE					
4-703H	VENT VLV ON CCW PUMP CASING	202_COMPONENT COOLING PUMP ROOM	8	No Tag	8	OPEN					1	CLOSE					

**Turkey Point
JPM No. A.3**

Calculate Worker Exposure and Apply Administrative Guidelines

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: GEN 2.3.1 (2.6/3.0)
Examiner:	10 CFR 55.45 Ref: (a)(10)

Evaluation Method: <input checked="" type="checkbox"/> Performed <input type="checkbox"/> Simulated	Evaluation Location: <input type="checkbox"/> Simulator <input checked="" type="checkbox"/> Classroom <input type="checkbox"/> Plant
Overall JPM Evaluation <input type="checkbox"/> SAT <input type="checkbox"/> UNSAT	

**Turkey Point
JPM No. A.3**

Calculate Worker Exposure and Apply Administrative Guidelines

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: GEN 2.3.1 (2.6/3.0)
Examiner:	10 CFR 55.45 Ref: (a)(10)
<p>Initial Conditions: Unit 3 is in a refueling outage. Two contract (non-FPL) workers are to perform a specialized task on a component. The two workers' TEDE exposure histories are as follows for the calendar year:</p> <p>Worker A: 105 mrem non-FPL exposure, 86 mrem PTN exposure Worker B: 800 mrem non-FPL exposure, 300 mrem PTN exposure</p> <p>All radiation surveys have been completed, and the workers are to perform their task in an area with a general field of 240 mrem/hr, and the job is anticipated to take 6 hours.</p> <p>Assigned Task: Determine the expected radiation doses to the workers and determine what, if any, administrative controls should be implemented specifically for this job.</p>	

**Turkey Point
JPM No. A.3**

Calculate Worker Exposure and Apply Administrative Guidelines

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: GEN 2.3.1 (2.6/3.0)
Examiner:	10 CFR 55.45 Ref: (a)(10)

Continuation/Work Page

**Turkey Point
JPM No. A.3**

Calculate Worker Exposure and Apply Administrative Guidelines

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: GEN 2.3.1 (2.6/3.0)
Examiner:	10 CFR 55.45 Ref: (a)(10)
<p>Initial Conditions: Unit 3 is in a refueling outage. Two contract (non-FPL) workers are to perform a specialized task on a component. The two workers' TEDE exposure histories are as follows for the calendar year: Worker A: 105 mrem non-FPL exposure, 86 mrem PTN exposure Worker B: 800 mrem non-FPL exposure, 300 mrem PTN exposure</p> <p>All radiation surveys have been completed, and the workers are to perform their task in an area with a general field of 240 mrem/hr, and the job is anticipated to take 6 hours.</p> <p>Assigned Task: Determine the expected radiation doses to the workers and determine what, if any, administrative controls should be implemented specifically for this job.</p>	

Task Standard:

- The principle reference for this JPM is ADM-600, "Radiation Protection Manual." Note that many of the "requirements" in the manual are actually "should" statements, hence the language in the assigned task.
- ☐ The workers' exposures should be calculated and determined to be the following **[CRITICAL STEP]:**

Worker	Job Total (mrem)	PTN Total (mrem)	Annual Total (mrem)
A	1430	1516	1621
B	1430	1730	2530

Cumulative job exposure = 2.860 man-rem

Note: annual totals should be calculated to compare against federal limits

**Turkey Point
JPM No. A.3**

Calculate Worker Exposure and Apply Administrative Guidelines

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: GEN 2.3.1 (2.6/3.0)
Examiner:	10 CFR 55.45 Ref: (a)(10)

- ☐ Both workers' planned exposure should be reviewed by the Health Physics Supervisor (5.7.1.4.b of ADM-600 for TP exposure greater than 1000 mrem) **[60% Credit]**
- ☐ Additional ALARA review (e.g., pre-job briefing) should be performed and documented prior to issuing the RWP. (5.16.1.1.b of ADM-600 for any task where the collective dose is estimated to exceed 0.5 man-rem). **[20% Credit]**
- ☐ The job should be reviewed in a detailed manner and ALARA initiatives should be considered and applied if practical (5.16.1.1.c of ADM-600 for any task where the collective dose is estimated to be between 1 and 5 man-rem. A discussion of the items to be considered in the ALARA review are given in Substep 5.16.1.9). **[20% Credit]**

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: GEN 2.4.43 (2.8/3.5)
Examiner:	10 CFR 55.45 Ref: (a)(11)

Evaluation Method: <input type="checkbox"/> Performed <input checked="" type="checkbox"/> Simulated	Evaluation Location: <input type="checkbox"/> Simulator <input type="checkbox"/> Classroom <input checked="" type="checkbox"/> Plant
Overall JPM Evaluation <input type="checkbox"/> SAT <input type="checkbox"/> UNSAT	
Examiner Comments	

**Turkey Point
JPM No. A4
Announce Declaration of Alert**

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: GEN 2.4.43 (2.8/3.5)
Examiner:	10 CFR 55.45 Ref: (a)(11)
Initial Conditions: An Alert has been declared on Unit 3 due to RCS leakage in excess of 50 gpm. No evacuation of site personnel is envisioned.	
Assigned Task: The Emergency Coordinator has directed you to inform site personnel in accordance with the applicable Emergency Plan Implementing Procedure.	

**Turkey Point
JPM No. A4
Announce Declaration of Alert**

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: GEN 2.4.43 (2.8/3.5)
Examiner:	10 CFR 55.45 Ref: (a)(11)
Initial Conditions: An Alert has been declared on Unit 3 due to RCS leakage in excess of 50 gpm. No evacuation of site personnel is envisioned.	
Assigned Task: The Emergency Coordinator has directed you to inform site personnel in accordance with the applicable Emergency Plan Implementing Procedure.	

Task Standard:

Reference: EPIP-20101

- ☐ Locate EPIP-20101 **[40% Credit]**
- ☐ Make the following announcement using PAGE VOLUME BOOST:
"Attention all personnel, attention all personnel: An Alert has been declared on Unit #3 due to (provide a brief description of initiating event). All Emergency Response Organization members report to your designated Emergency response Facility. All other personnel report to your normal work location." (Step 5.4.1.4.a.1) **[20% Credit]**
- ☐ Sound the Emergency Plan Activation Alarm. (Step 5.4.1.4.a.2) **[20% Credit]**
- ☐ Repeat the announcement. (Step 5.4.1.4.a.3) **[20% Credit]**

Facility: Turkey Point		Date of Examination: _____
Examination Level (circle one): RO / SRO		Operating Test Number: _____
Administrative Topic/Subject Description		Describe method of evaluation: 1. ONE Administrative JPM, OR 2. TWO Administrative Questions
A.1	Conduct of Operations	Prepare On The Spot Change for Procedure GEN 2.1.20 (4.3/4.2)
	Conduct of Operations	Perform 1/M Plot GEN 2.1.7 (3.7/4.4)
A.2	Equipment Control	Review Proposed Clearance Boundaries GEN 2.2.13 (3.6/3.8)
A.3	Radiation Control	Calculate Worker Exposure and Apply Administrative Guidelines GEN 2.3.1 (2.6/3.0)
A.4	Emergency Plan	Classify Events and Determine PARs GEN 2.4.41 (2.3/4.1)

**Turkey Point
JPM No. A.1.a**

Examiner Comments

Turkey Point
JPM No. A.1.a
Prepare On The Spot Change for Procedure

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: 2.1.20 (4.3/4.2)
Examiner:	10 CFR 55.45 Ref: a(13)

Initial Conditions: Unit 3 is completing a refueling outage. It is 0100 in the morning. Operators are preparing to execute 3-OP-041.2, "Pressurizer Operation." Because of emergent work involving high levels of contamination and radiography, the NPS desires to enter 3-OP-041.2 without completing all of the prerequisites on a one-time basis. Specifically, the NPS wishes to begin drawing a bubble prior to the completion of valve lineups on valves 3-574, PCV-3-455A PACKING LEAKOFF ISOLATION VALVE, and 3-575, PCV-455B PACKING LEAKOFF ISOLATION VALVE. There is no reason to believe that these valves are out of their required positions.

The NPS has prepared a On The Spot Change (OTSC) to 3-OP-041.2, with edits which allow deferring lineups on the two valves in question until later in the procedure, as opposed to requiring the lineups as a prerequisite to beginning drawing a bubble.

Assigned Task: The NPS has directed you to prepare an OTSC form as the ORIGINATOR.

Turkey Point
JPM No. A.1.a
Prepare On The Spot Change for Procedure

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: 2.1.20 (4.3/4.2)
Examiner:	10 CFR 55.45 Ref: a(13)

Initial Conditions: Unit 3 is completing a refueling outage. It is 0100 in the morning. Operators are preparing to execute 3-OP-041.2, "Pressurizer Operation." Because of emergent work involving high levels of contamination and radiography, the NPS desires to enter 3-OP-041.2 without completing all of the prerequisites on a one-time basis. Specifically, the NPS wishes to begin drawing a bubble prior to the completion of valve lineups on valves 3-574, PCV-3-455A PACKING LEAKOFF ISOLATION VALVE, and 3-575, PCV-455B PACKING LEAKOFF ISOLATION VALVE. There is no reason to believe that these valves are out of their required positions.

The NPS has prepared a On The Spot Change (OTSC) to 3-OP-041.2, with edits which allow deferring lineups on the two valves in question until later in the procedure, as opposed to requiring the lineups as a prerequisite to beginning drawing a bubble.

Assigned Task: The NPS has directed you to prepare an OTSC form as the ORIGINATOR.

Task Standard:

REQUIRED MATERIALS:

Provide applicant with a marked-up copy of 3-OP-041.2, Pressurizer Operation," as follows:

- On page 9, add an asterisk to step 3.3.2.
- At the bottom of page 9, add an asterisk note which reads "Completion of valve lineups on valves 3-574, PCV-3-455A PACKING LEAKOFF ISOLATION VALVE, and 3-575, PCV-3-455B PACKING LEAKOFF ISOLATION VALVE, may be deferred until a pressurizer bubble has been drawn. Valve lineups shall be complete prior to completing step 5.1.2.14."

**Turkey Point
JPM No. A.1.a
Prepare On The Spot Change for Procedure**

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: 2.1.20 (4.3/4.2)
Examiner:	10 CFR 55.45 Ref: a(13)

- On page 16, add a "CK'D" line and step 13.a as follows:
"____ 13.a Verify that all valve lineups are complete."
- On page 52, add double asterisks to component numbers 3-574 and 3-575.
- At the bottom of page 52, add a double asterisk note that reads "Completion of these valve lineups on these valves shall be completed prior to step 5.1.2.14."

Standard:

- ☐ Obtain 0-ADM-102 [CRITICAL STEP]
- ☐ On Form 458:
 - ☐ Applicant asks for OTSC number. EXAMINER PROMPT: Provide number 00-150. [1% CREDIT]
 - ☐ Write "Pressurizer Operation" in the Procedure Title line. [1% CREDIT]
 - ☐ Write 3-OP-041.2 in the Procedure Number line [1% CREDIT]
 - ☐ Write "8/31/99" in the Current Revision Date line [1% CREDIT]
 - ☐ Check "Safety Related" [1% CREDIT]
 - ☐ Applicant performs OTSC Checklist on Page 4 of 7 of attachment 1 (OTSC Checklist Section 1) to 0-ADM-102. OTSC number should be placed on form [1% CREDIT]. All Checklist items should be checked "no" [8% CREDIT] and the form should be signed and dated. [1% CREDIT]
 - ☐ Applicant performs OTSC Change of Intent Guidelines and Prior Approval Requirements (Section 2, Part A).
 - ☐ Name and OTSC Number added [1% CREDIT]
 - ☐ All blocks checked "no" EXCEPT number 10, which is "yes." NOTE - It is possible, but not required, that applicant may check number 7. [74% CREDIT]

Turkey Point
JPM No. A.1.a
Prepare On The Spot Change for Procedure

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: 2.1.20 (4.3/4.2)
Examiner:	10 CFR 55.45 Ref: a(13)

- ☐ "Responsible Dept Head" should be checked. **[2% CREDIT]**
- ☐ "PNSC REQUIRED" block should NOT be checked. **[1% CREDIT]**
- ☐ Check "One Time Only" block **[1% CREDIT]**
- ☐ Check "Prior Approval Required." **[CRITICAL STEP]**
- ☐ No source for "Commitment Source" should be checked. **[1% CREDIT]**
- ☐ Under "reason for Request," something like "To allow Pzr bubble to be drawn without completing all prerequisites" should be checked. **[1% CREDIT]**
- ☐ Under "Describe Details of Request," either a description of the change, or something like "see markup" should be added. **[1% CREDIT]**
- ☐ "No" should be checked on "Is request due to a PC/M?" **[1% CREDIT]**
- ☐ "No" should be checked on "Does request affect an As Left valve/breaker alignment?" **[1% CREDIT]**
- ☐ The applicant should sign and date the form, and check "No Basis Document change necessary." **[1% CREDIT]**

**Turkey Point
JPM No. A.1.b
Perform 1/M Plot**

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: 2.1.7 (3.7/4.4)
Examiner:	10 CFR 55.45 Ref: a(13)

Evaluation Method: <input checked="" type="checkbox"/> Performed <input type="checkbox"/> Simulated	Evaluation Location: <input type="checkbox"/> Simulator <input checked="" type="checkbox"/> Classroom <input type="checkbox"/> Plant
Overall JPM Evaluation <input type="checkbox"/> SAT <input type="checkbox"/> UNSAT	

Examiner Comments	Examiner Initials	Examiner Signature	Examiner Title	Examiner Date

**Turkey Point
JPM No. A.1.b
Perform 1/M Plot**

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: 2.1.7 (3.7/4.4)
Examiner:	10 CFR 55.45 Ref: a(13)

Initial Conditions: A Unit 3 startup is in progress per 3-GOP-301, "Hot Standby to Power Operation," through Step 5.15.3. The RCO is preparing to withdraw control banks to bring the reactor critical. Currently, conditions are as follows:

- The RCS is at NOP and no-load Tavg.
- source range instrument N-31 indicates highest at 220 cps.
- Intermediate range instrument N-35 indicates 1×10^{-11} A.
- The ECC predicts criticality with control bank D at 96 steps.
- Current core burnup for this cycle (cycle 18) is 150 MWD/MTU

Assigned Task: You have been directed to perform a 1/M plot for the approach to criticality per 3-GOP-301, applying all appropriate precautions. I will provide data obtained after each flux doubling.

**Turkey Point
JPM No. A.1.b
Perform 1/M Plot**

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: 2.1.7 (3.7/4.4)
Examiner:	10 CFR 55.45 Ref: a(13)

Initial Conditions: A Unit 3 startup is in progress per 3-GOP-301, "Hot Standby to Power Operation," through Step 5.15.3. The RCO is preparing to withdraw control banks to bring the reactor critical. Currently, conditions are as follows:

- The RCS is at NOP and no-load Tavg.
- source range instrument N-31 indicates highest at 220 cps.
- Intermediate range instrument N-35 indicates 1×10^{-11} A.
- The ECC predicts criticality with control bank D at 96 steps.
- Current core burnup for this cycle (cycle 18) is 150 MWD/MTU

Assigned Task: You have been directed to perform a 1/M plot for the approach to criticality per 3-GOP-301, applying all appropriate precautions. I will provide data obtained after each flux doubling.

Task Standard:

☐ Examiner Prompts:

Bank Position	Doubling	SR Counts (cps)	IR Power (Amps)
C/64	1	440	1.1E-11
D/56	2	880	1.3E-11
D/116	3	1760	1.9E-11

C:\WINDOWS\Profiles\msm\Desktop\Turkey Point\Turkey Point_Admin_JPM_A1b_ROSRO.wpd

**Turkey Point
JPM No. A.1.b
Perform 1/M Plot**

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: 2.1.7 (3.7/4.4)
Examiner:	10 CFR 55.45 Ref: a(13)

- ☐ Applicant should pull 3-GOP-301 and review as a minimum step 4.27 and 5.15.5, and must obtain Attachment 1, pages 1, 2, and 3 of 3.
- ☐ Inverse Count Rate Data and Plot Sheet should wind up filled out as follows:

Doubling		Count Rate (CPS/Amps)		1/M (Co/Ci)		Actual Rod Height		Predicted Rod Height	
No.	CPS	N-3(1)	N-3(5)	I	II	Bank	Step	I	II
C ₀	220	220	1E-11	1.0	1.0	A	0	D/32	
C ₁	440	440	1.1E-11	.50	.9	C	64	D/230	D/230
C ₂	880	880	1.3E-11	.25	.75	C	152	D/180	D/230
C ₃	1760	1760	1.9E-11	.125	.5263	C	180	D/180	D/230

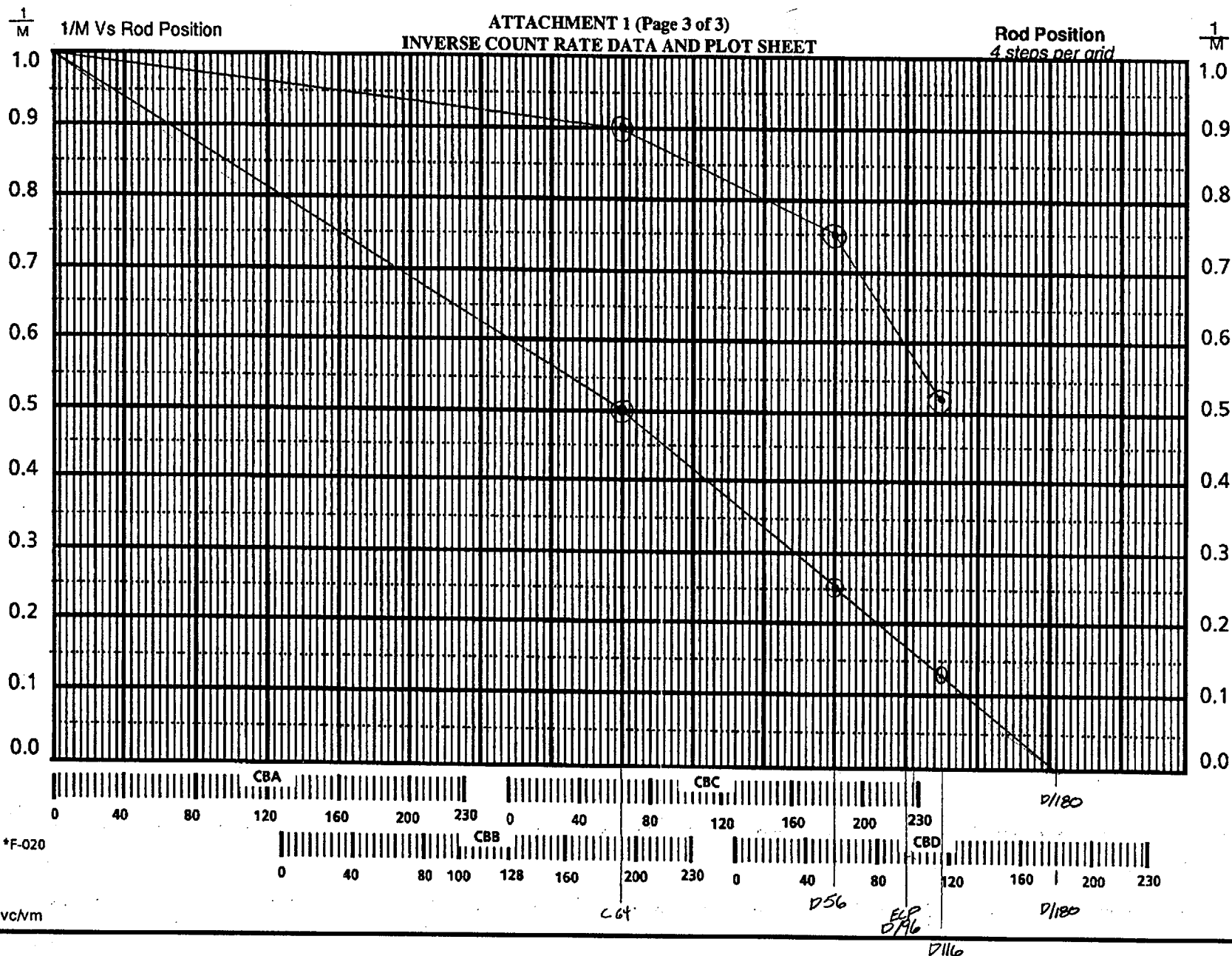
Plot sheet should be filled out to obtain predicted rod heights.

Correct Calculation of 1/M values, and extrapolation of predicted critical rod heights (within the readability of the plot sheet - ½ of 1 minimum subdivision) are considered **CRITICAL TASKS**.

- ☐ After 3rd doubling, applicant should compare data to precautions in 4.27 and note that the difference between the predicated critical position from the ECC and the predicted position after the 3rd doubling represents a 352 pcm difference (obtained by comparing HZP numbers from the Cycle 18, 150 MWD/MTU for Bank C&D overlap integral worth, Figure 5 of Section 2 of the plant curve book), which, per 4.27.3, requires NPS or designee permission to proceed to criticality. **CRITICAL TASK**
- ☐ Whether or not applicant identifies the need for NPS permission to proceed, terminate the JPM at this point. Collect all Attachment 1 sheets from applicant.

3-GOP-301

A.1.6 KEY
Hot Standby to Power Operation



Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: 2.2.13 (3.6/3.8)
Examiner:	10 CFR 55.45 Ref: a(12)

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**Turkey Point
JPM No. A2
Review Proposed Clearance Boundaries**

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: 2.2.13 (3.6/3.8)
Examiner:	10 CFR 55.45 Ref: a(12)

Initial Conditions: Unit 4 is at full power. The NPS has directed that the 4C CCW pump be removed from service and a clearance prepared to allow inspection of the hydraulic end of the pump (the hydraulic end will need to be drained). The RCO has prepared a proposed clearance boundary.

Assigned Task: Review the attached proposed boundary for adequacy and accuracy per 0-ADM-212.1.

**Turkey Point
JPM No. A2
Review Proposed Clearance Boundaries**

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: 2.2.13 (3.6/3.8)
Examiner:	10 CFR 55.45 Ref: a(12)

Equipment ID	Equipment Description	Equipment Location	Tag Ser.	Tag Type	Place Seq.	Place Config.	Placement 1 st Verif.	Verif. Date	Placement 2 nd Verif.	Verif. Date	Rest. Seq.	Rest. Config.	Rest. 1 st Verif.	Verif. Date	Rest. 2 nd Verif.	Verif. Date	Notes
4P211C-CONTROL SWITCH	4C CCW PUMP CONTROL SWITCH U-4 VPB 4C05	UNIT 4 CONTROL ROOM VERT PANEL B	1	Info tag	1	HANG INFO TAG					8	REMOVE INFO TAG					
4AD04	4.16KV BKR TO CCW PUMP 4C	430_SWITCHGEAR ROOM 4D	2	Danger	2	BREAKER IN TEST POSITION					7	RACK BREAKER IN					
4-701C	ISO VLV TO CCW PUMP C INLET	202_COMPONENT COOLING PUMP ROOM	3	Danger	3	CLOSE					6	OPEN					
4-703B	STOP VLV FOR CCW PUMP B DISCH	202_COMPONENT COOLING PUMP ROOM	4	Danger	4	CLOSE					5	OPEN					
4-702B	CCW PUMP 4C DISCHARGE DRAIN	202_COMPONENT COOLING PUMP ROOM	5	Danger	5	OPEN					4	CLOSE					
4-1013-HOSE	CCW PUMP 4C DISCHARGE DRAIN HOSE	UNIT 4 CCW ROOM	6	No Tag	6	DRAIN LINE INSTALLED					3	REMOVE DRAIN LINE					
4-1013	CCW PUMP 4C DISCHARGE DRAIN	202_COMPONENT COOLING PUMP ROOM	7	Danger	7	CLOSE					2	OPEN					
4-703H	VENT VLV ON CCW PUMP CASING	202_COMPONENT COOLING PUMP ROOM	8	No Tag	8	OPEN					1	CLOSE					

**Turkey Point
JPM No. A2
Review Proposed Clearance Boundaries**

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: 2.2.13 (3.6/3.8)
Examiner:	10 CFR 55.45 Ref: a(12)

Initial Conditions: Unit 4 is at full power. The NPS has directed that the 4C CCW pump be removed from service and a clearance prepared to allow inspection of the hydraulic end of the pump (the hydraulic end will need to be drained). The RCO has prepared a proposed clearance boundary.

Assigned Task: Review the attached proposed boundary for adequacy and accuracy per 0-ADM-212.1.

Task Standard:

Errors are shown on the attached form in **BOLD**

- ☐ Breaker 4AD04 must be RACKED OUT per 0-ADM-212.1, 5.3.2 **[CRITICAL TASK]**
- ☐ 4-703B should be 4-703C, and the equipment description pump designation should, similarly, be C. **[CRITICAL TASK]**
- ☐ 4-702E should be 4-703F. **[20% CREDIT]**
- ☐ 4-1013 should be tagged OPEN and restored to the CLOSE position. **[20% CREDIT]**

**Turkey Point
JPM No. A2
Review Proposed Clearance Boundaries**

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: 2.2.13 (3.6/3.8)
Examiner:	10 CFR 55.45 Ref: a(12)

Equipment ID	Equipment Description	Equipment Location	Seq. Ser.	Tag Type	Place Seq.	Place Config.	Placement 1 st Verif.	Verif. Date	Placement 2 nd Verif.	Verif. Date	Rest. Seq.	Rest. Config.	Rest. 1 st Verif.	Verif. Date	Rest. 2 nd Verif.	Verif. Date	Notes
4P211C-CONTROL SWITCH	4C CCW PUMP CONTROL SWITCH U-4 VPB 4C05	UNIT 4 CONTROL ROOM VERT PANEL	1	Info tag	1	HANG INFO TAG					8	REMOVE INFO TAG					
4AD04	4.16KV BKR TO CCW PUMP 4C	430_SWITCHGEAR ROOM 4D	2	Danger	2	BREAKER IN TEST POSITION					7	RACK BREAKER IN					
4-701C	ISO VLV TO CCW PUMP C INLET	202_COMPONENT COOLING PUMP ROOM	3	Danger	3	CLOSE					6	OPEN					
4-703B	STOP VLV FOR CCW PUMP B DISCH	202_COMPONENT COOLING PUMP ROOM	4	Danger	4	CLOSE					5	OPEN					
4-702E	CCW PUMP 4C DISCHARGE DRAIN	202_COMPONENT COOLING PUMP ROOM	5	Danger	5	OPEN					4	CLOSE					
4-1013-HOSE	CCW PUMP 4C DISCHARGE DRAIN HOSE	UNIT 4 CCW ROOM	6	No Tag	6	DRAIN LINE INSTALLED					3	REMOVE DRAIN LINE					
4-1013	CCW PUMP 4C DISCHARGE DRAIN	202_COMPONENT COOLING PUMP ROOM	7	Danger	7	CLOSE					2	OPEN					
4-703H	VENT VLV ON CCW PUMP CASING	202_COMPONENT COOLING PUMP ROOM	8	No Tag	8	OPEN					1	CLOSE					

**Turkey Point
JPM No. A.3**

Calculate Worker Exposure and Apply Administrative Guidelines

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: GEN 2.3.1 (2.6/3.0)
Examiner:	10 CFR 55.45 Ref: (a)(10)

Evaluation Method: <input checked="" type="checkbox"/> Performed <input type="checkbox"/> Simulated	Evaluation Location: <input type="checkbox"/> Simulator <input checked="" type="checkbox"/> Classroom <input type="checkbox"/> Plant
Overall JPM Evaluation <input type="checkbox"/> SAT <input type="checkbox"/> UNSAT	

Turkey Point

JPM No. A.3

Calculate Worker Exposure and Apply Administrative Guidelines

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: GEN 2.3.1 (2.6/3.0)
Examiner:	10 CFR 55.45 Ref: (a)(10)

Initial Conditions: Unit 3 is in a refueling outage. Two contract (non-FPL) workers are to perform a specialized task on a component. The two workers' TEDE exposure histories are as follows for the calendar year:
Worker A: 105 mrem non-FPL exposure, 86 mrem PTN exposure
Worker B: 800 mrem non-FPL exposure, 300 mrem PTN exposure

All radiation surveys have been completed, and the workers are to perform their task in an area with a general field of 240 mrem/hr, and the job is anticipated to take 6 hours.

Assigned Task: Determine the expected radiation doses to the workers and determine what, if any, administrative controls should be implemented specifically for this job.

**Turkey Point
JPM No. A.3
Calculate Worker Exposure and Apply Administrative Guidelines**

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: GEN 2.3.1 (2.6/3.0)
Examiner:	10 CFR 55.45 Ref: (a)(10)

Continuation/Work Page

**Turkey Point
JPM No. A.3**

Calculate Worker Exposure and Apply Administrative Guidelines

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: GEN 2.3.1 (2.6/3.0)
Examiner:	10 CFR 55.45 Ref: (a)(10)

Initial Conditions: Unit 3 is in a refueling outage. Two contract (non-FPL) workers are to perform a specialized task on a component. The two workers' TEDE exposure histories are as follows for the calendar year:
 Worker A: 105 mrem non-FPL exposure, 86 mrem PTN exposure
 Worker B: 800 mrem non-FPL exposure, 300 mrem PTN exposure

All radiation surveys have been completed, and the workers are to perform their task in an area with a general field of 240 mrem/hr, and the job is anticipated to take 6 hours.

Assigned Task: Determine the expected radiation doses to the workers and determine what, if any, administrative controls should be implemented specifically for this job.

Task Standard:

- The principle reference for this JPM is ADM-600, "Radiation Protection Manual." Note that many of the "requirements" in the manual are actually "should" statements, hence the language in the assigned task.
- ☐ The workers' exposures should be calculated and determined to be the following
[CRITICAL STEP]:

Worker	Job Total (mrem)	PTN Total (mrem)	Annual Total (mrem)
A	1430	1516	1621
B	1430	1730	2530

Cumulative job exposure = 2.860 man-rem

Note: annual totals should be calculated to compare against federal limits

**Turkey Point
JPM No. A.3**

Calculate Worker Exposure and Apply Administrative Guidelines

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: GEN 2.3.1 (2.6/3.0)
Examiner:	10 CFR 55.45 Ref: (a)(10)

- ☐ Both workers' planned exposure should be reviewed by the Health Physics Supervisor (5.7.1.4.b of ADM-600 for TP exposure greater than 1000 mrem) **[60% Credit]**
- ☐ Additional ALARA review (e.g., pre-job briefing) should be performed and documented prior to issuing the RWP. (5.16.1.1.b of ADM-600 for any task where the collective dose is estimated to exceed 0.5 man-rem). **[20% Credit]**
- ☐ The job should be reviewed in a detailed manner and ALARA initiatives should be considered and applied if practical (5.16.1.1.c of ADM-600 for any task where the collective dose is estimated to be between 1 and 5 man-rem. A discussion of the items to be considered in the ALARA review are given in Substep 5.16.1.9). **[20% Credit]**

Turkey Point
JPM No. A4
Classify Events and Determine PARs

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: GEN 2.4.41 (2.3/4.1)
Examiner:	10 CFR 55.45 Ref: (a)11

Evaluation Method: <input checked="" type="checkbox"/> Performed <input type="checkbox"/> Simulated	Evaluation Location: <input type="checkbox"/> Simulator <input checked="" type="checkbox"/> Classroom <input type="checkbox"/> Plant
Overall JPM Evaluation <input type="checkbox"/> SAT <input type="checkbox"/> UNSAT	
Examiner Comments	

**Turkey Point
JPM No. A4
Classify Events and Determine PARs**

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: GEN 2.4.41 (2.3/4.1)
Examiner:	10 CFR 55.45 Ref: (a)11
Initial Conditions: A large-break loss of coolant accident is in progress. The ECCS is operating in the injection mode. The containment has been leaking and the leakage has been getting progressively worse.	
Assigned Task: You are the Emergency Coordinator. Classify this event, including the development of Protective Action Recommendations, if appropriate.	

Turkey Point
JPM No. A4
Classify Events and Determine PARs

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: GEN 2.4.41 (2.3/4.1)
Examiner:	10 CFR 55.45 Ref: (a)11
Initial Conditions: A large-break loss of coolant accident is in progress. The ECCS is operating in the injection mode. The containment has been leaking and the leakage has been getting progressively worse.	
Assigned Task: You are the Emergency Coordinator. Classify this event, including the development of Protective Action Recommendations, if appropriate.	

Task Standard:

Reference: EPIP-20101

- ☐ Locate EPIP-20101 and classify this event as a General Emergency per Enclosure 1, Page 1, case B. **[20% Credit]**
- ☐ Move to Attachment 3
 - Prompts - If asked,
 - There is no loss of critical safety functions associated with core protection
 - The core is not experiencing high temperatures (TCs<700°F)
 - The control room is secure
 - There is no loss of physical control of the plant
- ☐ Develops initial PARs **[20% Credit]**
 - ☐ Shelter 0-2 miles in all directions
 - ☐ Shelter 2-5 miles downwind (see below met conditions)
 - ☐ No action for 5-10 miles

**Turkey Point
JPM No. A4
Classify Events and Determine PARs**

Applicant:	Evaluation Date:
Application Level: RO/SRO	K/A: GEN 2.4.41 (2.3/4.1)
Examiner:	10 CFR 55.45 Ref: (a)11

- ☐ Transposes information to the bottom of Attachment 3
- ☐ Asks for Offsite Dose Projections
Examiner Prompts (will be necessary, as applicant may try to find Dose Calculation Worksheet):
 - ☐ At 1 mile, Total Dose = 1250 mrem, Thyroid Dose = 5200 mrem
 - ☐ At 2 miles, Total Dose = 780 mrem, Thyroid Dose = 2300 mrem
 - ☐ At 5 miles, Total Dose = 600 mrem, Thyroid Dose = 960 mrem
- ☐ Determines PARs on lower table of Attachment 3 as follows and chooses most conservative PARs for each range (shown in **Bold**) **[40% Credit]**:

Summary	0-2 Miles	2-5 Miles	5-10 Miles
PARs/Plant Conditions	Shelter Complete Radius	Shelter Downwind	None
PARs/Total Dose (TEDE)	Evacuate Complete Radius	Shelter Downwind	Shelter Downwind
PARs/Thyroid	Evacuate Complete Radius	Shelter Downwind	None

- ☐ **Meteorological Data**
Prompt - Wind from 146°.
- ☐ Applicant determines from Attachment 1 that sectors PQR&A are affected by the release. Added sector "A" is added pursuant to the instructions on Attachment 1 for wind directions that are on the boarder of two sectors. **[20% Credit]**
- ☐ Prompt Applicant that Stability class determination is not required.

Facility: TURKEY POINT		Date of Examination: 11/26 - 12/15/00		Operating Test Number: 1	
1. GENERAL CRITERIA		Initials			
		a	b	c	
a.	The operating test conforms with the previously approved outline; changes are consistent with sampling requirements (e.g., 10 CFR 55.45, operational importance, safety function distribution).	<input checked="" type="checkbox"/>	NA	<input checked="" type="checkbox"/>	
b.	There is no day-to-day repetition between this and other operating tests to be administered during this examination.	<input checked="" type="checkbox"/>	NA	<input checked="" type="checkbox"/>	
c.	The operating test shall not duplicate items from the applicants' audit test(s)(see Section D.1.a).	<input checked="" type="checkbox"/>	NA	<input checked="" type="checkbox"/>	
d.	Overlap with the written examination and between operating test categories is within acceptable limits.	<input checked="" type="checkbox"/>	NA	<input checked="" type="checkbox"/>	
e.	It appears that the operating test will differentiate between competent and less-than-competent applicants at the designated license level.	<input checked="" type="checkbox"/>	NA	<input checked="" type="checkbox"/>	
2. WALK-THROUGH (CATEGORY A & B) CRITERIA		--	--	--	
a.	Each JPM includes the following, as applicable: <ul style="list-style-type: none"> initial conditions initiating cues references and tools, including associated procedures validated time limits (average time allowed for completion) and specific designation if deemed to be time critical by the facility licensee specific performance criteria that include: <ul style="list-style-type: none"> detailed expected actions with exact criteria and nomenclature system response and other examiner cues statements describing important observations to be made by the applicant criteria for successful completion of the task identification of critical steps and their associated performance standards restrictions on the sequence of steps, if applicable 	<input checked="" type="checkbox"/>	NA	<input checked="" type="checkbox"/>	
b.	The prescribed questions in Category A are predominantly open reference and meet the criteria in Attachment 1 of ES-301.	<input checked="" type="checkbox"/>	NA	<input checked="" type="checkbox"/>	
c.	Repetition from operating tests used during the previous licensing examination is within acceptable limits (30% for the walk-through) and do not compromise test integrity.	<input checked="" type="checkbox"/>	NA	<input checked="" type="checkbox"/>	
d.	At least 20 percent of the JPMs on each test are new or significantly modified.	<input checked="" type="checkbox"/>	NA	<input checked="" type="checkbox"/>	
3. SIMULATOR (CATEGORY C) CRITERIA		--	--	--	
a.	The associated simulator operating tests (scenario sets) have been reviewed in accordance with Form ES-301-4 and a copy is attached.	<input checked="" type="checkbox"/>	NA	<input checked="" type="checkbox"/>	
Printed Name / Signature		Date			
a. Author	STEVEN D. ROSE / <i>[Signature]</i>	11/22/00			
b. Facility Reviewer(*)	NA	—			
c. NRC Chief Examiner (*)	D. CHARLES PRYNE / <i>[Signature]</i>	11/22/00			
d. NRC Supervisor (*)	MIKE ERNSTE / <i>[Signature]</i>	11/10/01			
(*) The facility signature is not applicable for NRC-developed tests; two independent NRC reviews are required.					


Facility: TURKEY POINT Date of Exam: 11/26 - 12/15/00		Operating Test No.: 1 Scenario Numbers: 1 / 2 / 3 / 4 / 5			
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.	Ⓟ	NA	Ⓟ	
2.	The scenarios consist mostly of related events.	Ⓟ	NA	Ⓟ	
3.	Each event description consists of • the point in the scenario when it is to be initiated • the malfunction(s) that are entered to initiate the event • the symptoms/cues that will be visible to the crew • the expected operator actions (by shift position) • the event termination point (if applicable)	Ⓟ	NA	Ⓟ	
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.	Ⓟ	NA	Ⓟ	
5.	The events are valid with regard to physics and thermodynamics.	Ⓟ	NA	Ⓟ	
6.	Sequencing and timing of events is reasonable, and allows the examination team to obtain complete evaluation results commensurate with the scenario objectives.	Ⓟ	NA	Ⓟ	
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.	Ⓟ	NA	Ⓟ	
8.	The simulator modeling is not altered.	Ⓟ	NA	Ⓟ	
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.	Ⓟ	NA	Ⓟ	
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.	Ⓟ	NA	Ⓟ	
11.	All individual operator competencies can be evaluated, as verified using Form ES-301-6 (submit the form along with the simulator scenarios).	Ⓟ	NA	Ⓟ	
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).	Ⓟ	NA	Ⓟ	
13.	The level of difficulty is appropriate to support licensing decisions for each crew position.	Ⓟ	NA	Ⓟ	
TARGET QUANTITATIVE ATTRIBUTES (PER SCENARIO; SEE SECTION D.4.D)		Actual Attributes	--	--	--
1.	Total malfunctions (5-8)	5 5 5 5 5	Ⓟ	NA	Ⓟ
2.	Malfunctions after EOP entry (1-2)	2 2 1 2 1	Ⓟ	NA	Ⓟ
3.	Abnormal events (2-4)	4 4 3 4 3	Ⓟ	NA	Ⓟ
4.	Major transients (1-2)	1 2 2 1 1	Ⓟ	NA	Ⓟ
5.	EOPs entered/requiring substantive actions (1-2)	1 2 1 2 2	Ⓟ	NA	Ⓟ
6.	EOP contingencies requiring substantive actions (0-2)	1 1 2 1 1	Ⓟ	NA	Ⓟ
7.	Critical tasks (2-3)	3 4 3 8 2	Ⓟ	NA	Ⓟ

OPERATING TEST NO.: 1 (Crew 1)

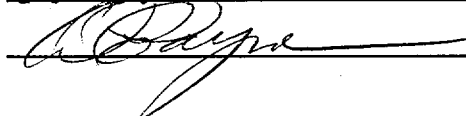
Applicant Type	Evolution Type	Minimum Number	Scenario Number			
			1	2	4	5
RO-1	Reactivity	1		4	-	-
	Normal	1		1	-	-
	Instrument	2		2	-	5
	Component	2		6	2,3	6,7
	Major	1		7,8	7,8 8A	8
As RO SRO-I -1 As SRO	Reactivity	1		-	6	-
	Normal	0		-	1	-
	Instrument	1		-	4	-
	Component	1		-	5	-
	Major	1		-	7,8 8A	-
	Reactivity	0		4	-	1
	Normal	1		1	-	3
	Instrument	1		2	-	4,5
	Component	1		3,5 6	-	2,6,7
	Major	1		7,8	-	8
SRO-U	Reactivity	0				
	Normal	1				
	Instrument	1				
	Component	1				
	Major	1				

- 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:





OPERATING TEST NO.: 1 (Crew 1)

Applicant Type	Evolution Type	Minimum Number	Scenario Number			
			1	2	4	5
RO	Reactivity	1				
	Normal	1				
	Instrument	2				
	Component	2				
	Major	1				
As RO	Reactivity	1		-	-	1
	Normal	0		-	-	3
	Instrument	1		-	-	4
	Component	1		3,5	-	2,6
	Major	1		7,8	-	8
	SRO-I -2					
	Reactivity	0		-	6	-
	Normal	1		-	1	-
	Instrument	1		-	4	-
	Component	1		-	2,3 5	-
	Major	1		-	7,8 8A	-
SRO-U	Reactivity	0				
	Normal	1				
	Instrument	1				
	Component	1				
	Major	1				

- 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:


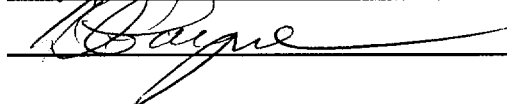
OPERATING TEST NO.: 1 (Crew 2)

Applicant Type	Evolution Type	Minimum Number	Scenario Number			
			1	2	4	5
RO-2	Reactivity	1		4	-	-
	Normal	1		1	-	-
	Instrument	2		2	-	5
	Component	2		6	2,3	6,7
	Major	1		7,8	7,8 8A	8
As RO	Reactivity	1		-	6	-
	Normal	0		-	1	-
	Instrument	1		-	4	-
	Component	1		-	5	-
	Major	1		-	7,8 8A	-
SRO-I -3						
As SRO	Reactivity	0		4	-	1
	Normal	1		1	-	3
	Instrument	1		2	-	4,5
	Component	1		3,5 6	-	2,6,7
	Major	1		7,8	-	8
SRO-U	Reactivity	0				
	Normal	1				
	Instrument	1				
	Component	1				
	Major	1				

- 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:



OPERATING TEST NO.: 1 (Crew 2)

Applicant Type	Evolution Type	Minimum Number	Scenario Number			
			1	2	4	5
RO	Reactivity	1				
	Normal	1				
	Instrument	2				
	Component	2				
	Major	1				
As RO	Reactivity	1		-	-	1
	Normal	0		-	-	3
	Instrument	1		-	-	4
	Component	1		3,5	-	2,6
	Major	1		7,8	-	8
	SRO-I -4					
	Reactivity	0		-	6	-
	Normal	1		-	1	-
	Instrument	1		-	4	-
	Component	1		-	2,3 5	-
	Major	1		-	7,8 8A	-
SRO-U	Reactivity	0				
	Normal	1				
	Instrument	1				
	Component	1				
	Major	1				

- 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:



OPERATING TEST NO.: 1 (Crew 3)

Applicant Type	Evolution Type	Minimum Number	Scenario Number			
			1	2	4	5
RO-3	Reactivity	1			6	-
	Normal	1			1	-
	Instrument	2			4	5
	Component	2			5	6,7
	Major	1			7,8 8A	8
As RO	Reactivity	1				
	Normal	0				
	Instrument	1				
	Component	1				
	Major	1				
SRO-I						
As SRO	Reactivity	0				
	Normal	1				
	Instrument	1				
	Component	1				
	Major	1				
SRO-U	Reactivity	0				
	Normal	1				
	Instrument	1				
	Component	1				
	Major	1				

- 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:

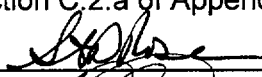

OPERATING TEST NO.: 1 (Crew 3)

Applicant Type	Evolution Type	Minimum Number	Scenario Number			
			1	2	4	5
RO-4	Reactivity	1			-	1
	Normal	1			-	3
	Instrument	2			-	4
	Component	2			2,3	2,6
	Major	1			7,8 8A	8
As RO	Reactivity	1				
	Normal	0				
	Instrument	1				
	Component	1				
	Major	1				
SRO-I						
As SRO	Reactivity	0				
	Normal	1				
	Instrument	1				
	Component	1				
	Major	1				
SRO-U	Reactivity	0				
	Normal	1				
	Instrument	1				
	Component	1				
	Major	1				

- 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:

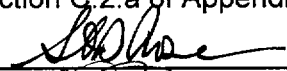

OPERATING TEST NO.: 1 (Crew 4)

Applicant Type	Evolution Type	Minimum Number	Scenario Number			
			1	2	4	5
RO-5	Reactivity	1			6	-
	Normal	1			1	-
	Instrument	2			4	5
	Component	2			5	6,7
	Major	1			7,8 8A	8
As RO	Reactivity	1				
	Normal	0				
	Instrument	1				
	Component	1				
	Major	1				
SRO-I						
As SRO	Reactivity	0				
	Normal	1				
	Instrument	1				
	Component	1				
	Major	1				
SRO-U	Reactivity	0				
	Normal	1				
	Instrument	1				
	Component	1				
	Major	1				

- 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:

OPERATING TEST NO.: 1 (Crew 4)

Applicant Type	Evolution Type	Minimum Number	Scenario Number			
			1	2	4	5
RO-6	Reactivity	1			-	1
	Normal	1			-	3
	Instrument	2			-	4
	Component	2			2,3	2,6
	Major	1			7,8 8A	8

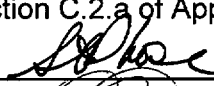
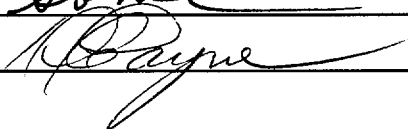
As RO	Reactivity	1				
	Normal	0				
	Instrument	1				
	Component	1				
	Major	1				
SRO-I						
As SRO	Reactivity	0				
	Normal	1				
	Instrument	1				
	Component	1				
	Major	1				

SRO-U	Reactivity	0				
	Normal	1				
	Instrument	1				
	Component	1				
	Major	1				

- 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:


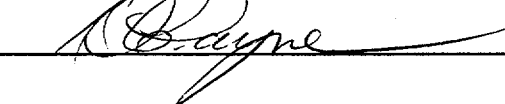
OPERATING TEST NO.: 1 (Crew 5)

Applicant Type	Evolution Type	Minimum Number	Scenario Number			
			1	2	4	5
RO-7	Reactivity	1	-	4		
	Normal	1	-	1		
	Instrument	2	7	2		
	Component	2	4,8A 8B	6		
	Major	1	7,8	7,8		
As RO	Reactivity	1				
	Normal	0				
	Instrument	1				
	Component	1				
	Major	1				
	SRO-I					
	Reactivity	0				
	Normal	1				
	Instrument	1				
	Component	1				
As SRO	Major	1				
	Reactivity	0				
	Normal	1				
	Instrument	1				
	Component	1				
SRO-U	Major	1				
	Reactivity	0				
	Normal	1				
	Instrument	1				
	Component	1				

- 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:

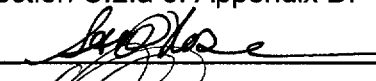

OPERATING TEST NO.: 1 (Crew 5)

Applicant Type	Evolution Type	Minimum Number	Scenario Number			
			1	2	3	4
RO-8	Reactivity	1	2	-		
	Normal	1	1	-		
	Instrument	2	3,6	-		
	Component	2	5,8A 8B	3,5		
	Major	1	8	7,8		
As RO SRO-I As SRO	Reactivity	1				
	Normal	0				
	Instrument	1				
	Component	1				
	Major	1				
	Reactivity	0				
	Normal	1				
	Instrument	1				
	Component	1				
	Major	1				
SRO-U	Reactivity	0				
	Normal	1				
	Instrument	1				
	Component	1				
	Major	1				

- 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:

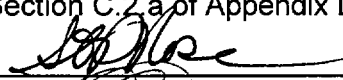
OPERATING TEST NO.: 1 (Crew 6)


Applicant Type	Evolution Type	Minimum Number	Scenario Number			
			1	2	4	5
RO-9	Reactivity	1	-	4		
	Normal	1	-	1		
	Instrument	2	7	2		
	Component	2	4, 8A 8B	6		
	Major	1	7, 8	7, 8		
As RO SRO-I As SRO	Reactivity	1				
	Normal	0				
	Instrument	1				
	Component	1				
	Major	1				
	Reactivity	0				
	Normal	1				
	Instrument	1				
	Component	1				
	Major	1				
SRO-U	Reactivity	0				
	Normal	1				
	Instrument	1				
	Component	1				
	Major	1				

- 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:







OPERATING TEST NO.: 1 (Crew 6)

Applicant Type	Evolution Type	Minimum Number	Scenario Number			
			1	2	3	4
RO-10	Reactivity	1	2	-		
	Normal	1	1	-		
	Instrument	2	3,6	-		
	Component	2	5,8A 8B	3,5		
	Major	1	8	7,8		
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				
	Normal	1				
	Instrument	1				
	Component	1				
	Major	1				

- 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:

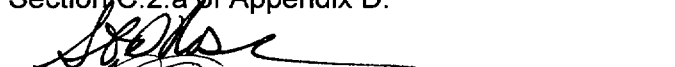
OPERATING TEST NO.: 1 (Crew 7)

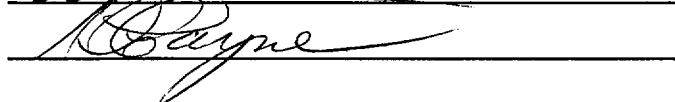
Applicant Type	Evolution Type	Minimum Number	Scenario Number			
			1	2	3	4
RO-11	Reactivity	1	-		7	
	Normal	1	-		1	
	Instrument	2	7		4	
	Component	2	4,8A 8B		2	
	Major	1	7,8		8	
As RO	Reactivity	1				
	Normal	0				
	Instrument	1				
	Component	1				
	Major	1				
SRO-I						
As SRO	Reactivity	0				
	Normal	1				
	Instrument	1				
	Component	1				
	Major	1				
SRO-U -1	Reactivity	0	2		7	
	Normal	1	1		1	
	Instrument	1	3,6 7		4,5	
	Component	1	4,5 8A 8B		2,3 6	
	Major	1	8		8	

- 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:






OPERATING TEST NO.: 1 (Crew 7)

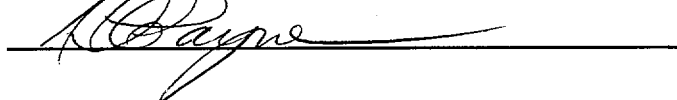
Applicant Type	Evolution Type	Minimum Number	Scenario Number			
			1	2	3	4
RO-12	Reactivity	1	2		-	
	Normal	1	1		-	
	Instrument	2	3,6		5	
	Component	2	5,8A 8B		3,6	
	Major	1	8		8	
As RO	Reactivity	1				
	Normal	0				
	Instrument	1				
	Component	1				
	Major	1				
SRO-I	Reactivity	0				
	Normal	1				
	Instrument	1				
	Component	1				
	Major	1				
SRO-U	Reactivity	0				
	Normal	1				
	Instrument	1				
	Component	1				
	Major	1				

- 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:







OPERATING TEST NO.: 1 (Crew 8)

Applicant Type	Evolution Type	Minimum Number	Scenario Number			
			1	2	3	4
RO-13	Reactivity	1	-		7	
	Normal	1	-		1	
	Instrument	2	7		4	
	Component	2	4,8A 8B		2	
	Major	1	7,8		8	
As RO SRO-I As SRO	Reactivity	1				
	Normal	0				
	Instrument	1				
	Component	1				
	Major	1				
	Reactivity	0				
	Normal	1				
	Instrument	1				
	Component	1				
	Major	1				
SRO-U -2	Reactivity	0	2		7	
	Normal	1	1		1	
	Instrument	1	3,6 7		4,5	
	Component	1	4,5 8A 8B		2,3 6	
	Major	1	8		8	

- 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:

OPERATING TEST NO.: 1 (Crew 8)

Applicant Type	Evolution Type	Minimum Number	Scenario Number			
			1	2	3	4
RO-14	Reactivity	1	2		-	
	Normal	1	1		-	
	Instrument	2	3,6		5	
	Component	2	5,8A 8B		3,6	
	Major	1	8		8	

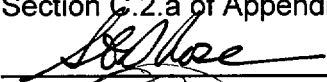

As RO	Reactivity	1				
	Normal	0				
	Instrument	1				
	Component	1				
	Major	1				
SRO-I						
As SRO	Reactivity	0				
	Normal	1				
	Instrument	1				
	Component	1				
	Major	1				

SRO-U	Reactivity	0				
	Normal	1				
	Instrument	1				
	Component	1				
	Major	1				

- 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:

Facility: TURKEY POINT		Date of Exam: 12/6/00		Exam Level: RO/SRO																																				
Item Description				Initial																																				
				a	b*	c#																																		
1.	Questions and answers technically accurate and applicable to facility			PD	NA	FSM																																		
2.	a. NRC K/As referenced for all questions b. Facility learning objectives referenced as available			PD	NA	FSM																																		
3.	RO/SRO overlap is no more than 75 percent, and SRO questions are appropriate per Section D.2.d of ES-401			PD	NA	FSM																																		
4.	No more than 25 questions are duplicated from [practice exams, quizzes, and] the last two NRC licensing exams; enter the actual number of duplicated questions at right	NRC	Other	PD	NA	FSM																																		
		1																																						
5.	[No (Less than 5 percent) question duplication from the license screening/audit exam (if independently written)]			N/A	NA	N/A																																		
6.	Bank use meets limits (no more than 50 percent from the bank, at least 10 percent new, and the rest modified); enter the actual question distribution at right	Bank	Modified	New	PD	NA																																		
		26	5	69		FSM																																		
7.	Between 50 and 60 percent of the questions on the exam (including 10 new questions) are written at the comprehension/analysis level; enter the actual question distribution at right	Memory	C/A		PD	NA																																		
		45	55			FSM																																		
8.	References/handouts provided do not give away answers			PD	NA	FSM																																		
9.	Question distribution meets previously approved examination outline; deviations are justified			PD	NA	FSM																																		
10.	Question psychometric quality and format meet ES, Appendix B, guidelines			PD	NA	FSM																																		
11.	The exam contains 100, one-point, multiple choice items; the total is correct and agrees with value on cover sheet			PD	NA	FSM																																		
<table border="0"> <tr> <td colspan="4">Printed Name / Signature</td> <td colspan="2">Date</td> </tr> <tr> <td>a. Author</td> <td colspan="4">STEVEN D. ROSE / [Signature]</td> <td colspan="2">12/2/00</td> </tr> <tr> <td>b. Facility Reviewer(*)</td> <td colspan="4">NA</td> <td colspan="2">—</td> </tr> <tr> <td>c. NRC Chief Examiner(*)</td> <td colspan="4">Larry S. Mellen / [Signature]</td> <td colspan="2">12/2/00</td> </tr> <tr> <td>d. NRC Regional Supervisor(*)</td> <td colspan="4">MICHAEL E. ERNSTES / [Signature]</td> <td colspan="2">12/2/00</td> </tr> </table>							Printed Name / Signature				Date		a. Author	STEVEN D. ROSE / [Signature]				12/2/00		b. Facility Reviewer(*)	NA				—		c. NRC Chief Examiner(*)	Larry S. Mellen / [Signature]				12/2/00		d. NRC Regional Supervisor(*)	MICHAEL E. ERNSTES / [Signature]				12/2/00	
Printed Name / Signature				Date																																				
a. Author	STEVEN D. ROSE / [Signature]				12/2/00																																			
b. Facility Reviewer(*)	NA				—																																			
c. NRC Chief Examiner(*)	Larry S. Mellen / [Signature]				12/2/00																																			
d. NRC Regional Supervisor(*)	MICHAEL E. ERNSTES / [Signature]				12/2/00																																			
<p>Note: * The facility reviewer's signature is not applicable for NRC-developed examinations; two independent NRC reviews are required.</p> <p># See special instructions (Section E.2.c) for Items 1, 4, 5, and 6.</p> <p>[] The items in brackets do not apply to NRC-prepared examinations.</p>																																								

Facility: <u>TURKEY POINT</u>		Date of Exam: <u>12/6/00</u>		Exam Level: <u>RO/SRO</u>																																					
Item Description				Initial																																					
				a	b*	c#																																			
1.	Questions and answers technically accurate and applicable to facility			<input checked="" type="checkbox"/>	NA	fsn																																			
2.	a. NRC K/As referenced for all questions b. Facility learning objectives referenced as available			<input checked="" type="checkbox"/>	NA	fsn																																			
3.	RO/SRO overlap is no more than 75 percent, and SRO questions are appropriate per Section D.2.d of ES-401			<input checked="" type="checkbox"/>	NA	fsn																																			
4.	No more than 25 questions are duplicated from [practice exams, quizzes, and] the last two NRC licensing exams; enter the actual number of duplicated questions at right	NRC	Other	<input checked="" type="checkbox"/>	NA	fsn																																			
		0																																							
5.	[No (Less than 5 percent) question duplication from the license screening/audit exam (if independently written)]			N/A	NA	N/A																																			
6.	Bank use meets limits (no more than 50 percent from the bank, at least 10 percent new, and the rest modified); enter the actual question distribution at right	Bank	Modified	<input checked="" type="checkbox"/>	NA	fsn																																			
		24	8				New 68																																		
7.	Between 50 and 60 percent of the questions on the exam (including 10 new questions) are written at the comprehension/analysis level; enter the actual question distribution at right	Memory	C/A	<input checked="" type="checkbox"/>	NA	fsn																																			
		47	53																																						
8.	References/handouts provided do not give away answers			<input checked="" type="checkbox"/>	NA	fsn																																			
9.	Question distribution meets previously approved examination outline; deviations are justified			<input checked="" type="checkbox"/>	NA	fsn																																			
10.	Question psychometric quality and format meet ES, Appendix B, guidelines			<input checked="" type="checkbox"/>	NA	fsn																																			
11.	The exam contains 100, one-point, multiple choice items; the total is correct and agrees with value on cover sheet			<input checked="" type="checkbox"/>	NA	fsn																																			
<table border="0"> <tr> <td colspan="4">Printed Name / Signature</td> <td colspan="3">Date</td> </tr> <tr> <td>a. Author</td> <td colspan="4"><u>STEVEN D. ROSE / <i>[Signature]</i></u></td> <td colspan="2"><u>12/2/00</u></td> </tr> <tr> <td>b. Facility Reviewer(*)</td> <td colspan="4"><u>NA</u></td> <td colspan="2"><u>—</u></td> </tr> <tr> <td>c. NRC Chief Examiner(*)</td> <td colspan="4"><u>LARRY S. MELLER / <i>[Signature]</i></u></td> <td colspan="2"><u>12/2/00</u></td> </tr> <tr> <td>d. NRC Regional Supervisor(*)</td> <td colspan="4"><u>MICHAEL E. EDWARDS / <i>[Signature]</i></u></td> <td colspan="2"><u>12/2/00</u></td> </tr> </table>							Printed Name / Signature				Date			a. Author	<u>STEVEN D. ROSE / <i>[Signature]</i></u>				<u>12/2/00</u>		b. Facility Reviewer(*)	<u>NA</u>				<u>—</u>		c. NRC Chief Examiner(*)	<u>LARRY S. MELLER / <i>[Signature]</i></u>				<u>12/2/00</u>		d. NRC Regional Supervisor(*)	<u>MICHAEL E. EDWARDS / <i>[Signature]</i></u>				<u>12/2/00</u>	
Printed Name / Signature				Date																																					
a. Author	<u>STEVEN D. ROSE / <i>[Signature]</i></u>				<u>12/2/00</u>																																				
b. Facility Reviewer(*)	<u>NA</u>				<u>—</u>																																				
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Facility: TURKEY POINT		Date of Exam: 12/6/00		Exam Level: RO	
Item Description	Initials				
	a	b	c		
1. Clean answer sheets copied before grading	GFB	MS	Ⓟ		
2. Answer key changes and question deletions justified and documented	GFB N/A	NA	N/A		
3. Applicants' scores checked for addition errors (reviewers spot check > 25% of examinations)	GFB	MS	Ⓟ		
4. Grading for all borderline cases (80% +/- 2%) reviewed in detail	GFB N/A	NA	N/A		
5. All other failing examinations checked to ensure that grades are justified	GFB -N/A	NA	N/A		
6. Performance on missed questions checked for training deficiencies and wording problems; evaluate validity of questions missed by half or more of the applicants	GFB	MS	Ⓟ		
Printed Name / Signature		Date			
a. Grader	G.M. B. [Signature]	12/6/00			
b. Facility Reviewer(*)	Richard Bretton [Signature] STEVEN D. ROSE [Signature]	12-7-00 12/20/00			
c. NRC Chief Examiner (*)	D. CHARLES PAYNE [Signature]	12/20/00			
d. NRC Supervisor (*)	M.E. ERNSTES / MS [Signature]	12/20/00			
(*) The facility reviewer's signature is not applicable for examinations graded by the NRC; two independent NRC reviews are required.					

Facility: TURKEY POINT		Date of Exam: 12/6/00		Exam Level: SRO	
Item Description	Initials				
	a	b	c		
1. Clean answer sheets copied before grading	GB	MS	DB		
2. Answer key changes and question deletions justified and documented	GB N/A	NA	N/A N/A		
3. Applicants' scores checked for addition errors (reviewers spot check > 25% of examinations)	GB	MS	DB		
4. Grading for all borderline cases (80% +/- 2%) reviewed in detail	GB N/A	NA	N/A N/A		
5. All other failing examinations checked to ensure that grades are justified	GB N/A	NA	N/A N/A		
6. Performance on missed questions checked for training deficiencies and wording problems; evaluate validity of questions missed by half or more of the applicants	GB	MS	DB		
Printed Name / Signature		Date			
a. Grader	G.M. BLINDE	12/6/00			
b. Facility Reviewer(*)	Richard Bretton	12-7-00			
	STEVEN D. ROSE	12/20/00			
c. NRC Chief Examiner (*)	D. CHARLES PAYNE	12/20/00			
d. NRC Supervisor (*)	MIKE ERNSTES	12/20/00			
(*) The facility reviewer's signature is not applicable for examinations graded by the NRC; two independent NRC reviews are required.					

Facility: <u>TURKEY POINT</u>		Date of Examination: <u>11/26 - 12/15/00</u>
Task Description	Date Complete	
1. Facility written exam comments or graded exams received and verified complete	12/15/00	
2. Facility written exam comments reviewed and incorporated and NRC grading completed, if necessary	12/20/00	
3. Operating tests graded by NRC examiners	1/23/01	
4. NRC Chief examiner review of written exam and operating test grading completed	1/24/01	
5. Responsible supervisor review completed	N/A	
6. Management (licensing official) review completed	1/24/01	
7. License and denial letters mailed	1/24/01	
8. Facility notified of results	1/24/01	
9. Examination report issued (refer to NRC MC 0610)	2/2/01	
10. Reference material returned after final resolution of any appeals	N/A	

Facility:		Date of Exam:		Exam Level:										
Tier	Group	K/A Category Points											Point Total	
		K 1	K 2	K 3	K 4	K 5	K 6	A 1	A2	A 3	A 4	G *		
1. Emergency & Abnormal Plant Evolutions	1	4	2	5				3	5			5	24	
	2	1	2	1				2	7			3	16	
	3	0	1	0				0	0			2	3	
	Tier Totals	5	5	6				5	12			10	43	
2. Plant Systems	1	1	2	1	1	1	2	2	4	1		4	19	
	2	1	1	2	1	1		2	4	1	2	2	17	
	3			1		1			2				4	
	Tier Totals	2	3	4	2	3	2	4	10	2	2	6	40	
3. Generic Knowledge and Abilities						Cat 1		Cat 2		Cat 3		Cat 4		17
						5		6		3		3		
<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	17						MTC	3.7	1
000003 Dropped Control Rod / 1			08			2.1.32	Explain and apply all system limits & precautions Criteria for inoperable control rods	3.8 4.2	1
000005 Inoperable/Stuck Control Rod / 1			05				Power limits on rod misalignment	4.2	1
000011 Large Break LOCA / 3				17			Safety parameter display system	4.1*	1
W/E04 LOCA Outside Containment / 3					01		Facility conditions & selection of procedures during ONOP & EOP	4.3	1
W/E01 & E02 Rediagnosis & SI Termination / 3						2.4.12	Knowledge of gen operating crew responsibilities during emer ops	3.9	1
000015/17 RCP Malfunctions / 4		10					RCP indicators and controls	2.8	1
BW/E09; CE/A13; W/E09&E10 Natural Circ. / 4				3			Desired operating results during abnormal and emer situations	3.8	1
000024 Emergency Boration / 1		03					Controllers and positioners	2.5	1
000026 Loss of Component Cooling Water / 8					04		Norm & upper limits for the temps of components cooled by CCW	2.9*	1
000029 Anticipated Transient w/o Scram / 1	02						Definition of reactivity	2.8	1
000040 (BW/E05; CE/E05; W/E12) Steam Line Rupture - Excessive Heat Transfer / 4						2.4.6	Knowledge symptom based EOP mitigation strategies	4.0	1
CE/A11; W/E08 RCS Overcooling - PTS / 4					1		Conditions and selection of procedures (pressurized therm shock)	4.2	1
000051 Loss of Condenser Vacuum / 4				04			Rod position	2.5*	1
000055 Station Blackout / 6			02		01		Existing valve position on a loss of instrument air system Actions contained in EOP for loss of offsite and onsite power	3.7 4.6	1
000057 Loss of Vital AC Elec. Inst. Bus / 6			01				Actions contained in EOP for loss of vital AC elec instrument bus	4.4	1
000059 Accidental Liquid RadWaste Rel. / 9						2.3.10	Procedures to reduce exces levels of rad & guard against exposure	3.3	1
000062 Loss of Nuclear Service Water / 4					04		Norm & upper limits for the temps of components cooled by SWS	2.9*	1
000067 Plant Fire On-site / 9	02						Fire fighting	3.9	1
000068 (BW/A06) Control Room Evac. / 8									
000069 (W/E14) Loss of CTMT Integrity / 5			01				Guidance contained in EOP for loss of containment integrity	4.2	1
000074 (W/E06&E07) Inad. Core Cooling / 4	05						Definition of saturated liquid	3.2	1
BW/E03 Inadequate Subcooling Margin / 4									
000076 High Reactor Coolant Activity / 9						2.1.1	Conduct of operations requirements	3.8	1
BW/A02&A03 Loss of NNI-X/Y / 7									
K/A Category Totals:	4	2	5	3	5	5	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		03					Reactor trip status panel	3.6	1
BW/A01 Plant Runback / 1									
BW/A04 Turbine Trip / 4									
000008 Pressurizer Vapor Space Accident / 3									
000009 Small Break LOCA / 3						2.1.30	Ability to locate and operate components, including local controls	3.4	1
BW/E08; W/E03 LOCA Cooldown - Depress. / 4					1		Facility conditions and selection of appropriate procedures during abnormal and emergency procedures	4.2	1
W/E11 Loss of Emergency Coolant Recirc. / 4					2		Adherence to appropriate procedures and operation within the limitations in the facility's license and admendments	4.2	1
000022 Loss of Reactor Coolant Makeup / 2				01			CVCS letdown and charging	3.3	1
000025 Loss of RHR System / 4									
000027 Pressurizer Pressure Control System Malfunction / 3									
000032 Loss of Source Range NI / 7						2.2.23	Ability to track limiting conditions for operation	3.8	1
000033 Loss of Intermediate Range NI / 7			01				Termination of startup following loss of IR instrumentation	3.6	1
000037 Steam Generator Tube Leak / 3					03		MS Lines show increasing Rad levels	3.9	1
000038 Steam Generator Tube Rupture / 3				27			Steam dump valve status lights and indicators	3.9	1
000054 (CE/E06) Loss of Main Feedwater / 4	02						Effects of feedwater introduction on dry S/G	4.2	1
BW/E04; W/E05 Inadequate Heat Transfer - Loss of Secondary Heat Sink / 4		1					Components, functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, auto & manual	3.9	1
000058 Loss of DC Power / 6					02		125V dc bus voltage, low/critical low, alarm	3.6	1
000060 Accidental Gaseous Radwaste Rel. / 9					06		Valve lineup for release of radioactive gases	3.8	1
000061 ARM System Alarms / 7					03		setpoints for alert and high alarms	3.3	1
W/E16 High Containment Radiation / 9						2.4.45	Ability to prioritize and interpret the significance of each annunciator or alarm	3.6	1
000065 Loss of Instrument Air / 8					05		When to commence shut down if instr air press decreasing	4.1	1
CE/E09 Functional Recovery									
K/A Category Point Totals:	1	2	1	2	7	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									
000036 (BW/A08) Fuel Handling Accident / 8		02					Radiation monitoring equipment (portable and installed)	3.9	1
000056 Loss of Off-site Power / 6						2.4.21	Parameters and logic used to assess status of safety functions	4.3	1
BW/E13&E14 EOP Rules and Enclosures									
BW/A05 Emergency Diesel Actuation / 6									
BW/A07 Flooding / 8									
CE/A16 Excess RCS Leakage / 2									
W/E13 Steam Generator Over-pressure / 4						2.3.9	Knowledge of the process for performing a containment purge	3.4	1
W/E15 Containment Flooding / 5									
K/A Category Point Totals:		1				2	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											2.1.2	Knowledge of operator responsibility during all modes of operation	4.0	1
003 Reactor Coolant Pump							10					RCP standpipe levels	2.7	1
004 Chemical and Volume Control											2.4.34	Knowledge RO tasks performed outside the control room	3.6	1
013 Engineered Safety Features Actuation		01						01				ESFAS/safeguards equipment control Loss of coolant inventory	3.8 4.4	1 1
014 Rod Position Indication				05								Rod hold interlocks	3.3	1
015 Nuclear Instrumentation					14							Neutron flux density, definition and relation to reactor power	3.1	1
017 In-core Temperature Monitor							01					Core exit temperature	3.9	1
022 Containment Cooling		01										Containment cooling fans	3.1	1
025 Ice Condenser														
026 Containment Spray								03				Failure of ESF	4.4	1
056 Condensate														
059 Main Feedwater	04							02				SGWLC Loss of feed water heater	3.2 2.5	1 1
061 Auxiliary/Emergency Feedwater						01						Controllers and positioners	2.8*	1
063 DC Electrical Distribution			02									Components using DC control power	3.7	1
068 Liquid Radwaste						10			02			Radiation monitors Automatic isolation	2.9 3.6	1 1
071 Waste Gas Disposal											2.4.46 2.4.10	Alarms consistent with plant conditions Annunciator response procedures	3.6 3.1	1 1
072 Area Radiation Monitoring								02				Detector failure	3.2	1
K/A Category Point Totals:	1	2	1	1	1	2	2	4	1	0	4	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										06		Overflow level of the RWST	2.7	1	
006 Emergency Core Cooling															
010 Pressurizer Pressure Control					01							Determination of condition of fluid in PZR, using steam tables	4.0	1	
011 Pressurizer Level Control										01		Charging pump and flow controls	3.2	1	
012 Reactor Protection		01										RPS chns, components, and intercon	3.7	1	
016 Non-nuclear Instrumentation															
027 Containment Iodine Removal								01				High temp in the filter system	3.3	1	
028 Hydrogen Recombiner and Purge Control								02				LOCA cond and related con over H2	3.9	1	
029 Containment Purge															
033 Spent Fuel Pool Cooling				05								Adequate SDM (boron concentration)	3.3	1	
034 Fuel Handling Equipment											2.4.48	Interpret control room indications	3.8	1	
035 Steam Generator			01									RCS	4.6	1	
039 Main and Reheat Steam							09					Main steam line radiation monitors	2.7*	1	
055 Condenser Air Removal			01									Main condenser	2.7	1	
062 AC Electrical Distribution								03				Consequences of improper sequencing when transferring inverters	3.4	1	
064 Emergency Diesel Generator											2.1.33	Entry conditions for tech specs	4.0	1	
073 Process Radiation Monitoring								02				Detector failure	3.2	1	
075 Circulating Water	02											Liquid radwaste discharge	3.1	1	
079 Station Air															
086 Fire Protection									01			Starting mechanisms of fire water pump	3.3	1	
103 Containment							01					Containment pres, temp, and humidity	4.1*	1	
K/A Category Point Totals:	1	1	2	1	1	0	2	4	1	2	2	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					09							Dilution and boration considerations	3.4	1
007 Pressurizer Relief/Quench Tank								02				Abnormal pressure in the PRT	3.2	1
008 Component Cooling Water								02				High/low surge tank level	3.5	1
041 Steam Dump/Turbine Bypass Control														
045 Main Turbine Generator														
076 Service Water														
078 Instrument Air			01									Containment air system	3.4*	1
K/A Category Point Totals:			1		1			2				Group Point Total:		4
Plant-Specific Priorities														
System / Topic	Recommended Replacement for...						Reason					Points		
Plant-Specific Priority Total: (limit 10)														

Facility:		Date of Exam:		Exam Level:	
Category	K/A #	Topic	Imp.	Points	
Conduct of Operations	2.1.9	Direct personnel activities in control room	2.5/4.0	1	
	2.1.22	Determine mode of operation	2.8/3.3	1	
	2.1.1	Knowledge of conduct of operations	3.7/3.8	1	
	2.1.2	Responsibilities during all modes of operation	3.0/4.0	1	
	2.1.34	Maintain pri & sec chem in limits	2.3/2.9	1	
	2.1.				
	Total			4/5	
Equipment Control	2.2.22	Limiting cond for ops & safety limits	3.4/4.1	1	
	2.2.23	Track limiting conditions for ops	2.6/3.8	1	
	2.2.28	New and spent fuel movement procedures	2.6/3.5	1	
	2.2.29	SRO fuel handling responsibilities	1.6/3.8	1	
	2.2.17	Process for managing maintenance @ power	2.3/3.5	1	
	2.2.11	Process for controlling temporary changes	2.5/3.4	1	
	Total			3/4	
Radiation Control	2.3.2	Facility ALARA program	2.5/2.9	1	
	2.3.4	Rad exp limits & contamination control	2.5/3.1	1	
	2.3.9	Process for performing containment purge	2.5/3.4	1	
	2.3.				
	2.3.				
	2.3.				
	Total			2/3	
Emergency Procedures/ Plan					
	2.4.8	How to use event-based E/A operating proc.	3.0/3.7	1	
	2.4.39	RO's responsibilities in emer plan implement	3.3/3.1	1	
	2.4.40	Responsibilities for E-plan implementation	2.3/4.0	1	
	Total			4/5	
Tier 3 Point Total (RO/SRO)				13/17	

Facility:		Date of Exam:		Exam Level:									
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	2	3	5				2	3			1	16
	2	3	2	2				3	4			3	17
	3		1									2	3
	Tier Totals	5	6	7				5	7			6	36
2. Plant Systems	1	2	2	1	2	1	3	2	3	2	2	3	23
	2	1	1	4	3	1		1	2	2	3	2	20
	3			1		2		1	2		1	1	8
	Tier Totals	3	3	6	5	4	3	4	7	4	6	6	51
3. Generic Knowledge and Abilities					Cat 1		Cat 2		Cat 3		Cat 4		13
					4		3		2		4		
<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 RO Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1/Group 1						Form ES-401-4	
E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G	K/A Topic(s)	Imp.	Points
000005 Inoperable/Stuck Control Rod / 1			05				Power limits on rod misalignment	3.4	1
000015/17 RCP Malfunctions / 4		10					RCP indicators and controls	2.8*	1
BW/E09; CE/A13; W/E09&E10 Natural Circ. / 4				3			Desired operating results during abnormal and emergency situations	3.5	1
000024 Emergency Boration / 1		03					Controllers and positioners	2.6	1
000026 Loss of Component Cooling Water / 8					04		Norm @ upper limits for the temps of components cooled by CCW	2.5	1
000027 Pressurizer Pressure Control System Malfunction / 3			03				Verification of alternate transmitter and/or plant computer prior to shifting flow chart transmitters	2.9	1
000040 (BW/E05; CE/E05; W/E12) Steam Line Rupture - Excessive Heat Transfer / 4						2.4.6	Knowledge symptom based EOP mitigation strategies	3.1	1
CE/A11; W/E08 RCS Overcooling - PTS / 4		1					Components, and functions of control and safety systems	3.4	1
000051 Loss of Condenser Vacuum / 4				04			Rod position	2.5*	1
000055 Station Blackout / 6			02		01		Actions contained in EOP for loss of offsite and onsite power Existing valve position on a loss of instrument air system	4.3 3.4	1
000057 Loss of Vital AC Elec. Inst. Bus / 6			01				Actions contained in EOP for loss of vital AC instrument bus	4.1	1
000062 Loss of Nuclear Service Water / 4					04		Norm @ upper limits for the temps of components cooled by SWS	2.5	1
000067 Plant Fire On-site / 9	02						Fire fighting	3.1	1
000068 (BW/A06) Control Room Evac. / 8									
000069 (W/E14) Loss of CTMT Integrity / 5			01				Guidance contained in EOP for loss of containment integrity	3.8	1
000074 (W/E06&E07) Inad. Core Cooling / 4	05						Definition of saturated liquid	2.8	1
BW/E03 Inadequate Subcooling Margin / 4									
000076 High Reactor Coolant Activity / 9									
BW/A02&A03 Loss of NNI-X/Y / 7									
K/A Category Totals:	2	3	5	2	3	1	Group Point Total:		16

ES-401		PWR RO Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1/Group 2						Form ES-401-4	
E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G	K/A Topic(s)	Imp.	Points
000001 Continuous Rod Withdrawal / 1	17						MTC	3.4*	1
000003 Dropped Control Rod / 1			08				Criteria for inoperable control rods	3.1	1
000007 (BW/E02&E10; CE/E02) Reactor Trip - Stabilization - Recovery / 1		03					Reactor trip status panel	3.5	1
BW/A01 Plant Runback / 1									
BW/A04 Turbine Trip / 4									
000008 Pressurizer Vapor Space Accident / 3									
000009 Small Break LOCA / 3						2.1.30	Ability to locate and operate components, including local controls	3.9	1
000011 Large Break LOCA / 3				17			Safety parameter display system	3.5*	1
W/E04 LOCA Outside Containment / 3					01		Facility conditions & selection of procedures during ONOP & EOP	3.4	1
BW/E08; W/E03 LOCA Cooldown/Depress. / 4					1		Facility conditions and selection of appropriate procedures	3.4	1
W/E11 Loss of Emergency Coolant Recirc. / 4					2		Adherence to appropriate procedures and operation	3.4	1
W/E01 & E02 Rediagnosis & SI Termination / 3						2.4.12	Knowledge of gen operating crew responsibilities during emer ops	3.4	1
000022 Loss of Reactor Coolant Makeup / 2				01			CVCS letdown and charging	3.4	1
000025 Loss of RHR System / 4									
000029 Anticipated Transient w/o Scram / 1	02						Definition of reactivity	2.6	1
000032 Loss of Source Range NI / 7						2.2.23	Ability to track limiting conditions for operation	2.6	1
000033 Loss of Intermediate Range NI / 7			01				Termination of startup following loss of IR instrumentation	3.2	1
000037 Steam Generator Tube Leak / 3					03		MS Lines show increasing Rad levels	3.4	1
000038 Steam Generator Tube Rupture / 3				27			Steam dump valve status lights and indicators	3.9	1
000054 (CE/E06) Loss of Main Feedwater / 4	02						Effects of feedwater introduction on dry S/G	3.6	1
BW/E04; W/E05 Inadequate Heat Transfer - Loss of Secondary Heat Sink / 4		1					Components, and functions of control and safety systems	3.7	1
000058 Loss of DC Power / 6									
000059 Accidental Liquid RadWaste Rel. / 9									
000060 Accidental Gaseous Radwaste Rel. / 9									
000061 ARM System Alarms / 7									
W/E16 High Containment Radiation / 9									
CE/E09 Functional Recovery									
K/A Category Point Totals:	3	2	2	3	4	3	Group Point Total:		17

ES-401		PWR RO Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1/Group 3						Form ES-401-4	
E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G	K/A Topic(s)	Imp.	Points
000028 Pressurizer Level Malfunction / 2									
000036 (BW/A08) Fuel Handling Accident / 8		02					Radiation monitoring equipment	3.4	1
000056 Loss of Off-site Power / 6						2.4.21	Parameters and logic used to assess status of safety functions	3.7	1
000065 Loss of Instrument Air / 8									
BW/E13&E14 EOP Rules and Enclosures									
BW/A05 Emergency Diesel Actuation / 6									
BW/A07 Flooding / 8									
CE/A16 Excess RCS Leakage / 2									
W/E13 Steam Generator Over-pressure / 4						2.3.9	Knowledge of process for performing a containment purge	2.5	1
W/E15 Containment Flooding / 5									
K/A Category Point Totals:		1				2	Group Point Total:		3

ES-401		PWR RO Examination Outline Plant Systems - Tier 2/Group 1										Form ES-401-4		
System # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)	Imp.	Points
001 Control Rod Drive								16			2.1.2	Possible causes of mismatched rods Oper responsibility during all modes	3.0* 3.0	1 1
003 Reactor Coolant Pump							10		01			RCP standpipe levels Seal injection flow	2.5 3.3	1 1
004 Chemical and Volume Control											2.4.21	Parameters & logic used to assess SF's	3.7	1
013 Engineered Safety Features Actuation		01	01									ESFAS/safeguards equip control Fuel	3.6* 4.4	1 1
015 Nuclear Instrumentation					14	02						Neutron flux density Discriminator/compensation circuits	2.8 2.6	1 1
017 In-core Temperature Monitor							01					Core exit temperature	3.7	1
022 Containment Cooling		01										Containment cooling fans	3.0*	1
025 Ice Condenser														
056 Condensate	03							04				MFW Loss of condensate pumps	2.6* 2.6	1 1
059 Main Feedwater	04									11		SGWLC Recovery from automatic feedwater isol	3.4 3.1	1 1
061 Auxiliary/Emergency Feedwater				07		01						Turbine trip including overspeed Controllers and positioners	3.1* 2.5	1 1
068 Liquid Radwaste						10			02			Radiation monitors Automatic isolation	2.5 3.6	1 1
071 Waste Gas Disposal				05							2.4.46	Alarms consistent with plant conditions Point of release	3.5 2.7	1 1
072 Area Radiation Monitoring								02		01		Detector failure Alarm & interlock setpoint checks & adj	2.8 3.0*	1 1
K/A Category Point Totals:	2	2	1	2	1	3	2	3	2	2	3	Group Point Total:		23

ES-401	PWR RO Examination Outline Plant Systems - Tier 2/Group 2												Form ES-401-4	
System # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)	Imp.	Points
002 Reactor Coolant										06		Overflow level of the RWST	2.9	1
006 Emergency Core Cooling				14								Cross connection of HPI/LPI/SIP	3.9	1
010 Pressurizer Pressure Control					01							Determination of fluid condition in PZR	3.5	1
011 Pressurizer Level Control										01		Charging pump and flow controls	3.5	1
012 Reactor Protection		01										RPS channels, comp, & intercon	3.3	1
014 Rod Position Indication				05								Rod hold interlocks	3.1	1
016 Non-nuclear Instrumentation														
026 Containment Spray								03				Failure of ESF	4.1	1
029 Containment Purge									01			CPS isolation	3.8	1
033 Spent Fuel Pool Cooling				05								Adequate SDM	3.1	1
035 Steam Generator			01							06		RCS S/G isol on stm leak or tube rupture	4.4 4.5	1 1
039 Main and Reheat Steam							09					Main stm line rad monitors	2.5*	1
055 Condenser Air Removal			01									Main condenser	2.5	1
062 AC Electrical Distribution			01									Major system loads	3.5	1
063 DC Electrical Distribution			02									Components using DC control power	3.5	1
064 Emergency Diesel Generator											2.1.23	Perform specific sys and integrated plt procedures during all modes	3.9	1
073 Process Radiation Monitoring								02				Detector failure	2.8	1
075 Circulating Water	02											Liquid rad waste discharge	2.9	1
079 Station Air											2.2.27	Knowledge of the refueling process	2.6	1
086 Fire Protection									01			Starting mechanisms of fire water pump	2.9	1
K/A Category Point Totals:	1	1	4	3	1	0	1	2	2	3	2	Group Point Total:	20	

ES-401		PWR RO Examination Outline Plant Systems - Tier 2/Group 3										Form ES-401-4		
System # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	K/A Topic(s)	Imp.	Points
005 Residual Heat Removal					09							dilution and boration considerations	3.2	1
007 Pressurizer Relief/Quench Tank								02				Abnormal pressure in the PRT	2.6	1
008 Component Cooling Water								02				Hi/lo surge tank level	3.2	1
027 Containment Iodine Removal					01							Purpose of charcoal filters	3.1*	1
028 Hydrogen Recombiner and Purge Control														
034 Fuel Handling Equipment											2.4.48	Interpret control room indications	3.5	1
041 Steam Dump/Turbine Bypass Control										05		Main stm hdr pressure	3.1	1
045 Main Turbine Generator														
076 Service Water														
078 Instrument Air			01									Containment air system	3.1*	1
103 Containment							01					Containment pres, temp, & humidity	3.7	1
K/A Category Point Totals:			1		2		1	2		1	1	Group Point Total:		8
Plant-Specific Priorities														
System / Topic	Recommended Replacement for...						Reason						Points	
Plant-Specific Priority Total: (limit 10)														

Facility:		Date of Exam:		Exam Level:	
Category	K/A #	Topic	Imp.	Points	
Conduct of Operations	2.1.9	Direct personnel activities in control room	2.5/4.0	1	
	2.1.22	Determine mode of operation	2.8/3.3	1	
	2.1.27	System purpose and/or function	2.8/2.9	1	
	2.1.32	Explain and apply all sys limits & precautions	3.4/3.8	1	
	Total				4/5
Equipment Control	2.2.22	Limiting cond for ops & safety limits	3.4/4.1	1	
	2.2.23	Track limiting conditions for ops	2.6/3.8	1	
	2.2.28	New and spent fuel movement procedures	2.6/3.5	1	
	Total				3/4
Radiation Control	2.3.2	Facility ALARA program	2.5/2.9	1	
	2.3.4	Rad exp limits & contamination control	2.5/3.1	1	
	Total				2/3
Emergency Procedures/ Plan	2.4.5	Organization of operating procedures network	2.9/3.6	1	
	2.4.6	Symptom based EOP mitigation strategies	3.1/4.0	1	
	2.4.8	How to use event-based E/A operating proc.	3.0/3.7	1	
	2.4.20	Operational implications of EOP warnings, etc	3.3/4.0	1	
	Total				4/5
Tier 3 Point Total (RO/SRO)				13/17	