

Dominion Nuclear Connecticut, Inc.
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**EXAMINATION SECURITY AND INTEGRITY CONSIDERATIONS – WITHHOLD
UNDER GUIDANCE OF NUREG-1021, ES201**

OCT 02 2013

Donald E. Jackson, Chief
Operations Branch – Division of Reactor Safety
U.S. Nuclear Regulatory Commission
2100 Renaissance Blvd., Suite 100
King of Prussia, PA 19406-2713

Serial No. 13-464B
MPS Lic/LES R0
Docket No. 50-423
License No. NPF-49

DOMINION NUCLEAR CONNECTICUT, INC.
MILLSTONE POWER STATION UNIT 3
SENIOR REACTOR OPERATOR AND REACTOR OPERATOR INITIAL WRITTEN
EXAMINATIONS, OPERATING TESTS AND SUPPORTING REFERENCE
MATERIALS


In a letter dated August 1, 2013, the U.S. Nuclear Regulatory Commission requested Dominion Nuclear Connecticut, Inc. submit written examinations, operating tests and supporting reference materials for Senior Reactor Operator and Reactor Operator Examinations – Millstone Power Station Unit 3, no later than October 3, 2013 for administration of examinations during the weeks of December 2 and 9, 2013.

Enclosure 1, Written Examinations, Operating Tests and Supporting Reference Materials, is being furnished in accordance with 10 CFR 55.40(b)(3) by an authorized representative of the facility. All materials are “complete and ready-to-use.”

Consistent with guidance contained in NUREG-1021 Examination Standard 201, Attachment 1, “Examination Security and Integrity Considerations,” the written examinations, operating tests and supporting reference materials contained in Enclosure 1 should be withheld from public disclosure until after the examination has been completed. No redacted versions are being supplied.

If you have any questions or require additional information, please contact John A. Palmer at (860) 437-2830.

Sincerely,


Stephen E. Scace
Site Vice President - Millstone

**NOTE: THE ENCLOSURE TO THIS LETTER CONTAINS REACTOR OPERATOR
EXAMINATION INFORMATION – WITHHOLD UNTIL AFTER THE EXAMINATION HAS
BEEN COMPLETED PER GUIDANCE IN NUREG-1021, ES201**

Enclosure: 1

Commitments made in this letter: None.

cc: (w/o enclosure)
W. M. Dean, Region I Administrator
U.S. Nuclear Regulatory Commission
Region I
2100 Renaissance Blvd, Suite 100
King of Prussia, PA 19406-2713

J. S. Kim
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U. S. Nuclear Regulatory Commission, Mail Stop 08-C2A
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NRC Senior Resident Inspector
Millstone Power Station

Facility: Millstone 3		Date of Exam: December 09 th , 2013																
Tier	Group	RO K/A Category Points												SRO-Only Points				
		K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G *	Total	A 2	G*	Total		
1. Emergency & Abnormal Plant Evolutions	1	2	1	4	N/A			1	5	N/A			5	18	3	3	6	
	2	3	1	0				1	2				2	9	2	2	4	
	Tier Totals	5	2	4				2	7				7	27	5	5	10	
2. Plant Systems	1	2	1	6	5	1	0	3	2	1	4	3	28	4	1	5		
	2	2	1	0	2	1	2	0	1	1	0	0	10	0	0	3		
	Tier Totals	4	2	6	7	2	2	3	3	2	4	3	38	4	4	8		
3. Generic Knowledge and Abilities Categories					1		2		3		4		10	1	2	3	4	7
					3		2		2		3			2	2	1	2	
<p>Note: 1. Ensure that at least two topics from every applicable K/A category are sampled within each tier of the RO and SRO-only outlines (i. e., except for one category in Tier 3 of the SRO-only outline, the "Tier Totals" in each K/A category shall not be less than two).</p> <p>2. The point total for each group and tier in the proposed outline must match that specified in the table. The final point total for each group and tier may deviate by ± 1 from that specified in the table based on NRC revisions. The final RO exam must total 75 points and the SRO-only exam must total 25 points.</p> <p>3. Systems/evolutions within each group are identified on the associated outline; systems or evolutions that do not apply at the facility should be deleted and justified; operationally important, site-specific systems/evolutions that are not included on the outline should be added. Refer to Section D of ES-401 for guidance regarding the elimination of inappropriate K/A statements.</p> <p>4. Select topics from as many systems and evolutions as possible; sample every system or evolution in the group before selecting as second topic for any system or evolution.</p> <p>5. Absent a plant-specific priority, only those K/As having an importance rating (IR) of 2.5 or higher shall be selected. Use the RO and SRO ratings for the RO and SRO-only portions, respectively.</p> <p>6. Select SRO topics for Tiers 1 and 2 from the shaded systems and K/A categories.</p> <p>7. * The generic (G) K/As in Tiers 1 and 2 shall be selected from Section 2 of the K/A Catalog, but the topics must be relevant to the applicable evolution or system. Refer to Section D.1.b of ES-401 for the applicable K/As.</p> <p>8. On the following pages, enter the K/A numbers, a brief description of each topic, the topics' importance ratings (IRs) for the applicable license level, and the point totals (#) for each system and category. Enter the group and tier totals for each category in the table above; if fuel handling equipment is sampled in other than Category A2 or G* on the SRO-only exam, enter it on the left side of Column A2 for Tier 2, Group 2 (Note #1 does not apply). Use duplicate pages for RO and SRO-only exams.</p> <p>9. For Tier 3, select topics from Section 2 of the K/A catalog, and enter the K/A numbers, descriptions, IRs, and point totals (#) on Form ES-401-3. Limit SRO selections to K/As that are linked to 10CFR55.43.</p>																		

Revision 1

ES-401		PWR Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1/Group 1 (RO)						Form ES-401-2	
E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	IR	#
000007 Reactor Trip - Stabilization - Recovery / 1		3					Interrelation with Reactor Trip Status Panel	3.5/3.6	1
000009 Small Break LOCA / 3			21				Reasons for actions contained in the EOP	4.2/4.5	2
000015/17 RCP Malfunctions / 4					2		Determine/interpret abnormalities in RCP air vent path and/or oil cooling system	2.8/3.0	3
000025 Loss of RHR System / 4			2				Reasons for isolating RHR low pressure piping prior to raising pressure	3.3/3.7	4
000026 Loss of Component Cooling Water / 8						2.4.50	Ability to verify alarm setpoints and operate controls per the alarm response manual	4.2/4.0	5
000027 Pressurizer Pressure Control Malfunction / 3					8		Determine/interpret letdown flow indication	3.2/3.2	6
000029 ATWS / 1					8		Determine/interpret Rod Step Counters and RPI	3.4/3.5	7
000038 Steam Gen. Tube Rupture / 3						2.2.22	Knowledge of limiting conditions for operations and safety limits	4.0/4.7	8
000054 Loss of Main Feedwater / 4						2.1.23	Ability to perform specific system and integrated plant procedures during all modes of operation	4.3/4.4	9
000055 Station Blackout / 6						2.4.2	Knowledge of setpoints, interlocks and automatic actions associated with EOP entry conditions	4.5/4.6	10
000056 Loss of Off-site Power / 6					38		Determine/interpret Sequencer status lights	3.7/3.8	11
000057 Loss of Vital AC Elec. Inst. Bus / 6			1				Reasons for actions contained in the EOP	4.1/4.4	12
000058 Loss of DC Power / 6	1						Operational implications of Battery Charger equipment and instrumentation	2.8/3.1	13
000062 Loss of Nuclear Service Water / 4			3				Reasons for actions contained in the EOP	4.0/4.2	14
000065 Loss of Instrument Air / 8				5			Operate/monitor RPS	3.3/3.3	15
W/E04 LOCA Outside Containment / 3	1						Operational implications of emergency systems	3.5/3.9	16
W/E05 Loss of Secondary Heat Sink / 4						2.4.47	Ability to diagnose and recognize trends utilizing reference material	4.2/4.2	17
000077 Generator Voltage and Electric Grid Disturbances / 6					3		Determine/interpret Generator current outside the capability curve	3.5/3.6	18
K/A Category Totals:	2	1	4	1	5	5	Group Point Total:		18

ES-401		PWR Examination Outline						Form ES-401-2		
Emergency and Abnormal Plant Evolutions - Tier 1/Group 2 (RO)										
E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	IR	#	
000051 Loss of Condenser Vacuum / 4						2.4.18	Knowledge of specific bases for EOPs	3.3/4.0	19	
000076 High Reactor Coolant Activity / 9					2		Determine/interpret corrective actions	2.8/3.4	20	
W/E13 Steam Generator Over-pressure / 4						2.4.21	Knowledge of parameters and logic used to assess the status of safety functions	4.0/4.6	21	
W/E03 Post LOCA Cooldown Depress. / 4	2						Operational implications of procedures	3.6/4.1	22	
Site Specific: Turbine Trip	1						Operational implications of systems or procedures	Site Priority	23	
Site Specific: Severe Weather					1		Determine/interpret conditions or procedures	Site Priority	24	
Site Specific: Rapid Downpower				1			Operate/monitor indications, plant behavior, and/or desired results	Site Priority	25	
Site Specific: Loss of Emergency Bus	1						Operational implications of systems or procedures	Site Priority	26	
Site Specific: Loss of All AC Power – Recovery with the SBO Diesel		1					Interrelations with control, safety, and/or heat removal systems	Site Priority	27	
K/A Category Point Totals:	3	1	0	1	2	2	Group Point Total:		9	

ES-401		PWR Examination Outline Plant Systems - Tier 2/Group 1 (RO)										Form ES-401-2		
System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	K/A Topic(s)	IR	#
003 Reactor Coolant Pump				11								Design feature/interlock which provides for: Isolation valve interlocks	3.0/3.0	28
004 Chemical and Volume Control			7									Effect of a malfunction on: PZR level and pressure	3.8/4.1	29
005 Residual Heat Removal			1									Effect of a malfunction on: RCS	3.9/4.0	30
005 Residual Heat Removal								4				Predict impact and mitigate: RHR valve malfunction	2.9/2.9	31
006 Emergency Core Cooling	9											Physical connections and/or cause-effect relationship with: Nitrogen	2.6/2.9	32
007 Pressurizer Relief/Quench Tank										10		Ability to manually operate and/or monitor: Recognition of leaky PORV/code safety	3.6/3.8	33
008 Component Cooling Water							2					Predict and/or monitor parameters associated with operating controls including: CCW temperature	2.9/3.1	34
008 Component Cooling Water											2.4.9	Knowledge of low power/shutdown implications in accident mitigation strategies	3.8/4.2	35
010 Pressurizer Pressure Control				3								Design feature/interlock which provides for: Over pressure control	3.8/4.1	36
012 Reactor Protection			1									Effect of a malfunction on: CRDS	3.9/4.0	37
013 Engineered Safety Features Actuation					1							Operational implications of: Definitions of safety train and ESF channel	2.8/3.2	38
013 Engineered Safety Features Actuation										1		Ability to manually operate and/or monitor: ESF-initiated equipment which fails to actuate	4.5/4.8	39
022 Containment Cooling							3					Predict and/or monitor parameters associated with operating controls including: Containment humidity	3.1/3.4	40
026 Containment Spray		1										Bus power supplies to: Containment Spray Pumps	3.4/3.6	41
026 Containment Spray									2			Monitor automatic operation, including: Verification that cooling water is supplied to the containment spray heat exchanger	3.9/4.2	42

ES-401		PWR Examination Outline Plant Systems - Tier 2/Group I (RO) Continued										Form ES-401-2		
System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	K/A Topic(s)	IR	#
039 Main and Reheat Steam										4		Ability to manually operate and/or monitor: Emergency feedwater pump turbines	3.8/3.9	43
059 Main Feedwater							7					Predict and/or monitor parameters associated with operating controls including: Feed Pump speed normal control	2.5/2.6	44
061 Auxiliary/ Emergency Feedwater			1									Effect of a malfunction on: RCS	4.4/4.6	45
061 Auxiliary/ Emergency Feedwater								3				Predict impact and mitigate: Loss of dc power	3.1/3.4	46
062 AC Electrical Distribution			1									Effect of a malfunction on: Major system loads	3.5/3.9	47
063 DC Electrical Distribution	3											Physical connections and/or cause-effect relationship with: Battery charger and battery	2.9/3.5	48
064 Emergency Diesel Generator				11								Design feature/interlock which provides for: Automatic load sequencer: safeguards	3.5/4.0	49
073 Process Radiation Monitoring				1								Design feature/interlock which provides for: Release termination when radiation exceeds setpoint	4.0/4.3	50
073 Process Radiation Monitoring											2.4.2	Knowledge of setpoints, interlocks and automatic actions associated with EOP entry conditions	4.5/4.6	51
076 Service Water			7									Effect of a malfunction on: ESF loads	3.7/3.9	52
076 Service Water											2.4.31	Knowledge of annunciator alarms, indications, or response procedures	4.2/4.1	53
078 Instrument Air				1								Design feature/interlock which provides for: Manual/automatic transfers of control	2.7/2.9	54
103 Containment										4		Ability to manually operate and/or monitor: Phase A and phase B resets	3.5/3.5	55
K/A Category Point Totals:	2	1	6	5	1	0	3	2	1	4	3	Group Point Total:		28

Revision 1

ES-401		PWR Examination Outline Plant Systems - Tier 2/Group 2 (RO)										Form ES-401-2		
System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	K/A Topic(s)	IR	#
002 Reactor Coolant				1								Design feature/interlock which provides for: Filling and draining the RCS	2.7/3.0	56
011 Pressurizer Level Control						5						Knowledge of the effect of a malfunction of the following will have on Pressurizer Level Control: Function of PZR level gauges as post-accident monitors	3.1/3.7	57
014 Rod Position Indication								2				Predict impact and mitigate: Loss of power to the RPIS	3.1/3.6	58
016 Non-nuclear Instrumentation					1							Operational implications of: Separation of control and protection circuits	2.7/2.8	59
027 Containment Iodine Removal		1										Bus power supplies to: Fans	3.1/3.4	60
035 Steam Generator				2								Design feature/interlock which provides for: S/G level indication	3.2/3.5	61
041 Steam Dump /Turbine Bypass Control	6											Physical connections and/or cause-effect relationship with: Condenser	2.6/2.9	62
056 Condensate	3											Physical connections and/or cause-effect relationship with: MFW	2.6/2.6	63
086 Fire Protection						4						Knowledge of the effect of a malfunction of the following will have Fire Protection: Fire, smoke, and heat detectors	2.6/2.9	64
Site Specific: AMSAC									1			Monitor automatic operation of AMSAC	Site Priority	65
K/A Category Point Totals:	2	1	0	2	1	2	0	1	1	0	0	Group Point Total:		10

ES-401		PWR Examination Outline						Form ES-401-2		
Emergency and Abnormal Plant Evolutions - Tier 1/Group 1 (SRO)										
E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	IR	#	
000015/17 RCP Malfunctions / 4						2.1.32	Ability to explain and apply system limits and precautions	4.0	76	
000025 Loss of RHR System / 4						2.2.42	Ability to recognize system parameters that are entry-level conditions for Technical Specifications	4.6	77	
000027 Pressurizer Pressure Control Malfunction / 3					14		Determine/interpret RCP injection flow	2.9	78	
000057 Loss of Vital AC Inst. Bus / 6					6		Determine/interpret Instrument Bus alarms for the inverter and alternate source	3.7	79	
000062 Loss of Nuclear Svc Water / 4						2.2.37	Ability to determine operability and/or availability of safety related equipment	4.6	80	
000077 Generator Voltage and Electric Grid Disturbances / 6					4		Determine/interpret VARS outside the capability curve	4.0	81	
K/A Category Totals:					3	3	Group Point Total:		6	

Revision 1

ES-401		PWR Examination Outline						Form ES-401-2	
Emergency and Abnormal Plant Evolutions - Tier 1/Group 2 (SRO)									
E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	IR	#
000032 Loss of Source Range NI / 7					7		Determine/interpret maximum allowable channel disagreement	3.4	82
000060 Accidental Gaseous Radwaste Rel. / 9						2.4.11	Knowledge of abnormal condition procedures	4.2	83
W/E13 Steam Generator Over-pressure / 4					2		Determine/interpret adherence to appropriate procedures	3.4	84
W/E16 High Containment Radiation / 9						2.4.47	Ability to diagnose and recognize trends utilizing reference material	4.2	85
K/A Category Point Totals:					2	2	Group Point Total:		4

ES-401		PWR Examination Outline Plant Systems - Tier 2/Group 1 (SRO)										Form ES-401-2		
System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	K/A Topic(s)	IR	#
008 Component Cooling Water								9				Predict impact and mitigate: Excessive exit temperature from the letdown cooler, including resins	2.8	86
012 Reactor Protection								4				Predict impact and mitigate: Erratic power supply operation	3.2	87
039 Main and Reheat Steam								4				Predict impact and mitigate: Steam dump malfunction	3.7	88
076 Service Water								2				Predict impact and mitigate: Service water header pressure	3.1	89
103 Containment											2.1.23	Ability to perform specific system and integrated plant procedures during all modes of operation	4.4	90
K/A Category Point Totals:								4			1	Group Point Total:		5

ES-401		PWR Examination Outline Plant Systems - Tier 2/Group 2 (SRO)										Form ES-401-2		
System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	K/A Topic(s)	IR	#
017 Hydrogen Recombiner and Purge Control											2.2.38	Knowledge of conditions and limits in the facility license	4.5	91
033 Spent Fuel Pool Cooling											2.1.32	Ability to explain and apply system limits and precautions	4.0	92
068 Liquid Radwaste											2.2.40	Ability to apply Technical Specifications for a system	4.7	93
K/A Category Point Totals:								0			3	Group Point Total:		3

Facility: Millstone Unit 3		Date of Exam:				
Category	K/A #	Topic	RO		SRO-Only	
			IR	#	IR	#
1. Conduct of Operations	2.1.30	Ability to locate and operate components, including local controls	4.4	66	4.0	
	2.1.31	Ability to locate control room switches, controls, and indications and determine they correctly reflect the desired plant lineup	4.6	67	4.3	
	2.1.44	Knowledge of RO duties in the control room during fuel handling, such as responding to alarms, communications, systems operated in the control room, and supporting instrumentation	3.9	68	3.8	
	2.1.23	Ability to perform specific system and integrated plant procedures during all modes of operation			4.4	94
	2.1.35	Knowledge of fuel handling responsibilities of SROs			3.9	95
	Subtotal			3		2
2. Equipment Control	2.2.6	Knowledge of the process for making changes to procedures	3.0	69	3.6	
	2.2.38	Knowledge of conditions and limits in the facility license	3.6	70	4.5	
	2.2.37	Ability to determine operability and/or availability of safety related equipment			4.6	96
	2.2.43	Knowledge of the process used to track inoperable alarms			3.3	97
	Subtotal			2		2
3. Radiation Control	2.3.5	Ability to use radiation monitoring systems, such as fixed monitors, portable survey instruments, personnel monitoring equipment, etc.	2.9	71	2.9	
	2.3.11	Ability to control radiation releases	3.8	72	4.3	
	2.3.5	Ability to use radiation monitoring systems, such as fixed monitors, portable survey instruments, personnel monitoring equipment, etc.			2.9	98
	Subtotal			2		1
4. Emergency Procedures/ Plan	2.4.19	Knowledge of EOP layout, symbols, and icons	3.4	73	4.1	
	2.4.30	Knowledge of events related to system operation/status that must be reported to internal organizations or external agencies, such as the State, NRC, or transmission system operator	2.7	74	4.1	
	2.4.47	Ability to diagnose and recognize trends utilizing appropriate reference material	4.2	75	4.2	
	2.4.25	Knowledge of fire protection procedures			3.7	99
	2.4.34	Knowledge of RO tasks performed outside the control room during an emergency, and resultant operational effects			4.1	100
	Subtotal			3		2
Tier 3 Point Total				10		7

REVISION 1Facility: Millstone 3Date of Examination: 12/2/13 – 12/6/13

Examination Level:

RO

☒

SRO

☐Operating Test Number: 2K13

Administrative Topic (see Note)	Type Code*	Describe activity to be performed
Conduct of Operations RO A.1.1	M, R	Calculate a Reactivity Change K/A 2.1.37 (Knowledge of procedures, guidelines, or limitations associated with reactivity management) K/A Rating: 4.3 / 4.6
Conduct of Operations RO A.1.2	D, R	Determine Reactor Vessel Venting Time K/A 2.1.25 (Ability to interpret reference materials, such as graphs, curves, tables, etc.) K/A Rating: 3.9 / 4.2
Equipment Control RO A.2	M, R	Recommend a clearance boundary for 3CCI*P1A K/A 2.2.13 (Knowledge of tagging and clearance procedures) K/A Rating: 4.1 / 4.3
Radiation Control RO A.3	M, R	Review Radiological Work Procedure for Regenerative Heat Exchanger Room Entry K/A 2.3.7 (Ability to comply with radiation work permit requirements during normal or abnormal conditions) K/A Rating: 3.5 / 3.6
Emergency Procedures / Plan		

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

* Type Codes & Criteria:

(C)ontrol room, (S)imulator, or Class(R)oom

(D)irect from bank (≤ 3 for ROs; ≤ 4 for SROs & RO retakes)

(N)ew or (M)odified from bank (≥ 1)

(P)revious 2 exams (≤ 1; randomly selected)

REVISION 1Facility: Millstone 3Date of Examination: 12/2/13 – 12/6/13

Examination Level:

RO

☐

SRO

☒Operating Test Number: 2K13

Rev 2

Administrative Topic (see Note)	Type Code*	Describe activity to be performed
Conduct of Operations SRO A.1.1	N,R	Review and Approve Reactivity Calculation K/A 2.1.37 (Knowledge of procedures, guidelines, or limitations associated with reactivity management.) K/A Rating: 4.3 / 4.6
Conduct of Operations SRO A.1.2	P,D,R	Respond to Degrading Intake Conditions K/A 2.1.20 (Ability to interpret and execute procedure steps.) K/A Rating: 4.6 / 4.6
Equipment Control SRO A.2	D,R	Response to Door Inoperability K/A 2.2.21 (Knowledge of pre- and post-maintenance operability requirements) K/A Rating: 2.9 / 4.1
Radiation Control SRO A.3	N,R	3DAS-RE50, "Turbine Floor Drains Radmonitor", is inoperable K/A 2.3.14 (Knowledge of radiation or contamination hazards that may arise during normal, abnormal, or emergency conditions or activities) K/A Rating: 3.4 / 3.8
Emergency Procedures / Plan SRO A.4	M,R	Emergency Plan Classification and Protective Action Recommendation K/A 2.4.41 (Knowledge of the emergency action level thresholds and classifications.) K/A Rating: 2.9 / 4.6

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

* Type Codes & Criteria:

(C)ontrol room, (S)imulator, or Class(R)oom

(D)irect from bank (≤ 3 for ROs; ≤ 4 for SROs & RO retakes)

(N)ew or (M)odified from bank (≥ 1)

(P)revious 2 exams (≤ 1; randomly selected)

REVISION 1Facility: Millstone Unit 3Date of Examination: 12/2/13Exam Level: RO ☒ SRO-I ☐ SRO-U ☐Operating Test No.: 2K13Control Room Systems[@] (8 for RO); (7 for SRO-I); (2 or 3 for SRO-U, including 1 ESF)

System / JPM Title	Type Code*	Safety Function
a. S.1 / Control Rod Out of Alignment (K/A Number :001 A2.03 3.5 / 4.2)	D,S	1-001
b. S.2 / Manual CIA (K/A Number: 013 A4.01 4.5 / 4.8)	M,EN,S,A	2-013
c. S.3 / Transfer to Cold Leg Recirculation (K/A Number: 006 A4.05 3.9 / 3.8)	D,S,A	3-006
d. S.4 / Aligning RHR for SDR Inventory Control (K/A Number: 005 A4.01 3.6 / 3.4)	P,D,S,L	4.1-005
e. S.5 / Natural Circulation Cooldown using GA-26 (K/A Number: 039 A1.05 3.2* / 3.3)	M,S,A	4.2-039
f. S.6 / Respond to a Loss of all AC Power and Energize an AC Emergency Bus (K/A Number: EPE: 055 EA1.07 4.3 / 4.5)	M,S	6-062
g. S.7 / Respond to High Containment Pressure (K/A Number: West. EPE: E14-EA1.1 3.7 / 3.7)	P, A, EN, S	5-026
h. S.8 / EOP 3502 Fuel Handling Accident (K/A Number: 034 A2.01 3.6 / 4.4)	N,S	8-034

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

i. P.1 / Locally Start an EDG (ECA-0.0) (K/A Number: 064 k.105 3.4 / 3.9)	D,A,E	6-064
j. P.2 / Locally Restore AFW Flow (Includes opening 3MSS*MSV5) (K/A Number: 061 A2.04 3.4 / 3.8)	M,A,R,E	4.2-061
k. P.3 / Align 'C' RPCCW Pump and Heat Exchanger to the 'A' train (K/A Number: 008 A.201 3.3 / 3.6)	D,R,E	8-008

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

*** Type Codes****Criteria for RO / SRO-I / SRO-U**

(A)lternate path	4-6 / 4-6 / 2-3
(C)ontrol room	
(D)irect from bank	$\leq 9 / \leq 8 / \leq 4$
(E)mergency or abnormal in-plant	$\geq 1 / \geq 1 / \geq 1$
(EN)gineered safety feature	- / - / ≥ 1 (control room system)
(L)ow-Power / Shutdown	$\geq 1 / \geq 1 / \geq 1$
(N)ew or (M)odified from bank including 1(A)	$\geq 2 / \geq 2 / \geq 1$
(P)revious 2 exams	$\leq 3 / \leq 3 / \leq 2$ (randomly selected)
(R)CA	$\geq 1 / \geq 1 / \geq 1$
(S)imulator	

REVISION 1

Facility: Millstone Unit 3Date of Examination: 12/2/13Exam Level: RO ☐ SRO-I ☐ SRO-U ☒Operating Test No.: 2K13Control Room Systems[@] (8 for RO); (7 for SRO-I); (2 or 3 for SRO-U, including 1 ESF)

System / JPM Title	Type Code*	Safety Function
a.		
b. S.2 / Manual CIA (K/A Number: 013 A4.01 4.5 / 4.8)	M,EN,S,A	2-013
c.		
d. S.4 / Aligning RHR for SDR Inventory Control (K/A Number: 005 A4.01 3.6 / 3.4)	P,D,S,L	4.1-005
e.		
f. S.6 / Respond to a Loss of all AC Power and Energize an AC Emergency Bus (K/A Number: EPE 055 EA1.07 4.3 / 4.5)	M,S	6-062
g.		
h.		

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

i.		
j. P.2 / Locally Restore AFW Flow (Includes opening 3MSS*MSV5) (K/A Number: 061 A2.04 3.4 / 3.8)	M,A,R,E	4.2-061
k. P.3 / Align 'C' RPCCW Pump and Heat Exchanger to the 'A' train (K/A Number: 008 A.201 3.3 / 3.6)	D,R,E	8-008

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

* Type Codes

Criteria for RO / SRO-I / SRO-U

(A)lternate path	4-6 / 4-6 / 2-3
(C)ontrol room	
(D)irect from bank	$\leq 9 / \leq 8 / \leq 4$
(E)mergency or abnormal in-plant	$\geq 1 / \geq 1 / \geq 1$
(EN)gineered safety feature	- / - / ≥ 1 (control room system)
(L)ow-Power / Shutdown	$\geq 1 / \geq 1 / \geq 1$
(N)ew or (M)odified from bank including 1(A)	$\geq 2 / \geq 2 / \geq 1$
(P)revious 2 exams	$\leq 3 / \leq 3 / \leq 2$ (randomly selected)
(R)CA	$\geq 1 / \geq 1 / \geq 1$
(S)imulator	

REVISION 1Facility: Millstone 3 Scenario No.: 2K13 NRC-01 (Rev 0) Op-Test No.: 2K13

Examiners: _____

Operators: _____

Initial Conditions: IC-13, 100% Power, Beginning of Life, Equilibrium Xenon

Turnover:

The Plant is stable at 100% Power. 'C' CCP heat exchanger is tagged out for tube leak repair. Control Rods are in manual for repair of auto circuitry (which is not functional due to Tavq / Tref circuit card failure).

Event No.	Malf. No	Event Type*	Event Description
1	-	US T/S	'B' EDG INOP based on field report of an empty governor sightglass
2	RX09A	RO I US T/S	Controlling channel of pressurizer pressure fails high (AOP 3571).
3	FW16A	RO R BOP C US R	'A' Heater Drain Pump trips requiring a 7% downpower.
4	CV05	RO C	Letdown pressure transmitter, PT-131, fails to intermediate value below setpoint
5	SG01B MS12B	RO M BOP M US M	'B' SG has a tube leak that develops into a 200 gpm tube rupture. Crew trips Reactor and ultimately mitigates using E-3, SG Tube Rupture. 'B' MSIV fails to close complicating E-3 recovery
6	RP10A/B RP9A/B	BOP C	Automatic and manual Reactor trip switches fail. BOP is successful using load center switches.
7	RP11F	RO C	Multiple Charging components fail to re-align.
8	RP11L	BOP C	Feed Water Isolation (FWI) components fail to re-align.
* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor			

REVISION 1Facility: Millstone 3 Scenario No.: 2K13 NRC-02 (Rev 0) Op-Test No.: 2K13

Examiners: _____

Operators: _____

Initial Conditions: IC-12, 74% power, Beg of life, Xenon building in @ 90 pcm / hr.**Turnover:**

The plant is being returned to service following a refueling outage. The crew is to stabilize reactor power at 74% while Reactor Engineering performs EN 31015 "Power Ascension Testing of Millstone Unit 3". Additionally, the 'A' SIH pump was taken out of service one hour ago to repair a newly discovered oil leak.

Event No.	Malf. No	Event Type*	Event Description
1	NI09A	RO I US T/S	Power range nuclear instrument, N41, fails high causing control rods to auto insert (AOP 3571).
2	RX13C	BOP I	The controlling 'B' SG Feed flow instrument fails high (AOP 3571).
3	RC12A	RO R BOP N US R	Convex requested emergency downpower.
4	-	RO C BOP C US T/S	'A' RCP develops an oil leak and requires shutdown. 'A' RCP is removed from service iaw AOP 3554.
5	RP05A SI06C RP10A RP10B	RO M BOP M US M	A spurious 'A' train Safety Injection is caused from a tin whisker on MSI card. The reactor fails to auto trip. An isolable, inter-system LOCA develops in the RHR system and out a break in the ESF building (outside containment).
6	-	RO C	'B' train of SI did not actuate and must be actuated.
7	MSDI23 Thru MSDI26	BOP C	Partial MSI generated caused only the MSIV's to close. The remainder of the MSI components need to be manually re-aligned.
8	RP11H	RO C	Component Cooling Water valves fail to reposition and must be manually re-aligned.
9	EG13A	BOP C	'A' EDG fails to auto start and is manually started.
* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor			