ES-201 **Examination Preparation Checklist** **Form ES-201-1**

Facility: McGuire Date of Examination: April 2016

Developed by: Written: Facility ■ NRC □ // Operating Facility ■ NRC □

Target Date*		Task Description (Reference)	Chief Examiner's Initials
-180	1.	Examination administration date confirmed (C.1.a; C.2.a and b)	
-150	2.	NRC examiners and facility contact assigned (C.1.d; C.2.e)	
-150	3.	Facility contact briefed on security and other requirements (C.2.c)	
-150	4.	Corporate notification letter sent (C.2.d)	
[-120]	5.	Reference material due (C.1.e; C.3.c; Attachment 3)	
{-90}	6.	Integrated examination outline(s) due, including Forms ES-201-2, ES-201-3, ES-301-1, ES-301-2, ES-301-5, ES-D-1, ES-401-1/2, ES-401N-1/2, ES-401-3, ES-401N-3, ES-401-4, and ES-401N-4, as applicable (C.1.e and f; C.3.d)	
{-85}	7.	Examination outline(s) reviewed by NRC and feedback provided to facility licensee (C.2.h; C.3.e)	
{-60}	8.	Proposed examinations (including written, walk-through JPMs, and scenarios, as applicable), supporting documentation (including Forms ES-301-3, ES-301-4, ES-301-5, ES-301-6, and ES-401-6, ES-401N-6, and any Form ES-201-2, ES-201-3, ES-301-1, or ES-301-2 updates), and reference materials due (C.1.e, f, g and h; C.3.d)	
-45	9.	Written exam and operating test reviews completed. (C.3.f)	
-30	10.	Preliminary license applications (NRC Form 398's) due (C.1.l; C.2.g; ES-202)	
-21	11.	Examination approved by NRC supervisor for facility licensee review (C.2.h; C.3.f)	
-21	12.	Examinations reviewed with facility licensee (C.1.j; C.2.f and h; C.3.g)	
-14	13.	Final license applications due and Form ES-201-4 prepared (C.1.l; C.2.i; ES-202)	
-14	14.	Written examinations and operating tests approved by NRC supervisor (C.2.i; C.3.h)	
-7	15.	Facility licensee management queried regarding the licensee's views on the examination. (C.2 j)	
-7	16.	Final applications reviewed; 1 or 2 (if >10) applications audited to confirm qualifications / eligibility; and examination approval and waiver letters sent (C.2.i; Attachment 5; ES-202, C.2.e; ES-204)	
-7	17.	Proctoring/written exam administration guidelines reviewed with facility licensee (C.3.k)	
-7	18.	Approved scenarios, job performance measures, and questions distributed to NRC examiners (C.3.i)	

* Target dates are generally based on facility-prepared examinations and 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.
[Applies only] {Does not apply} to examinations prepared by the NRC.

Facility:	McGuire	Date of Examination:	4/2016		
Item	Task Description		Initials a	b*	c#
1. WRITTEN	a. Verify that the outline(s) fit(s) the appropriate model per ES-401 or ES-401N.		SLM	✓	DL
	b. Assess whether the outline was systematically and randomly prepared in accordance with Section D.1 of ES-401 or ES-401N and whether all K/A categories are appropriately sampled.		SLM	✓	DL
	c. Assess whether the outline over-emphasizes any systems, evolutions, or generic topics.		SLM	✓	DL
	d. Assess whether the justifications for deselected or rejected K/A statements are appropriate.		SLM	✓	DL
2. SIMULATOR	a. Using Form ES-301-5, verify that the proposed scenario sets cover the required number of normal evolutions, instrument and component failures, technical specifications, and major transients.		SLM	✓	DL
	b. Assess whether there are enough scenario sets (and spares) to test the projected number and mix of applicants in accordance with the expected crew composition and rotation schedule without compromising exam integrity; and ensure that each applicant can be tested using at least one new or significantly modified scenario, that no scenarios are duplicated from the applicants' audit test(s), and scenarios will not be repeated on subsequent days.		SLM	✓	DL
	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.		SLM	✓	DL
3. WALKTHROUGH	a. Verify that systems walk-through outline meets the criteria specified on Form ES-301-2: (1) the outline(s) contain(s) the required number of control room and in-plant tasks, distributed among the safety functions as specified on the form (2) task repetition from the last two NRC examinations is within the limits specified on the form, (3) no tasks are duplicated from the applicants' audit test(s) (4) the number of new or modified tasks meets or exceeds the minimums specified on the form (5) the number of alternate path, low-power, emergency and RCA tasks meet the criteria on the form.		SLM	✓	DL
	b. Verify that the administrative outline meets the criteria specified on Form ES-301-1: (1) the tasks are distributed among the topics as specified on the form (2) at least one task is new or significantly modified (3) no more than one task is repeated from the last two NRC licensing examinations		SLM	✓	DL
	c. Determine if there are enough different outlines to test the projected number and mix of applicants and ensure that no items are duplicated on subsequent days.		SLM	✓	DL
4. GENERAL	a. Assess whether plant-specific priorities (including PRA and IPE insights) are covered in the appropriate exam section.		SLM	✓	DL
	b. Assess whether the 10CFR 55.41/43 and 55.45 sampling is appropriate.		SLM	✓	DL
	c. Ensure that K/A importance ratings (except for plant-specific priorities) are at least 2.5.		SLM	✓	DL
	d. Check for duplication and overlap among exam sections.		SLM	✓	DL
	e. Check the entire exam for balance of coverage.		SLM	✓	DL
	f. Assess whether the exam fits the appropriate job level (RO or SRO).		SLM	✓	DL

		Printed Name / Signature	Date
a.	Author	Steven L Mostetler / Steven L. Mostetler	3/22/16
b.	Facility Reviewer (*)	Wiley Killette / Wiley Killette	3/22/16
c.	NRC Chief Examiner (#)	David Laney / DL	3/29/16
d.	NRC Supervisor	GERALD J. McCoy / Gerald J. McCoy	3/30/2016

NOTE: # Independent NRC reviewer initial items in Column "c", chief examiner concurrence required.
* Not applicable for NRC-prepared examination outlines

1. Pre-Examination

I acknowledge that I have acquired specialized knowledge about the NRC licensing examinations scheduled for the week(s) of April 4, 2016 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 (e.g., acting as a simulator booth operator or communicator is acceptable if the individual does not select the training content or provide direct or indirect feedback). 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 4/4 and 4/11 2016. 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.	Clark Fletcher	MNS Exam Team		05-28-15		4/14/16	
2.	Steven Mosteller	MNS Exam Team		05-28-15		4/14/16	
3.	Wiley Killette	MNS Exam/Team		6/1/15		4/14/16	
4.	Aaron Forshe	Fleet Exam Spec		6/8/15		4/21/16	(1)
5.	Casey Pacus	Admin		8/10/15		4/21/16	(1)
6.	Chad Adams	Simulator Support		8/24/15		4/18/16	
7.	Suthash Kumar	Simulator Support		8/29/15		5/2/16	(1)
8.	W.R. Baker	Simulator Support		8/24/15		4/21/16	(1)
9.	John H. Sadler	John H. Sadler Sr. Ops Specialist		8/24/2015		4/18/2016	
10.	Dennis J Taylor	MNS NUCLEAR SIM SUPERVISOR		8/25/15		4/18/16	
11.	Scott Dimke	VCS PEER / EXAM LEAD.		10-13-15		4/25/16	(1)
12.	Richard (Jay) Horton	NNP H TS		10-13-15		4/21/16	(1)
13.	Scott Wyatt	FACILITY REP		10/13/15		4/18/16	
14.	Rob Billings	OPS Instructor		10-23-15		4-20-16	
15.	Stephen Gibson	OPS Instructor		10/24/15		4/18/16	

NOTES: (1) via phone - SGM Steven J Mosteller

1. Pre-Examination

I acknowledge that I have acquired specialized knowledge about the NRC licensing examinations scheduled for the week(s) of 4/4/2016 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 (e.g., acting as a simulator booth operator or communicator is acceptable if the individual does not select the training content or provide direct or indirect feedback). 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.	David Lazarony	OI TEST AUTHOR		5-28-15		4-21-16	(1)
2.	Tiffney Lay	OPS Reactor Operator		10-26-15		4-21-16	
3.	Bill Mason	OPS Senior Reactor Operator		10-26-15		4-21-16	
4.	Brad Presswood	OPS REACTOR OPERATOR		10-29-15		4-26-16	
5.	Lee Blackwelder	OPS Senior Reactor Operator		10-29-15		4/21/16	
6.	Vickie McGinnis	Admin Specialist		11-12-15		4/18/16	
7.	Rusty Miller	CNS Fleet Reviewer		11/10/15		4/18/16	(1)
8.	Bruce Boyette	FLEET REVIEW		11/10/15		4/18/16	(1)
9.	Robert M. Poole	RO		12/4/15		4/21/16	
10.	Sheldon Albertson	RO		12/9/15		4/26/16	
11.	Ryan Whisnant	SRO		12-4-15		4-26-16	
12.	Scott Sweger	SRO		12-10-15		4/21/16	
13.	Steve Deis	RO		12-10-15		4-21-16	
14.	Michael Darrell	RO		12-17-15		4-26-16	
15.	Wayne Flynn	SRO		12/17/15		5/5/16	(1)

NOTES:

(1) via phone - sim

1. Pre-Examination

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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 _____. 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.	CLEMENTE RILLORAZA JR.	RO		1/8/16		4/21/16	
2.	DAVID ROHRER	RO		1/8/16		5-2-16	
3.	Josh Stroupe	SRO		1/8/16		4/26/16	
4.	Matt Stilley	RO		1/9/16		4/26/16	
5.	Van Ford	Ops Training Mgr.		3/7/16		4/15/16	
6.	Ryan Redmile	RO		3/7/16		5-3-16	
7.	DENNIS MOORE	SRO		3/7/16		4/21/16	
8.	Linda Gobbert	Instructor		3/10/16		4/19/16	
9.	John Barse	RO		3/04/16		5/5/16	(1)
10.	Melissa Silver	SRO		3-16-16		5/5/16	(1)
11.	CO Cornwell	AOM - Sh. H		3-21-16		4/21/16	
12.	MARK GOLD	LOR		3-22-16		4-18-16	
13.	MICAH A. LOVETTE	INSTRUCTOR		4/4/16		4/18/16	
14.	STEVE HELMS	ILT SUPERVISOR		4-4-16		4-18-16	
15.	Brian Anderson	OPS Mgr/ Operations		4-4-16		4/26/16	

NOTES: (1) via phone: Sim

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	PRINTED NAME	JOB TITLE / RESPONSIBILITY	SIGNATURE (1)	DATE	SIGNATURE (2)	DATE	NOTE
1.	Christopher Bush	OPS TRAINING INSTRUCTOR		4/6/16		4/18/16	
2.	Chad Gordon	OPS TRNG INSTRUCTOR		4/6/16		4/18/16	
3.	Garry Hull	OPS INSTRUCTOR		4/6/16		4/18/16	
4.	Willard Osborne	RP Supvr	for Osborne	4/7/16		4/25/16	(1)
5.	Michael Rice	OPS SRO		4.7.16		4.21.16	
6.							
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9.							
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11.							
12.							
13.							
14.							
15.							

NOTES: (1) via phone call –

Facility: McGuire		Date of Examination:	4/2016
Examination Level:	RO	Operating Test Number:	N16-1

Administrative Topic (see Note)	Type Code*	Describe activity to be performed	
Conduct of Operations	N, R	2.1.20 (4.6)	Ability to interpret and execute procedure steps.
		JPM:	Complete a Surveillance for Mode Change
Conduct of Operations	D, R	2.1.25 (3.9)	Ability to interpret reference materials, such as graphs, curves, tables, etc.
		JPM:	Calculate Boration Needed for a Specified Rod Change
Equipment Control	N, R	2.2.41 (3.5)	Ability to obtain and interpret station electrical and mechanical drawings.
		JPM:	Determine Leak Isolation Boundaries
Radiation Control	D, P, R	2.3.11 (3.8)	Ability to control radiation releases
		JPM:	Perform a Unit Vent Flow Calculation of a Containment Air Release

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

*Type Codes & Criteria:
(C)ontrol room, **(0)** (S)imulator, **(0)** or Class(R)oom **(4)**
(D)irect from bank (≤ 3 for ROs; ≤ 4 for SROs & RO retakes) **(2)**
(N)ew or (M)odified from bank (≥ 1) **(2)**
(P)revious 2 exams (≤ 1; randomly selected) **(1)**

RO Admin JPM Summary

A1a This is a new JPM. The operator will be told that Unit 1 is in Mode 4 during a plant startup, that the current EFPD is 248, that NC System pressure has stabilized at 1600 psig, and that it has become necessary to perform Enclosure 13.4, NC Boron Concentration Checklist, of PT/1/A/4600/003D, Monthly Surveillance Items, in order to continue with the plant startup. The operator will be provided with the most recent chemistry sample results for the Cold Leg Accumulator Boron Concentrations, and directed to complete Enclosure 13.4, NC Boron Concentration Checklist, of PT/1/A/4600/003D, Monthly Surveillance Items. Additionally, the operator will be directed to identify any Flex Strategy Administrative Limits and/or Technical Specification LCO that are not being complied with. The operator will be expected to complete Enclosure 13.4 of PT/1/A/4600/003D in accordance with the attached KEY, determine that all Flex Strategy Administrative Limits are met, and determine that LCO 3.5.1 is not currently met.

A1b This is a Bank JPM. The operator will be given a set of initial conditions and told that it is desired to withdrawal the Bank D Control Rods about 45 steps. The operator will be given the Core Data Book and asked to manually determine the amount of Boric Acid that will be necessary to add, to complete the rod height adjustment. The operator will be expected to determine that a Boric Acid Addition of approximately 255.6 gallons is calculated in accordance with the attached KEY.

A2 This is a new JPM. The operator will be told that Unit 1 is operating at 100% power, that the crew suspects a leak in the Aux Building and has entered Case II of AP/1/A/5500/10, NC System Leakage Within the Capacity of Both NV Pumps, and that an AO has just reported that there is a large packing leak on 1NV-151A (NV Pumps Recirculation Valve). The operator will be directed to identify the closest leak isolation boundary valves for this leak, identify which, if any, of these valves need to be re-positioned from their current position, and to identify the Breaker for any electrically operated leak isolation boundary valve that may need to be operated. The operator will be expected to review the Flow Diagram of Chemical and Volume Control System (NV) and determine the closest leak isolation boundary valves for this leak, review OP/1/A/6200/001E and determine the boundary valves that need to be re-positioned, and review OP/1/A/6200/001E and identify the Breaker for 1NV-150A in accordance with the Attached KEY.

A3 This is a Bank JPM (Modified for current date and time). The operator will be told that GWR Package # 2016013 for Unit 1 Containment Air Release is currently in use to conduct a series of Containment air releases, and that during the first release, conducted using Enclosure 4.2 (Air Release Mode With VQ Flow Monitor Operable) of OP/1/A/6450/017 (Containment Air Addition and Release), the Unit 1 VQ Monitor became inoperable. The operator will be told that the crew stopped the release and continued the air release using Enclosure 4.3 (Air Release Mode with VQ Flow Monitor Inoperable) of OP/1/A/6450/017 (Containment Air Addition and Release), and that three previous releases have been made; including the one which was made with the Unit 1 VQ Flow Monitor in operation. Finally, the operator will be provided with the pertinent data for the current (4^{th}) release, and then be directed to calculate the volume released for the current release and to determine the total volume released from the Containment during all releases. The operator will be expected to calculate the volume of air released from the Containment during the final release, and determine the total volume of air released in the series of four

releases in accordance with the provided KEY. This JPM was randomly selected for use from the previous two NRC Exams.

Facility: McGuire		Date of Examination:	4/2016
Examination Level:	SRO	Operating Test Number:	N16-1

Administrative Topic (see Note)	Type Code*	Describe activity to be performed	
Conduct of Operations	D, P, R	2.1.20 (4.6)	Ability to interpret and execute procedure steps
		JPM:	Review a Completed Procedure
Conduct of Operations	D, R	2.1.7 (4.7)	Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior, and instrument interpretation.
		JPM:	Calculate QPTR
Equipment Control	D, R	2.2.40 (4.7)	Ability to apply Technical Specifications for a system.
		JPM:	Respond to a Fire Detection System Trouble Alarm
Radiation Control	D, R	2.3.4 (3.7)	Knowledge of radiation exposure under normal or emergency conditions.
		JPM:	Take On-Site Protective Actions During a General Emergency
Emergency Plan	M, R	2.4.41 (4.6)	Knowledge of emergency action level thresholds and classifications.
		JPM:	Classify an Emergency Event

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

*Type Codes & Criteria:
(C)ontrol room, **(0)** (S)imulator, **(0)** or Class(R)oom **(5)**
(D)irect from bank (≤ 3 for ROs; ≤ 4 for SROs & RO retakes) **(4)**
(N)ew or (M)odified from bank (≥ 1) **(1)**
(P)revious 2 exams (≤ 1; randomly selected) **(1)**

SRO Admin JPM Summary

A1a This is a Bank JPM (Modified to accommodate changes within the procedure since last used). The operator will be told that Unit 1 is in Mode 4 during a plant startup, provided with the current EFPD and NC System pressure, told that PT/1/A/4600/003D, Monthly Surveillance Items, Enclosure 13.4, NC Boron Concentration Checklist, has been performed prior to entry into Mode 3, and that the completed Enclosure 13.4 is now ready for review. The operator will be directed to review the completed procedure and identify (1) whether Mode 1 can be entered, and (2) all administrative procedural/paperwork requirements. The operator will review completed Enclosure 13.4 of PT/1/A/4600/003D and identify that the Surveillance performer has entered an incorrect value for the minimum value of the Cold Leg Accumulator Boron Concentration; and correct this entry. Then when the correction is made, the operator will determine that the 1A through 1C CLA are within the allowable Boron concentration range, but that the 1D CLA is outside of the allowable range. The operator will identify that Mode 3 cannot be entered in accordance with an attached KEY. This JPM was randomly selected for use from the previous two NRC Exams.

A1b This is a Bank JPM. With the plant at 99% power, the operator will be told that the Unit 1 OAC failed and is not operating, and that the crew has implemented PT/1/A/4600/021A (Loss of Operator Aid Computer while in Mode 1). The operator will be directed to calculate QPTR in accordance with Enclosure 13.5, Part A of PT/1/A/4600/21A. The operator will be expected to calculate QPTR, and determine that Technical Specification 3.2.4 (Quadrant Power Tilt Ratio) has been exceeded, and identify any required Technical Specification ACTION.

A2 This is a Bank JPM. The operator will be told that Units 1 and 2 are operating at 100% power, that Annunciator 1AD-13, FIRE DET SYS ALERT, has alarmed, and that the crew has entered OP/0/A/6400/002F (Fireworks Fire Detection System), and is performing Enclosure 4.1 (Fire Detection System Alarm/Trouble). The operator will also be told that the Fireworks Computer is Out of Service and cannot be immediately restarted, that the Electronic Fire Impairment Log (eFIL) is unavailable, and that a check of Fire Alarm Control Panel (FACP) 1 shows that Zone 153A has a TROUBLE condition. The operator will be directed to complete Steps 3.4.1.2 through 3.4.1.5 of Enclosure 4.1 of OP/0/A/6400/002F; and to identify any Technical Specification LCO/SLC required actions and specific monitoring requirements that must be made in Autolog. The operator will identify that SLC 16.9.6 ACTION is required, that Remedial Action Condition C is met, that the required ACTION must be performed, and entries made in AUTOLOG in accordance with the attached KEY.

A3 This is a Bank JPM. The operator will be told that a General Emergency has been declared and that, as the OSM, they have initiated and completed the immediate actions of Enclosure 4.1 of RP/0/A/5700/004 (General Emergency). Additionally, the operator will be told that On-Site Protective Actions are being considered in accordance with RP/0/A/5700/004, and that there are reports of an injured non-ambulatory person on-site. The operator will be required to select two rescuers, from among seven potential rescuers, and dispatch them to the injured individual by completing Enclosure 4.4, (Request for Emergency Exposure), of RP/0/A/5700/004.

A4 This is a modified Bank JPM. The operator will be given a set of initial conditions involving a loss of main Control Room annunciators and a subsequent plant trip. The operator will be directed to classify the event in accordance with RP/0/A/5700/000 (Classification of Emergency). The operator will be expected to declare an ALERT based on 4.2.A.1, Unplanned Loss of Most or All Safety System Annunciation or Indication in Control Room With Either (1) a Significant Transient in Progress, or (2) Compensatory Non-Alarming Indicators Unavailable; and complete the pre-printed ENF 4.2.A.1 in accordance with the attached KEY.

Facility: McGuire		Date of Examination:	4/2016
Exam Level (circle one):	*RO (only)* / SRO(I) **/ SRO (U)**	Operating Test No.:	N16-1

Control Room Systems@ (8 for RO; 7 for SRO-I; 2 or 3 for SRO-U)			
	System / JPM Title	Type Code*	Safety Function
A.	EPE 029 Anticipated Transient Without Scram (ATWS) [EPE 029 EA2.10 (3.1/3.4)] Emergency Borate the Reactor Coolant System Using the PD Pump	S, D, A	1
B.	**061 Auxiliary/Emergency Feedwater (AFW) System [061 A2.07 (3.4/3.5)]** **CA Suction Source Realignment**	**S, M, A, EN**	**4S**
C.	**004 Chemical Volume & Control System [004 A4.06 (3.6/3.1)]** **Establish Excess Letdown following a loss of Normal Letdown in Mode 4**	**S, N, A, L**	**2**
D.	**010 Pressurizer Pressure Control System [010A4.02(3.6/3.4)]** **Remove Pressurizer Heaters from Service**	**S, D, A**	**3**
E.	EPE E09 Natural Circulation Operations [EPE E09 EA1.1 (3.5/3.5)] Depressurize NCS During Natural Circulation Cooldown	S, D, A, L	4P
F.	027 Containment Iodine Removal System [027 A4.01 (3.3/3.3)] Perform the 1A Annulus Ventilation Operability Test	S, D, EN	5
G.	062 AC Electrical Distribution System [062 A2.05 (2.9/3.3)] Restore Power to 6900V Buses	S, D	6
H.	*075 Circulating Water System* [075 A2.02 (2.5/2.7)] *Isolate the Circulating Water System During Turbine Building Flooding*	*S, D*	*8*
In-Plant Systems@ (3 for RO; 3 for SRO-I; 3 or 2 for **SRO-U**)			
I.	**EPE 055 Station Blackout [055 EA2.03 (3.9/4.7)]** **Transfer of 1EMXA4 To SSF During A Loss Of All AC on Unit 1**	**P, D, R, E**	**6**
J.	068 Control Room Evacuation [068 AAQ1.23 (4.3/4.4)] Locally Trip Unit 2 Main Turbine and Both Unit 2 FWPT's	D, E	8

K. APE 024 Emergency Boration [024AA1.04(3.6/3.7)] **Emergency Borate the NCS Locally Using 2NV-269**	**D, R, E**	**1**

@ 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 (5) /4-6 (5) / 2-3 (3)
(C)ontrol room	
(D)irect from bank	≤ 9 (9) /≤ 8 (8) / ≤ 4 (3)
(E)mergency or abnormal in-plant	≥ 1 (3) /≥ 1 (3) / ≥ 1 (2)
(EN)gineered Safety Feature	≥ 1 (2) /≥ 1 (2)/ ≥ 1 (1) (Control Room System)
(L)ow-Power / Shutdown	≥ 1 (2) /≥ 1 (2) / ≥ 1 (1)
(N)ew or (M)odified from bank including 1(A)	≥ 2 (2) / ≥ 2 (2) / ≥ 1 (2)
(P)revious 2 exams	≤ 3 (1) / ≤ 3 (1)/ ≤ 2 (1) (Randomly Selected)
(R)CA	≥ 1 (2)/≥ 1 (2) / ≥ 1 (2)
(S)imulator	

JPM Summary

JPM A This is a Bank JPM. The operator will be told that Unit 1 was at 100% power with "A" NV pump tagged for maintenance, when a failure of an automatic reactor trip occurred causing entry into EP/1/A/5000/FR-S.1, Response to Nuclear Power Generation/ATWS. The operator will be directed to emergency borate the NC System per Step 5 of EP/1/A/5000/FR-S.1. During the course of the procedure implementation the operator will discover that the 1B NV Pump has tripped **(Alternate Path)**. The operator will be expected to attempt to start the 1B NV Pump, and when it fails to start, start the PD Pump, and then commence emergency boration with the 1B Boric Acid Transfer Pumps running and 30 gpm or greater emergency boration flow indicated.

JPM B This is a modified Bank JPM. The operator will be told that Unit 1 has just tripped from 100% power, due to seismic activity, that the crew is now implementing EP/1/A/5000/ES-0.1 (Reactor Trip Response), and that the CA Storage Tank has developed a leak, and level has lowered to 1.5 feet. The operator will be directed to perform EP/1/A/5000/G-1, Generic Enclosure 20 (CA Suction Source Realignment), while the crew continues with ES-0.1. The operator will be expected to realign the suction of the CA Pumps from the non-safety related to the safety-related source (RN). During the course of this action, the operator will recognize that RN Supply to the 1B MDCA Pump cannot be established **(Alternate Path)**, and stop the pump.

JPM C This is a new JPM. The operator will be told that Unit 1 is performing a plant shutdown and cooldown to Mode 5, that the plant is currently at 345°F and 600 psig, that the crew has entered AP/1/A/5500/12, Loss of Letdown, Charging or Seal Injection, due to a loss of Normal Letdown, and that it is not expected that the crew will be able to re-establish Normal Letdown without corrective maintenance. The operator will be directed to establish Excess Letdown per AP/1/A/5500/12 starting with Step 52, and maintain Pressurizer level between 85-96%. While establishing Excess Letdown the operator will discover that Excess Letdown cannot be placed in service due to a failure **(Alternate**

Path). The operator will be expected to attempt to place Excess Letdown in service in accordance with Step 52 of AP/1/A/55/12; and then after recognizing that Excess Letdown cannot be placed in service, establish letdown to the PRT using the Rx Head Vessel Vents in accordance with Step 53 of AP/1/A/5500/12 and maintain Pressurizer level between 85-96%.

JPM D This is a Bank JPM. The operator will be told that plant power has just been raised to 100% per OP/1/A/6100/003 (Controlling Procedure for Unit Operation). The operator will be directed to remove Pzr Heater Groups A, B and D from service per Enclosure 4.6 (Operation of Pzr Heaters) of OP/1/A/6100/003. The operator will be expected to remove the A, B and D Pzr Heater Groups from service in accordance with the Enclosure. After the Pzr Pressure Master has been placed in MANUAL and its output has been adjusted, the Pzr Variable Heaters (Group C) will fail **(Alternate Path)**. The operator will be required to respond to MCB Annunciator 1AD6/D6 (PZR HTR CONTROLLER TROUBLE), and manually control pressure using the other heater groups. The operator will be expected to place at least one Pzr Heater Group in service in accordance with Step 3.3.1 (or equivalent) of Enclosure 4.6.

JPM E This is a Bank JPM. The operator will be told that Unit 1 has tripped from 100% power due to a Loss of Off-Site Power, that the crew is currently implementing EP/1/A/5000/ES-0.2 (Natural Circulation Cooldown), and is currently at Step 15; and that Normal Letdown is in service. The operator will be directed to perform Step 15 of ES-0.2, depressurizing the NC system to 1905 PSIG using aux spray per Generic Enclosures, Enclosure 3 (Establishing NV Aux Spray). The operator will be expected to place Auxiliary Spray in service and lower Pzr Pressure to 2030 psig; and after diagnosing a loss of Normal Letdown **(Alternate Path)** immediately remove Aux Spray from service.

JPM F This is a Bank JPM. The operator will be told that Unit 1 is operating at 100% power, that Unit 1 VE System is aligned for Engineered Safeguards Operation, and that PT/1/A/4450/003 A (Annulus Ventilation System Train 'A' Operability Test) is on the Operations schedule for today. The operator will be directed to perform PT/1/A/4450/003 A (Annulus Ventilation System Train 'A' Operability Test). The operator will be expected to place the 1A VE Fan in Recirculation Mode with the cross connect from B Train closed. The 1A VE Fan will be shut down after flow verification and returned to normal alignment.

JPM G This is a Bank JPM. The operator will be told that a total loss of Offsite Power has occurred to the Unit 1 Switchyard, that Unit 1 tripped from 100% power, and that the Electrical Grid has remained energized throughout the event. The operator will also be told that Unit 1 has implemented AP/1/A/5500/07 (Loss of Electrical Power), Case I (Loss of Normal Power to 1ETA and 1ETB), that power has been restored to the Unit 1 Switchyard, and that the crew is preparing to restore power to the 6900VAC Buses, and is complete through Step 43.p. The operator will be directed to restore power to the 6900V buses starting with Step 43.q of AP/1/A/5500/07 (Loss of Electrical Power), Case I (Loss of Normal Power to 1ETA and 1ETB) using the Normal Supply breakers. The operator will be expected to re-energize all four 6900V Buses per AP/1/A/5500/07 Steps 43.q-r.3.

JPM H This is a Bank JPM. The operator will be told that there is massive flooding in the Turbine Building and that the crew has implemented AP/0/A/5500/44 (Plant Flooding), Enclosure 1 (Unit 1 Turbine Bldg Flooding). The operator will be directed to isolate the RC System by continuing with Enclosure 1 of AP/0/A/5500/44, step 5.d, while the crew continues with EP/1/A/5000/E-0 (Reactor Trip and/or Safety Injection). The operator will be expected to

take actions to isolate the Unit 1 RC System in accordance with Enclosure 1 of AP/0/A/5500/44. This task was chosen because Internal Flooding events are a large PRA contributor (15% CDF). This is a Time Critical JPM.

JPM I This is a Bank JPM. The operator will be told that a Station Blackout has occurred at Unit 1, that the crew is currently in EP/1/A/5000/ECA-0.0 (Loss of All AC Power), and that the CRS has dispatched an operator to the SSF to complete Enclosure 2 (Unit 1 SSF ECA-0.0 Actions). The operator will be directed to perform Enclosure 3 (Unit 1 ETA and ETB Rooms - ECA-0.0 Actions). The operator will be expected to transfer 1EXMA-4 to its alternate power supply within 3 minutes from dispatch (Start of the JPM), and identify that the 1ETA-2 Lockout Relay has tripped. This was previously used on the 2015 NRC Exam, randomly selected for use on the 2016 Exam.

JPM J This is a Bank JPM. The operator will be told that a loss of control room has occurred, that AP/2/A/5500/17 (Loss Of Control Room) has been implemented and is complete through step 10.b, that the operator has been dispatched to standby at the Unit 2 Main Turbine, and that communications have been established between them and the SRO at the Unit 2 Aux. Shutdown panel. The operator will be directed to perform the local actions of Step 10.c.1-3 of AP/1/A/550/17 Loss of Control Room). The operator will be expected to trip the Unit 2 Main Turbine locally, and trip any of the available "trip" mechanisms on both FWPT's such that 2SP-1 and 2SP-2 are closed.

JPM K This is a Bank JPM. The operator will be told that Unit 2 was at 100% power when a Boron dilution event occurred, that AP/2/A/5500/38 (Emergency Boration and Response to Inadvertent Dilution) was entered, and that while attempting to open 2NV-265B (Boric Acid To NV Pumps), the RO discovered that 2NV-265B was de-energized. The operator will be directed to emergency borate the NC System by performing Step 12.d RNO of AP/2/A/5500/38. The operator will be expected to attempt to open 2NV-265B, and when this fails open 2NV-269 within ten (10) minutes of dispatch. This is a Time Critical JPM.

Facility: **McGuire** Date of Examination: 4/2016 Operating Test Number: N16-1

	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).	SLM	✓	DL
b.	There is no day-to-day repetition between this and other operating tests to be administered during this examination.	SLM	✓	DL
c.	The operating test shall not duplicate items from the applicants' audit test(s) (see Section D.1.a).	SLM	✓	DL
d.	Overlap with the written examination and between different parts of the operating test is within acceptable limits.	SLM	✓	DL
e.	It appears that the operating test will differentiate between competent and less-than-competent applicants at the designated license level.	SLM	✓	DL
	2. WALK-THROUGH CRITERIA	-	-	-
a.	Each JPM includes the following, as applicable: * initial conditions * initiating cues * references and tools, including associated procedures * reasonable and validated time limits (average time allowed for completion) and specific designation if deemed to be time-critical by the facility licensee * operationally important specific performance criteria that include: - 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	SLM	✓	DL
b.	Ensure that any changes from the previously approved systems and administrative walk-through outlines (Forms ES-301-1 and 2) have not caused the test to deviate from any of the acceptance criteria (e.g., item distribution, bank use, repetition from the last 2 NRC examinations) specified on those forms and Form ES-201-2.	SLM	✓	DL
	3. SIMULATOR CRITERIA	-	-	-
The associated simulator operating tests (scenario sets) have been reviewed in accordance with Form ES-301-4 and a copy is attached.		SLM	✓	DL

		Printed Name / Signature	Date
a.	Author	Steven L. Mesteller / Steven L. Mesteller	3/22/16
b.	Facility Reviewer (*)	Wiley Killette / Wiley Killette	3/22/16
c.	NRC Chief Examiner (#)	David Laney / David Laney	3/22/16
d.	NRC Supervisor	Gerald J. McCoy / Gerald J. McCoy	3/29/2016

NOTE: * The facility signature is not applicable for NRC-developed tests.
Independent NRC reviewer initial items in Column "c"; chief examiner concurrence required.

Facility: **McGuire** Date of Exam: 4/2016 Scenario Numbers: **1, 2, 3** Operating Test No.: N16-1

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.	SLM	✓	✓
2. The scenarios consist mostly of related events.	SLM	✓	✓
3. Each event description consists of • the point in the scenario when it is to be initiated • the malfunction(s) or conditions 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)	SLM	✓	✓
4. The events are valid with regard to physics and thermodynamics.	SLM	✓	✓
5. Sequencing and timing of events is reasonable, and allows the examination team to obtain complete evaluation results commensurate with the scenario objectives.	SLM	✓	✓
6. 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.	SLM	✓	✓
7. The simulator modeling is not altered.	SLM	✓	✓
8. The scenarios have been validated. Pursuant to 10 CFR 55.46(d), any open simulator performance deficiencies or deviations from the referenced plant have been evaluated to ensure that functional fidelity is maintained while running the planned scenarios.	SLM	✓	✓
9. 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.5 of ES-301.	SLM	✓	✓
10. All individual operator competencies can be evaluated, as verified using Form ES-301-6 (submit the form along with the simulator scenarios).	SLM	✓	✓
11. The scenario set provides the opportunity for each applicant to be evaluated in each of the applicable rating factors. (Competency Rating factors as described on forms ES-303-1 and ES-303-3.)	SLM	✓	✓
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).	SLM	✓	✓
13. The level of difficulty is appropriate to support licensing decisions for each crew position.	SLM	✓	✓

Target Quantitative Attributes (Per Scenario; See Section D.5.d)	Actual Attributes 1	2	3	--	--	--
1. Malfunctions after EOP entry (1-2)	2	1	2	SLM	✓	✓
2. Abnormal events (2-4)	4	4	3	SLM	✓	✓
3. Major transients (1–2)	1	1	1	SLM	✓	✓
4. EOPs entered/requiring substantive actions (1–2)	1	1	2	SLM	✓	✓
5. EOP contingencies requiring substantive actions (0-2)	0	1	1	SLM	✓	✓
6. EOP based Critical tasks (2–3)	2	2	2	SLM	✓	✓

NOTE: * The facility signature is not applicable for NRC-developed tests.
Independent NRC reviewer initial items in Column "c"; chief examiner concurrence required.

Facility: **McGuire**	Date of Exam: 4/2016	Scenario Numbers: **4**	Operating Test No.: N16-1

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.	SIM	✓	✓
2. The scenarios consist mostly of related events.	SIM	✓	✓
3. Each event description consists of • the point in the scenario when it is to be initiated • the malfunction(s) or conditions 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)	SIM	✓	✓
4. The events are valid with regard to physics and thermodynamics.	SIM	✓	✓
5. Sequencing and timing of events is reasonable, and allows the examination team to obtain complete evaluation results commensurate with the scenario objectives.	SIM	✓	✓
6. 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.	SIM	✓	✓
7. The simulator modeling is not altered.	SIM	✓	✓
8. The scenarios have been validated. Pursuant to 10 CFR 55.46(d), any open simulator performance deficiencies or deviations from the referenced plant have been evaluated to ensure that functional fidelity is maintained while running the planned scenarios.	SIM	✓	✓
9. 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.5 of ES-301.	SIM	✓	✓
10. All individual operator competencies can be evaluated, as verified using Form ES-301-6 (submit the form along with the simulator scenarios).	SIM	✓	✓
11. The scenario set provides the opportunity for each applicant to be evaluated in each of the applicable rating factors. (Competency Rating factors as described on forms ES-303-1 and ES-303-3.)	SIM	✓	✓
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).	SIM	✓	✓
13. The level of difficulty is appropriate to support licensing decisions for each crew position.	SIM	✓	✓

Target Quantitative Attributes (Per Scenario; See Section D.5.d)	Actual Attributes			--	--	--
	4					
1. Malfunctions after EOP entry (1-2)	1			SIM	✓	✓
2. Abnormal events (2-4)	4			SIM	✓	✓
3. Major transients (1–2)	1			SIM	✓	✓
4. EOPs entered/requiring substantive actions (1–2)	2			SIM	✓	✓
5. EOP contingencies requiring substantive actions (0-2)	2			SIM	✓	✓
6. EOP based Critical tasks (2–3)	2			SIM	✓	✓

NOTE: * The facility signature is not applicable for NRC-developed tests.
Independent NRC reviewer initial items in Column "c"; chief examiner concurrence required.

Facility: **McGuire**		Date of Exam: 4/2016												Operating Test No.: N16-1			
APPLICANT	EVENT TYPE	Scenarios												TOTAL	MINIMUM(*)		
		N16-1-2			**N16-1-3**			**N16-1-4**			**N16-1-1**						
		CREW POSITION			CREW POSITION			CREW POSITION			CREW POSITION						
		SRO	ATC	BOP	SRO	ATC	BOP	SRO	ATC	BOP	SRO	ATC	BOP		R	I	U
SROU-1	RX													**0**	1	1	**0**
	NOR	4												**1**	1	1	**1**
	I/C	1,2, 3,5, 6												**5**	4	4	**2**
	MAJ	7												**1**	2	2	**1**
	TS	2,3												**2**	0	2	**2**
SROU-2	RX													**0**	1	1	**0**
	NOR	4												**1**	1	1	**1**
	I/C	1,2, 3,5, 6												**5**	4	4	**2**
	MAJ	7												**1**	2	2	**1**
	TS	2,3												**2**	0	2	**2**
SROU-3	RX													**0**	1	1	**0**
	NOR				1									**1**	1	1	**1**
	I/C				2,3, 4,5, 8									**5**	4	4	**2**
	MAJ				6									**1**	2	2	**1**
	TS				2,4									**2**	0	2	**2**
SROU-4	RX													**0**	1	1	**0**
	NOR				1									**1**	1	1	**1**
	I/C				2,3, 4,5, 8									**5**	4	4	**2**
	MAJ				6									**1**	2	2	**1**
	TS				2,4									**2**	0	2	**2**

Instructions:

1. Check the applicant level and enter the operating test number and Form ES-D-1 event numbers for each event type; TS are not applicable for RO applicants. ROs must service in both the "at-the-controls (ATC)" and "balance-of-plant (BOP)" positions; Instant SROs (SRO-I) must serve in both the SRO and the ATC positions, including at least two instrument or component (I/C) malfunctions and one major transient, in the ATC position. If an Instant SRO-I *additionally* serves in the BOP position, one I/C malfunction can be credited toward the two I/C malfunctions required for the ATC position.

2. Reactivity manipulations may be conducted under normal or *controlled* abnormal conditions (refer to Section D.5.d) but must be significant per Section C.2.a of Appendix D. (*) Reactivity and normal evolutions may be replaced with additional instrument or component malfunctions on a 1-for-1 basis.

3. Whenever practical, both instrument and component malfunctions should be included; only those that require verifiable actions that provide insight to the applicant's competence count toward the minimum requirements specified for the applicant's license level in the right-hand columns.

4. For licensees that use the ATC operator primarily for monitoring plant parameters, the chief examiner may place SRO-I applicants in either the ATC or BOP position to best evaluate the SRO-I in manipulating plant controls.

Facility: **McGuire**		Date of Exam: 4/2016									Operating Test No.: N16-1												
APPLICANT	EVENT TYPE	Scenarios												TOTAL	MINIMUM(*)		
		N16-1-2			**N16-1-3**			**N16-1-4**			**N16-1-1**						
		CREW POSITION			CREW POSITION			CREW POSITION			CREW POSITION						
		SRO	ATC	BOP	SRO	ATC	BOP	SRO	ATC	BOP	SRO	ATC	BOP		R	I	U
SROU-5	RX													**0**	1	1	**0**
	NOR							1						**1**	1	1	**1**
	I/C							2,3,4,5,7						**5**	4	4	**2**
	MAJ							6						**1**	2	2	**1**
	TS							2,3						**2**	0	2	**2**
SROI-1	RX								1					**1**	1	**1**	0
	NOR	4			1									**2**	1	**1**	1
	I/C	1,2,3,5,6			2,3,4,5,8				4,5					**12**	4	**4**	2
	MAJ	7			6				6					**3**	2	**2**	1
	TS	2,3			2,4									**4**	0	**2**	2
RO-1	RX		4											**1**	**1**	1	0
	NOR						1							**1**	**1**	1	1
	I/C		3,5				4,5,8							**5**	**4**	4	2
	MAJ		7				6							**2**	**2**	2	1
	TS													**0**	**0**	2	2
RO-2	RX					1								**1**	**1**	1	0
	NOR			4						1				**2**	**1**	1	1
	I/C			1,2,6		3,4				2,3,5,7				**9**	**4**	4	2
	MAJ			7		6				6				**3**	**2**	2	1
	TS													**0**	**0**	2	2

Instructions:

1. Check the applicant level and enter the operating test number and Form ES-D-1 event numbers for each event type; TS are not applicable for RO applicants. ROs must service in both the "at-the-controls (ATC)" and "balance-of-plant (BOP)" positions; Instant SROs (SRO-I) must serve in both the SRO and the ATC positions, including at least two instrument or component (I/C) malfunctions and one major transient, in the ATC position. If an Instant SRO-I *additionally* serves in the BOP position, one I/C malfunction can be credited toward the two I/C malfunctions required for the ATC position.

2. Reactivity manipulations may be conducted under normal or *controlled* abnormal conditions (refer to Section D.5.d) but must be significant per Section C.2.a of Appendix D. (*) Reactivity and normal evolutions may be replaced with additional instrument or component malfunctions on a 1-for-1 basis.

3. Whenever practical, both instrument and component malfunctions should be included; only those that require verifiable actions that provide insight to the applicant's competence count toward the minimum requirements specified for the applicant's license level in the right-hand columns.

4. For licensees that use the ATC operator primarily for monitoring plant parameters, the chief examiner may place SRO-I applicants in either the ATC or BOP position to best evaluate the SRO-I in manipulating plant controls.

Facility: **McGuire**		Date of Exam: 4/2016									Operating Test No.: N16-1												
APPLICANT	EVENT TYPE	Scenarios												TOTAL	MINIMUM(*)		
		N16-1-2			**N16-1-3**			**N16-1-4**			**N16-1-1**						
		CREW POSITION			CREW POSITION			CREW POSITION			CREW POSITION						
		SRO	ATC	BOP	SRO	ATC	BOP	SRO	ATC	BOP	SRO	ATC	BOP		R	I	U
RO-3	RX		4											**1**	**1**	1	0
	NOR						1							**1**	**1**	1	1
	I/C		3,5				4,5,8							**5**	**4**	4	2
	MAJ		7				6							**2**	**2**	2	1
	TS													**0**	**0**	2	2
RO-4	RX					1								**1**	**1**	1	0
	NOR			4										**1**	**1**	1	1
	I/C			1,2,6		3,4								**5**	**4**	4	2
	MAJ			7		6								**2**	**2**	2	1
	TS													**0**	**0**	2	2
RO-5	RX		4											**1**	**1**	1	0
	NOR						1							**1**	**1**	1	1
	I/C		3,5				4,5,8							**5**	**4**	4	2
	MAJ		7				6							**2**	**2**	2	1
	TS													**0**	**0**	2	2
RO-6	RX					1								**1**	**1**	1	0
	NOR			4										**1**	**1**	1	1
	I/C			1,2,6		3,4								**5**	**4**	4	2
	MAJ			7		6								**2**	**2**	2	1
	TS													**0**	**0**	2	2

Instructions:

1. Check the applicant level and enter the operating test number and Form ES-D-1 event numbers for each event type; TS are not applicable for RO applicants. ROs must service in both the "at-the-controls (ATC)" and "balance-of-plant (BOP)" positions; Instant SROs (SRO-I) must serve in both the SRO and the ATC positions, including at least two instrument or component (I/C) malfunctions and one major transient, in the ATC position. If an Instant SRO-I *additionally* serves in the BOP position, one I/C malfunction can be credited toward the two I/C malfunctions required for the ATC position.

2. Reactivity manipulations may be conducted under normal or *controlled* abnormal conditions (refer to Section D.5.d) but must be significant per Section C.2.a of Appendix D. (*) Reactivity and normal evolutions may be replaced with additional instrument or component malfunctions on a 1-for-1 basis.

3. Whenever practical, both instrument and component malfunctions should be included; only those that require verifiable actions that provide insight to the applicant's competence count toward the minimum requirements specified for the applicant's license level in the right-hand columns.

4. For licensees that use the ATC operator primarily for monitoring plant parameters, the chief examiner may place SRO-I applicants in either the ATC or BOP position to best evaluate the SRO-I in manipulating plant controls.

Facility: **McGuire**	Date of Examination: 4/2016							Operating Test No.: N16-1				
Competencies	APPLICANTS											
	SRO (U/I)				RO/ATC				BOP			
	SCENARIO				SCENARIO				SCENARIO			
	1	2	3	4	1	2	3	4	1	2	3	4
Interpret/Diagnose Events and Conditions	1-7	1-9	1-8	1-7	1-7	1-9	1-8	1-7	1-7	1-9	1-8	1-7
Comply With and Use Procedures (1)	1-7	1-9	1-8	1-7	1-7	1-9	1-8	1-7	1-7	1-9	1-8	1-7
Operate Control Boards (2)	NA	NA	NA	NA	2,3, 4,5, 6	3,4, 5,7	1,3, 4,6	1,4, 5,6	1,2, 3,5, 7	1,2, 4,6, 7	1,4, 5,6, 8	1,2, 3,5, 6,7
Communicate and Interact	1-7	1-9	1-8	1-7	1-7	1-9	1-8	1-7	1-7	1-9	1-8	1-7
Demonstrate Supervisory Ability (3)	1-7	1-9	1-8	1-7	NA	NA	NA	NA	NA	NA	NA	NA
Comply With and Use Tech. Specs. (3)	1,3	2-3	2,4	2-3	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

(1) Includes Technical Specification compliance for RO.

(2) Optional for an SRO-U.

(3) Only applicable to SROs.

Instructions:

Check the applicants' license type and enter one or more event numbers that will allow the examiners to evaluate every applicable competency for every applicant. (This includes all rating factors for each competency.) (Competency Rating factors as described on forms ES-303-1 and ES-303-3.)

Facility: McGuire Date of Exam: March, 2016

Tier	Group	RO K/A Category Points											SRO-Only Points		
		K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G*	Total	A2	G*	Total
1. Emergency & Abnormal Plant Evolutions	1	3	3	3	N/A			3	3	N/A		3	18	3	3	6
	2	1	2	2				1	2			1	9	2	2	4
	Tier Totals	4	5	5				4	5			4	27	5	5	10
2. Plant Systems	1	2	3	3	3	2	2	2	3	3	2	3	28	3	2	5
	2	1	1	1	1	1	1	1	1	0	1	1	10	- 1	2	3
	Tier Totals	3	4	4	4	3	3	3	4	3	3	4	38	4	4	8
3. Generic Knowledge and Abilities Categories		1			2			3			4		10	1 2 3 4				7
		3			2			2			3		10	2 2 2 1				7

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). (One Tier 3 Radiation Control K/A is allowed if the K/A is replaced by a K/A from another Tier 3 Category).
2. The point total for each group and tier in the proposed outline must match that specified in the table. The final point total for each group and tier may deviate by ±1 from that specified in the table based on NRC revisions. The final RO exam must total 75 points and the SRO-only exam must total 25 points.
3. Systems/evolutions within each group are identified on the associated outline; systems or evolutions that do not apply at the facility should be deleted with justification; operationally important, site-specific systems/evolutions that are not included on the outline should be added. Refer to Section D.1.b of ES-401 for guidance regarding the elimination of inappropriate K/A statements.
4. Select topics from as many systems and evolutions as possible; sample every system or evolution in the group before selecting a second topic for any system or evolution.
5. Absent a plant-specific priority, only those K/As having an importance rating (IR) of 2.5 or higher shall be selected. Use the RO and SRO ratings for the RO and SRO-only portions, respectively.
6. Select SRO topics for Tiers 1 and 2 from the shaded systems and K/A categories.
7. The generic (G) K/As in Tiers 1 and 2 shall be selected from Section 2 of the K/A Catalog, but the topics must be relevant to the applicable evolution or system. Refer to Section D.1.b of ES-401 for the applicable K/As.
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 a category other than Category A2 or G* on the SRO-only exam, enter it on the left side of Column A2 for Tier 2, Group 2 (Note #1 does not apply). Use duplicate pages for RO and SRO-only exams.
9. For Tier 3, select topics from Section 2 of the K/A catalog, and enter the K/A numbers, descriptions, IRs, and point totals (#) on Form ES-401-3. Limit SRO selections to K/As that are linked to 10 CFR 55.43.

G* Generic K/As

ES-401	PWR Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1/Group 1 (RO / SRO)							Form ES-401-2	
E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A2	G*	K/A Topic(s)	IR	#
000007 (BW/E02&E10; CE/E02) Reactor Trip - Stabilization - Recovery / 1	X						007EK1.05; Knowledge of the operational implications of the following concepts as they apply to the reactor trip: Decay power as a function of time	3.3	
000008 Pressurizer Vapor Space Accident / 3									
000009 Small Break LOCA / 3			X				009EK3.11; Knowledge of the reasons for the following responses as they apply to the small break LOCA: Dangers associated with inadequate core cooling.	4.4	
000011 Large Break LOCA / 3						X	011EG2.2.38; Knowledge of conditions and limitations in the facility license.	4.5	
000015/17 RCP Malfunctions / 4						X X	015AG2.1.32; Ability to explain and apply system limits and precautions. 015AG2.4.45; Ability to prioritize and interpret the significance of each annunciator or alarm.	3.8 4.3	
000022 Loss of Rx Coolant Makeup / 2						X	022AG2.4.6; Knowledge of EOP mitigation strategies.	3.7	
000025 Loss of RHR System / 4						X	025EG2.4.35; Knowledge of local auxiliary operator tasks during an emergency and the resultant operational effects.	3.8	
000026 Loss of Component Cooling Water / 8					X		026AA2.02; Ability to determine and interpret the following as they apply to the Loss of Component Cooling Water: The cause of possible CCW loss.	2.9	
000027 Pressurizer Pressure Control System Malfunction / 3					X		027AA2.15; Ability to determine and interpret the following as they apply to the Pressurizer Pressure Control Malfunctions: Actions to be taken if PZR pressure instrument fails high.	4.0	
000029 ATWS / 1					X		029EA2.09; Ability to determine or interpret the following as they apply to an ATWS: Occurrence of a main turbine/reactor trip.	4.5	
000038 Steam Gen. Tube Rupture / 3						X	038EG2.2.22; Knowledge of limiting conditions for operations and safety limits.	4.7	
000040 (BW/E05; CE/E05; W/E12) Steam Line Rupture - Excessive Heat Transfer / 4				X			040AA1.03; Ability to operate and / or monitor the following as they apply to the Steam Line Rupture: Isolation of one steam line from header.	4.3	
000054 (CE/E06) Loss of Main Feedwater / 4			X				054AK3.01; Knowledge of the reasons for the following responses as they apply to the Loss of Main Feedwater (MFW): Reactor and/or turbine trip, manual and automatic.	4.1	
000055 Station Blackout / 6	X						055EK1.02; Knowledge of the operational implications of the following concepts as they apply to the Station Blackout : Natural circulation cooling	4.1	
000056 Loss of Off-site Power / 6									
000057 Loss of Vital AC Inst. Bus / 6				X			057AA1.05; Ability to operate and / or monitor the following as they apply to the Loss of Vital AC Instrument Bus: Backup instrument indications.	3.2	
000058 Loss of DC Power / 6					X		058AA2.03; Ability to determine and interpret the following as they apply to the Loss of DC Power: DC loads lost; impact on ability to operate and monitor plant system.	3.5	
000062 Loss of Nuclear Svc Water / 4			X				062AK3.04; Knowledge of the reasons for the following responses as they apply to the Loss of Nuclear Service Water: Effect on the nuclear service water discharge flow header of a loss of CCW.	3.5	

000065 Loss of Instrument Air / 8				X			065AA1.04; Ability to operate and / or monitor the following as they apply to the Loss of Instrument Air: Emergency air compressor.	3.5	
W/E04 LOCA Outside Containment / 3	X						WE04EK1.1; Knowledge of the operational implications of the following concepts as they apply to the (LOCA Outside Containment): Components, capacity, and function of emergency systems.	3.5	
W/E11 Loss of Emergency Coolant Recirc. / 4		X					WE11EK2.2; Knowledge of the interrelations between the (Loss of Emergency Coolant Recirculation) and the following: Facility's heat removal systems, including primary coolant, emergency coolant, decay heat removal systems, and relations between the proper operation of these systems to the operation of the facility. WE11EA2.1; Ability to determine and interpret the following as they apply to the (Loss of Emergency Coolant Recirculation): Facility conditions and selection of appropriate procedures during abnormal and emergency operations.	3.9 4.2	
BW/E04; W/E05 Inadequate Heat Transfer - Loss of Secondary Heat Sink / 4		X					WE05EK2.1; Knowledge of the interrelations between the (Loss of Secondary Heat Sink) and the following: Components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.	3.7	
000077 Generator Voltage and Electric Grid Disturbances / 6					X		077AA2.01; Knowledge of the interrelations between Generator Voltage and Electric Grid Disturbances and the following: Motors.	3.1	
K/A Category Totals:	3	3	3	3	3/3	3/3	Group Point Total:		18/6

ES-401	PWR Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1/Group 2 (RO / SRO)						Form ES-401-2	
E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A2	G*	K/A Topic(s)	IR	#
000001 Continuous Rod Withdrawal / 1									
000003 Dropped Control Rod / 1		X					003AK2.05; Knowledge of the interrelations between the Dropped Control Rod and the following: Control rod drive power supplies and logic circuits.	2.5	
000005 Inoperable/Stuck Control Rod / 1					X		005AA2.04; Ability to determine and interpret the following as they apply to the Inoperable / Stuck Control Rod: Interpretation of computer in-core TC map for dropped rod location.	3.4	
000024 Emergency Boration / 1						X	024G2.1.7; Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior, and instrument interpretation.	4.7	
000028 Pressurizer Level Malfunction / 2									
000032 Loss of Source Range NI / 7									
000033 Loss of Intermediate Range NI / 7									
000036 (BW/A08) Fuel Handling Accident / 8									
000037 Steam Generator Tube Leak / 3				X			037AA1.07: Ability to operate and / or monitor the following as they apply to the Steam Generator Tube Leak: CVCS letdown flow indicator.	3.1	
000051 Loss of Condenser Vacuum / 4			X				051AK3.01; Knowledge of the reasons for the following responses as they apply to the Loss of Condenser Vacuum: Loss of steam dump capability upon loss of condenser vacuum.	2.8	
000059 Accidental Liquid Radwaste Rel. / 9					X		059AA2.05; Ability to determine and interpret the following as they apply to the Accidental Liquid Radwaste Release: The occurrence of automatic safety actions as a result of a high PRM system signal.	3.6	
000060 Accidental Gaseous Radwaste Rel. / 9									
000061 ARM System Alarms / 7									
000067 Plant Fire On-site / 8									
000068 (BW/A06) Control Room Evac. / 8									
000069 (W/E14) Loss of CTMT Integrity / 5			X				069AK3.01; Knowledge of the reasons for the following responses as they apply to the Loss of Containment Integrity: Guidance contained in EOP for loss of containment integrity.	3.8	
000074 (W/E06&E07) Inad. Core Cooling / 4		X					074EK2.06; Knowledge of the interrelations between the and the following Inadequate Core Cooling: Turbine bypass and atmospheric dump valves.	3.5	
000076 High Reactor Coolant Activity / 9									
W/EO1 & E02 Rediagnosis & SI Termination / 3									
W/E13 Steam Generator Over-pressure / 4	X						WE13EK1.2; Knowledge of the operational implications of the following concepts as they apply to the (Steam Generator Overpressure): Normal, abnormal and emergency operating procedures associated with (Steam Generator Overpressure).	3.0	

W/E15 Containment Flooding / 5					X		WE15EA2.2; Ability to determine and interpret the following as they apply to the (Containment Flooding): Adherence to appropriate procedures and operation within the limitations in the facility's license and amendments.	2.9	
W/E16 High Containment Radiation / 9					X		WE16EA2.2; Ability to determine and interpret the following as they apply to the (High Containment Radiation): Adherence to appropriate procedures and operation within the limitations in the facility's license and amendments.	3.3	
BW/E08; W/E03 LOCA Cooldown - Depress. / 4						X	WE03G2.1.31; Ability to locate control room switches, controls, and indications, and to determine that they correctly reflect the desired plant lineup.	4.6	
BW/E09; CE/A13; W/E09&E10 Natural Circ. / 4									
CE/A11; W/E08 RCS Overcooling - PTS / 4						X	WE08EG2.1.7; Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior, and instrument interpretation.	4.7	
K/A Category Point Totals:	1	2	2	1	2/2	1/2	Group Point Total:		9/4

ES-401	PWR Examination Outline Plant Systems - Tier 2/Group 1 (RO / SRO)											Form ES-401-2		
System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A2	A 3	A 4	G*	K/A Topic(s)	IR	#
003 Reactor Coolant Pump		X										003K2.02; Knowledge of bus power supplies to the following: CCW pumps.	2.5	
004 Chemical and Volume Control			X									004K3.06; Knowledge of the effect that a loss or malfunction of the CVCS will have on the following: RCS temperature and pressure.	3.4	
005 Residual Heat Removal		X										005K2.01; Knowledge of bus power supplies to the following: RHR pumps.	3.0	
							X					005A1.01; Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the RHRS controls including: Heatup/cooldown rates.	3.5	
006 Emergency Core Cooling							X					006A1.15; Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the ECCS controls including: RWST Level and temperature.	3.3	
						X						006K6.05; Knowledge of the effect of a loss or malfunction on the following will have on the ECCS: HPI/LPI cooling water.	3.0	
007 Pressurizer Relief/Quench Tank								X				007A2.05; Ability to (a) predict the impacts of the following malfunctions or operations on the P S; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Exceeding PRT high-pressure limits.	3.2	
008 Component Cooling Water				X								008K4.09; Knowledge of CCWS design feature(s) and/or interlock(s) which provide for the following: The "standby" feature for the CCW pumps.	2.7	
010 Pressurizer Pressure Control									X			010A3.02; Ability to monitor automatic operation of the PZR PCS, including: PZR pressure.	3.6	
						X						010K6.04; Knowledge of the effect of a loss or malfunction of the following will have on the PZR PCS: PRT.	2.9	
012 Reactor Protection										X		012A4.06; Ability to manually operate and/or monitor in the control room: Reactor trip breakers.	4.3	
								X				012A2.01; Ability to (a) predict the impacts of the following malfunctions or operations on the RPS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Faulty bistable operation.	3.6	

013 Engineered Safety Features Actuation	X							X				013K1.04: Knowledge of the physical connections and/or cause effect relationships between the ESFAS and the following systems: HVAC. 013A2.06; Ability to (a) predict the impacts of the following malfunctions or operations on the ESFAS; and (b) based Ability on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions: Inadvertent ESFAS actuation.	2.8 4.0	
022 Containment Cooling										X		022A4.01; Ability to manually operate and/or monitor in the control room: CCS fans.	3.6	
025 Ice Condenser					X							025K5.02; Knowledge of operational implications of the following concepts as they apply to the ice condenser system: Heat transfer.	2.6	
026 Containment Spray		X						X				026A2.07; Ability to (a) predict the impacts of the following malfunctions or operations on the CSS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Loss of containment spray pump suction when in recirculation mode, possibly caused by clogged sump screen, pump inlet high temperature exceeded cavitation, voiding), or sump level below cutoff (interlock) limit. 026K2.01; Knowledge of bus power supplies to the following: Containment spray pumps.	3.6 3.4	
039 Main and Reheat Steam			X								X	039G2.4.1; Knowledge of EOP entry conditions and immediate action steps. 039K3.03; Knowledge of the effect that a loss or malfunction of the MRSS will have on the following: AFW pumps.	4.6 3.2	
059 Main Feedwater				X								059K4.08; Knowledge of MFW design feature(s) and/or interlock(s) which provide for the following: Feedwater regulatory valve operation (on basis of steam flow, feed flow mismatch).	2.5	
061 Auxiliary/Emergency Feedwater					X						X	061K5.03; Knowledge of the operational implications of the following concepts as they apply to the AFW: Pump head effects when control valve is shut. 061G2.4.31; Knowledge of annunciator alarms, indications, or response procedures.	2.6 4.1	
062 AC Electrical Distribution									X			062A3.01; Ability to monitor automatic operation of the ac distribution system, including: Vital ac bus amperage.	3.0	

063 DC Electrical Distribution				X					X			063K4.02; Knowledge of DC electrical system design feature(s) and/or interlock(s) which provide for the following: Breaker interlocks, permissives, bypasses and cross-ties. 063A3.01; Ability to monitor automatic operation of the DC electrical system, including: Meters, annunciators, dials, recorders, and indicating lights.	2.9 2.7	
064 Emergency Diesel Generator								X				064A2.14; Ability to (a) predict the impacts of the following malfunctions or operations on the ED/G system; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Effects (verification) of stopping ED/G under load on isolated bus.	2.7	
073 Process Radiation Monitoring											X	073G2.2.12; Knowledge of surveillance procedures.	3.7	
076 Service Water	X										X	076K1.19; Knowledge of the physical connections and/or cause- effect relationships between the SWS and the following systems: SWS emergency heat loads. 076G2.2.44; Ability to interpret control room indications to verify the status and operation of a system, and understand how operator actions and directives affect plant and system conditions.	3.6 4.4	
078 Instrument Air			X					X				078K3.03; Knowledge of the effect that a loss or malfunction of the IAS will have on the following: Cross-tied units. 078A2.01; Ability to (a) predict the impacts of the following malfunctions or operations on the IAS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Air dryer and filter malfunctions.	3.0 2.9	
103 Containment											X	103G2.2.22; Knowledge of limiting conditions for operations and safety limits.	4.0	
K/A Category Point Totals:	2	3	3	3	2	2	2	3/3	3	2	3/2	Group Point Total:		28/5

ES-401	PWR Examination Outline Plant Systems - Tier 2/Group 2 (RO / SRO)												Form ES-401-2	
System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A2	A 3	A 4	G*	K/A Topic(s)	IR	#
001 Control Rod Drive										X		001A4.06; Ability to manually operate and/or monitor in the control room: Control rod drive disconnect/connect.	2.9	
002 Reactor Coolant						X						002K6.07; Knowledge of the effect or a loss or malfunction on the following RCS components: Pumps.	2.5	
011 Pressurizer Level Control			X									011K3.03; Knowledge of the effect that a loss or malfunction of the PZR LCS will have on the following: PZR PCS.	3.2	
014 Rod Position Indication											X	014G2.2.25; Knowledge of the bases in Technical Specifications for limiting conditions for operations and safety limits.	4.2	
015 Nuclear Instrumentation								X				015A2.02; Ability to (a) predict the impacts of the following malfunctions or operations on the NIS; and (b based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Faulty or erratic operation of detectors or compensating components.	3.1	
016 Non-Nuclear Instrumentation								X			X	016G2.4.4; Ability to recognize abnormal indications for system operating parameters that are entry-level conditions for emergency and abnormal operating procedures. 016A2.02; Ability to (a) predict the impacts of the following malfunctions or operations on the NNIS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Loss of power supply.	4.5 3.2	
017 In-Core Temperature Monitor												017K5.02; Knowledge of the operational implications of the following concepts as they apply to the ITM system: Saturation and subcooling of water.	3.7	
027 Containment Iodine Removal														
028 Hydrogen Recombiner and Purge Control														
029 Containment Purge														
033 Spent Fuel Pool Cooling	X											033K1.05; Knowledge of the physical connections and/or cause-effect relationships between the Spent Fuel Pool Cooling System and the following systems: RWST.	2.7	
034 Fuel Handling Equipment							X					034A1.02; Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the Fuel Handling System controls including: Water level in the refueling canal.	2.9	
035 Steam Generator											X	035G2.2.42; Ability to recognize system parameters that are entry-level conditions for Technical Specifications.	4.6	
041 Steam Dump/Turbine Bypass Control		X										041K2.01; Knowledge of bus power supplies to the following: ICS, normal and alternate power supply.	2.8	

045 Main Turbine Generator													
055 Condenser Air Removal													
056 Condensate													
068 Liquid Radwaste													
071 Waste Gas Disposal													
072 Area Radiation Monitoring				X							072K4.01; Knowledge of ARM system design feature(s) and/or interlock(s) which provide for the following: Containment ventilation isolation.	3.3	
075 Circulating Water													
079 Station Air													
086 Fire Protection													
K/A Category Point Totals:	1	1	1	1	1	1	1	1/1	0	1	1/2	Group Point Total:	10/3

Facility:		Date of Exam:				
Category	K/A #	Topic	RO		SRO-Only	
			IR	#	IR	#
1. Conduct of Operations	2.1.2	Knowledge of operator responsibilities during all modes of plant operation.	4.1			
	2.1.36	Knowledge of procedures and limitations involved in core alterations.	3.0			
	2.1.45	Ability to identify and interpret diverse indications to validate the response of another indication.	4.3			
	2.1.35	Knowledge of the fuel-handling responsibilities of SROs.			3.9	
	2.1.40	Knowledge of refueling administrative requirements.			3.9	
	2.1.					
	Subtotal		3		2	
2. Equipment Control	2.2.18	Knowledge of the process for managing maintenance activities during shutdown operations, such as risk assessments, work prioritization, etc.	2.6			
	2.2.38	Knowledge of conditions and limitations in the facility license.	3.6			
	2.2.6	Knowledge of the process for making changes to procedures.			3.6	
	2.2.21	Knowledge of pre- and post-maintenance operability requirements.			4.1	
	2.2.					
	2.2.					
	Subtotal		2		2	
3. Radiation Control	2.3.4	Knowledge of radiation exposure limits under normal or emergency conditions.	3.2			
	2.3.13	Knowledge of radiological safety procedures pertaining to licensed operator duties, such as response to radiation monitor alarms, containment entry requirements, fuel handling responsibilities, access to locked high-radiation areas, aligning filters, etc.	3.4			
	2.3.12	Knowledge of radiological safety principles pertaining to licensed operator duties, such as containment entry requirements, fuel handling responsibilities, access to locked high-radiation areas, aligning filters, etc.			3.7	
	2.3.14	Knowledge of radiation or contamination hazards that may arise during normal, abnormal, or emergency conditions or activities.			3.8	
	2.3.					
	2.3.					
	Subtotal		2		2	
4. Emergency Procedures / Plan	2.4.11	Knowledge of abnormal condition procedures.	4.0			
	2.4.25	Knowledge of fire protection procedures.	3.3			
	2.4.31	Knowledge of annunciator alarms, indications, or response procedures.	4.2			
	2.4.44	Knowledge of emergency plan protective action recommendations.			4.4	
	2.4.					
	2.4.					
	Subtotal		3		1	
Tier 3 Point Total			10	10	7	7

Tier / Group	Randomly Selected K/A	Reason for Rejection
1/1	029EK1.03	Unable to write discriminating question to appropriate level. Changed to 055EK1.02.
1/1	038EG2.2.38	Essentially the same as 038EG2.2.22. Changed to 025EG2.4.35
1/2	001AK2.01	Unable to write discriminating question to appropriate level. Changed to 003AK2.05.
1/2	032AG2.4.50	Unable to write to SRO level. ARPs lead to TS. These TS are $\leq$ 1 hr LCOs. Changed to WE08EG2.1.7
1/2	036AK1.02	Unable to write discriminating question to appropriate level. Changed to 032AK1.01.
2/1	004K2.06	Unable to write discriminating question to appropriate level. Changed to 005K2.01.
2/1	005A1.05	Unable to write an operationally valid question. There are no actions associated with these alarms. Changed to 005A1.01..
2/1	007A2.04	Unable to write an operationally valid question. PRT rupture disc and vent header relief operate at the same setpoint. Changed to 007A2.05
2/1	013K1.04	Site does not have RPS injection. Changed to 013K1.13.
2/2	028K2.01	The Hydrogen Recombiners have been retired in place. Changed to 041K2.01.
2/2	071A4.17	Not performed at site. Changed to 001A4.06
2/2	075K3.07	No inter-relationship between CS and ESFAS. Changed to 011K3.03.
2/2	068G2.4.47	There is no capability to monitor thread waste system in the MCR. Changed with 075G2.1.25.
1/2	032AK1.01	Identical with T2/G2 K/A 015A2.02. With new gamma-metrics NIs a detector failure and the effect of a voltage change on performance present themselves with identical symptoms. Changed to WE13EK1.2.
1/1	058AG2.1.27	Unable to write question to SRO level. Replaced with 011EG2.2.38.
2/2	075G2.1.25	Unable to write question to SRO level. Replaced with 035G2.2.42.
2/2	086K5.04	Unable to meet K/A due to plant design. Replaced with 017K5.02.

ES-401 **Written Examination Quality Checklist** **Form ES-401-6**

Facility: **McGuire Nuclear Station** Date of Exam: **4/4/2016** Exam Level: RO ☐ SRO ☑

Item Description				Initial a	Initial b*	Initial c*
1.	Questions and answers are technically accurate and applicable to the facility.			SLM	✓	DL
2.	a. NRC K/As are referenced for all questions. b. Facility learning objectives are referenced as available.			SLM	✓	DL
3.	SRO questions are appropriate in accordance with Section D.2.d of ES-401			SLM	✓	DL
4.	The sampling process was random and systematic (If more than 4 RO or 2 SRO questions were repeated from the last two NRC licensing exams, consult the NRR/NRO OL program office).					DL
5.	Question duplication from the licensee screening/audit exam was controlled as indicated below (check the item that applies) and appears appropriate __ the audit exam was systematically and randomly developed; or __ the audit exam was completed before the license exam was started; or __ the examinations were developed independently; or ☑ the licensee certifies that there is no duplication; or __ other (explain)			SLM	✓	DL
6.	Bank use meets limits (no more than 75 percent from the bank, at least 10 percent new, and the rest new or modified); enter the actual RO / SRO-only question distribution(s) at right.	Bank: 29 / 11	Modified: 14 / 2	SLM	✓	DL
7.	Between 50 and 60 percent of the questions on the RO exam are written at the comprehension/analysis level; the SRO exam may exceed 60 percent if the randomly selected K/As support the higher cognitive levels; enter the actual RO / SRO question distribution(s) at right.	Memory: 31 / 9	C/A: 44 / 16	SLM	✓	DL
8.	References/handouts provided do not give away answers or aid in the elimination of distractors.			SLM	✓	DL
9.	Question content conforms to specific K/A statements in the previously approved examination outline and is appropriate for the tier to which they are assigned; deviations are justified.			SLM	✓	DL
10.	Question psychometric quality and format meet the guidelines in ES Appendix B.			SLM	✓	DL
11.	The exam contains the required number of one-point, multiple choice items; the total is correct and agrees with the value on the cover sheet.			SLM	✓	DL

	Printed Name / Signature	Date
a. Author	Steven L. Mostelle / Steven L. Mostelle	3/22/16
b. Facility Reviewer (*)	Wiley Kollette / Wiley Kollette	3/22/16
c. NRC Chief Examiner (#)	David Lang / David Lang	3/29/16
d. NRC Regional Supervisor	Gerald J McCoy / Gerald J McCoy	3/29/2016

Note: * The facility reviewer's initials/signature are not applicable for NRC-developed examinations.
Independent NRC reviewer initials items in Column "c"; chief examiner concurrence required.

Q	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. Source (B/ M / N)	7. Status (U /E /S)	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist	Partial	Job-Link	Minutia	# / Units	Back ward	Q – K/A	SR O Only			
1	H	2												N	S	SYS003 K2.02 K/A is met. drl r2/8/16
2	F	2										X		B	S	SYS005 K2.01 K/A is not really met. The K/A is "knowledge of bus power supplies …: Here you tell them that the bus is lost and re-supplied with the D/G. You're not really testing the PS knowledge aspect, but the load restoration aspect. drl 2/8/16 Revised question is SAT. drl 3/1/16
3	H	2												M	S	SYS004 K3.06 K/A is met. drl 2/8/16
4	H	2												B	S	SYS005 A1.01 K/A is met. drl 2/8/16
5	H	2		X										N	S	SYS006 A1.15 K/A is mostly met. Is a 0.5 ºF/min HUR attainable with only one set of heaters failed on? drl 2/8/16 Revised question is SAT. drl 3/1/16

Instructions

(Refer to Section D of ES-401 and Appendix B for additional information regarding each of the following concepts:

1. Enter the level of knowledge (LOK) of each question as either (F)undamental or (H)igher cognitive level.
2. Enter the level of difficulty (LOD) of each question a 1(easy) to 5 (difficult); (questions with a difficulty between 2 and 4 are acceptable)
3. Check the appropriate box if a psychometric flaw is identified:
   - "Stem Focus": The stem lacks sufficient focus to elicit the correct answer (e.g., unclear intent, more information is needed, or too much needless information).
   - "Cues": The stem or distractors contain cues (i.e., clues, specific determiners, phrasing, length, etc.).
   - "T/F": The answer choices are a collection of unrelated true/false statements.
   - "Cred. Dist": The distractors are not credible; single implausible distractors should be repaired, more than one is unacceptable.
   - "Partial": One or more distractors is (are) partially correct (e.g., if the applicant can make unstated assumptions that are not contradicted by stem).
4. Check the appropriate box if a job content error is identified:
   - "Job Link": The question is not linked to the job requirements (i.e., the question has a valid K/A but, as written, is not operational in content).
   - "Minutia": The question requires the recall of knowledge that is too specific for the closed reference test mode (i.e., it is not required to be known from memory).
   - "# / Units": The question contains data with an unrealistic level of accuracy or inconsistent units (e.g., panel meter in percent with question in gallons).
   - "Backward": The question requires reverse logic or application compared to the job requirements.
5. Check questions that are sampled for conformance with the approved K/A and those K/As that are *designated SRO-only* (K/A and license level mismatches are unacceptable)
6. Enter question's source: (B)ank, (M)odified, or (N)ew. Verify that (M)odified questions meet the criteria of ES-401 Section D.2.f.
7. Based on the reviewer's judgment, is the question as written (U)nsatisfactory (requiring repair or replacement), in need of (E)ditorial enhancement, or (S)atisfactory?
8. At a minimum, explain any "U" Status ratings (e.g., how the Appendix B psychometric attributes are not being met).

Q	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. Source (B/ M / N)	7. Status (U /E /S)	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist	Partial	Job-Link	Minutia	# / Units	Back ward	Q – K/A	SR O Only			
6	H	2										X		N	S	SYS006 K6.05 K/A is not really met. What is the effect on ECCS. If a SI were to occur with a loss or partial loss of cooling, how are the ECCS pumps affected? What you have is close, but does not really meet it. drl 2/8/16 Revised question is SAT. drl 3/1/16
7	F	2										X		B	S	SYS007 A2.05 K/A is partially met. This question does not use procedures to correct, control, or mitigate anything. The first part is fine as long as Operations deems that the ROs should know PRT rupture setpoint from memory. drl 2/8/16 Revised question is SAT. drl 3/1/16
8	H	3												B	S	SYS008 K4.09 K/A is met. drl 2/8/16
9	F	2												N	S	SYS010 A3.02 K/A is met. drl 2/8/16
10	H	2												B	S	SYS010 K6.04 K/A is met. Does the information provided here give the applicants any information that might help them answer question 7 or vice versa? If so we should probably replace the K/A for question 7 or 10. This is really just a GFES question. drl 2/8/16 After further review this question is SAT. drl 3/1/16
11	F	2												N	S	SYS012 A4.06 K/A is met. drl 2/8/16
12	F	3												B	S	SYS013 K1.13 K/A is met. drl 2/8/16
13	F	2												B	S	SYS022 A4.01 K/A is met. Is B plausible? Are there other instances of running fans with closed dampers? drl 2/8/16
14	H	2												B	S	SYS025 K5 02 K/A is met. drl 2/8/16
15	H	3		X			X							M	S	SYS026 A2.07 K/A may be met, but it definitely is not clear.. The fact that you are in ECA-1.1 means that you lost recirculation capability at some point, but you give no

Q	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. Source (B/ M / N)	7. Status (U /E /S)	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist	Partial	Job-Link	Minutia	# / Units	Back ward	Q – K/A	SR O Only			
																indications that that is so. I'm not certain why you state that ECA-1.1 would not direct going to recirc. Step 8.b only requires one of the alarms (1AD-14 or 15) needs to be in alarm in order to meet the requirements of the procedure to go onto recirc. What am I missing? drl 2/8/16 Revised question is SAT. drl 3/1/16
16	F	2				X								N	S	SYS026 K2.01 K/A is met. A side buses probably aren't very plausible. Could we keep the vital B side buses as answers and provide high voltage non-safety related B buses as the alternative? drl 2/8/16 Revised question is SAT. drl 3/1/16
17	F	2	X											N	S	SYS039 2.4.1 K/A is met. The format of the first question seems confusing to me. If the applicants are used to seeing it this way, that is fine. Otherwise we might want to look at reformatting that part. This one is very close to 2 different unrelated questions. Drl 2/8/16 Revised question is SAT. drl 3/1/16
18	H	2				X								M	S	SYS039 K3.03 K/A is met. A is not very plausible. Could we change the question a bit to put a tube rupture in C and ask what to isolate per the Emergency Procedures. The correct answer should be 2-SA-2 and 78. The other two choices would be the corresponding C SG valves. drl 2/8/16 Not quite. I wanted the steam break in A and tube rupture in C. Procedurally they should stop the steam break first and keep steaming the one with the tube leak. drl 3/1/16 Revised question is SAT. drl 3/3/16
19	F	2												N	S	SYS059 K4.08 K/A is met. This is acceptable as long as Operations agrees that their ROs need to have these values memorized. drl 2/8/16 After further review this question is SAT. drl 3/1/16
20	F	2												N	S	SYS061 K5.03 K/A is met. drl 2/8/16
21	H	2												B	S	SYS062 A3.01 K/A is met. This is a GFES question. drl 2/8/16

Q	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. Source (B/ M / N)	7. Status (U /E /S)	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist	Partial	Job-Link	Minutia	# / Units	Back ward	Q – K/A	SR O Only			
22	H	2												N	S	SYS063 A3.01 K/A is met. drl 2/8/16
23	F	2												B	S	SYS063 K4.02 K/A is met. drl 2/9/16
24	F	2												N	S	SYS064 A2.14 K//A is mostly met. drl 2/9/16
25	F	3												B	S	SYS073 2.2.12 K/A is met. drl 2/9/16
26	H	3				X	X							B	S	SYS076 K1.19 K/A is .met. The way this is written, A is potentially not incorrect. If the valve manually failed, it could be in this position. I agree it is not the best answer, but not incorrect. If challenged, I would probably have to accept it as correct. ON the other hand, would anyone choose a "failed valve" as an answer? Either way, A is not a good distractor. drl 2/9/16 Revised question is SAT. drl 3/1/16
27	F	2												B	S	SYS078 K3.03 K/A is met. drl 2/9/16
28	F	3												N	S	SYS103 2.2.22 K/A is met. drl 2/9/16
29	H	2												N	S	SYS002 K6.07 K/A is met. drl 2/9/16
30	F	3											X	M	S	SYS015 A2.02 K/A is met. Can we state that the detector failed low? Should we give the TS as a reference here? This looks like it might be SRO (below the line) knowledge. drl 2/9/16 Revised question is SAT. drl 3/1/16
31	H	2												B	S	SYS016 2.4.4 K/A is met. drl 2/9/16
32	F	2												N	S	SYS041 K2.01 K/A is met. Loosely related questions. drl 2/9/16
33	F	2	X				X							N	S	SYS033 K1.05 K/A is met. Probably need to reference OP/1(2)/A/6200/005 in the stem of the question. Is "assured makeup" a defined term? I need to verify that RN is the one and only answer. drl 2/9/16

Q	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. Source (B/ M / N)	7. Status (U /E /S)	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist	Partial	Job-Link	Minutia	# / Units	Back ward	Q – K/A	SR O Only			
																Revised question is SAT. drl 3/1/16
34	H	2												M	S	SYS034 A1.02 K/A is met. drl 2/8/16
35	F	2				X								B	S	SYS001 A4.06 K/A is met. You don't need to know much to guess that you disconnect the rods you don't want to move. Perhaps you can ask where the disconnect is located (MCR or locally). drl 2/9/16 Revised question is SAT. drl 3/1/16
36	F	3												N	S	SYS072 K4.01 K/A is met. drl 2/9/16
37	H	3												B	S	SYS011 K3.03 K/A is met. drl 2/9/16
38	F	2		X								X		N	S	SYS086 K5.04 K/A is not really met. Second question is irrelevant as written. If you know the answer to the first question, the second question does not need asked. Since the K/A is asking to discuss hazards, this really does not work. drl 2/9/16 K/A changed at licensee's request. 2/29/16 SYS017K5.02 Revised question is SAT. drl 3/2/16
39	H	3												M	S	EPE007 EK1.05 K/A is met. drl 2/9/16
40	H	2												B	S	EPE009 EK3.11 K/A is met. drl 2/9/16
41	H	3												M	S	APE015/017 2.1.32 K/A is mostly met. This is acceptable if Operations agrees that their ROs need to have these setpoints memorized. drl 2/9/16 After further review this question is SAT. drl 3/2/16
42	F	2												N	S	APE022 2.4.6 K/A is met. drl 2/9/16
43	H	2												N	S	APE025 AK2.03 K/A is met. drl 2/9/16
44	F	2												N	S	APE026 AA2.02 K/A is met. drl 2/9/16
45	H	3												B	S	EPE055 EK1.02 K/A is met. drl 2/9/16

Q	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. Source (B/ M / N)	7. Status (U /E /S)	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist	Partial	Job-Link	Minutia	# / Units	Back ward	Q – K/A	SR O Only			
46	H	3												N	S	APE025 2.4.35 K/A is met. drl 2/9/16
47	F	2												N	S	APE040 AA1.13 K/A is met. LOD is 1 on this one. If they can read the tiles, they can answer the question. No plant knowledge is required. drl 2/9/16 Revised question is SAT. drl 3/2/16
48	F	2												N	S	APE054 AK3.01 K/A is met. drl 2/9/16
49	F	2										X		N	S	APE057 AA1.05 K/A is not really met. Again the second question is not required to be answered If you know the answer to the first question. Is there any overlap with the information required by question 22? Drl 2/9/16 Revised question is SAT. drl 3/2/16
50	H	3												B	S	APE058 AA2.03 K/A is met. drl 2/9/16
51	H	3												N	S	APE062 AK3.04 K/A is met. drl 2/10/16
52	H	2				X								M	S	APE065 AA1.04 K/A is met. Are there any instances that you can cite where an A/C will shut down automatically on high or adequate pressure? That's what unloaders are for. The second question is not discriminating. drl 2/1016 RUN sounds like it should work all the time. How about we change the second question to "If an auto start signal is received, the Diesel VI compressors will / will not start and load if the START/WARM-UP/RUN switch is selected to the Warm-up position." drl 3/2/16 Second revised question is SAT drl 3/2/16
53	H	2												M	S	APE077 AA2.01 K/A is met. drl 2/10/16
54	F	3												M	S	WE04 EK1.1 K/A is met. drl 2/10/16
55	F	2				X								B	S	WE05 EK2.1 K/A is met. I think that the applicants will know that there is an allowance in the procedure to have a blocked PORV. So they would not choose 3. Could we change the

Q	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. Source (B/ M / N)	7. Status (U /E /S)	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist	Partial	Job-Link	Minutia	# / Units	Back ward	Q – K/A	SR O Only			
																option for 3 PORVs to 1? drl 2/10/16 Revised question is SAT. drl 3/2/16
56	H	1				X								B	S	WE11 EK2.2 K/A is met. This is not a very discerning question. Why would anyone state recirc is available on a loop with the recirc valve closed? The second question is ok. Drl 2/10/16 Revised question is SAT. drl 3/2/16
57	H	3												N	S	APE003 AK2.05 K/A is met. drl 2/10/16
58	F	2		X										N	S	WE13 EK1.2 K/A is met. Put 2 of the indications in the white zones. drl 2/10/16 Revised question is SAT. drl 3/2/16
59	H	3												N	S	APE037 AA1.07 K/A is met. drl 2/10/16
60	H	2												N	S	APE051 AK3.01 K/A is met. drl 2/10/16
61	F	3												B	S	APE059 AA2.05 K/A is met. drl 2/10/16
62	F	2												N	S	APE069 AK3.01 K/A is met. drl 2/10/16
63	F	2										X		M	S	EPE074 EK2.06 K/A is kind of met. A better K/A match might be to give them a condition in which vacuum was lost (say a LOOP) and instead of asking question 2 ask if they will use dumps or SG PORVs to cooldown. drl 2/10/16 Revised question is SAT. drl 3/2/16
64	F	3							X					B	E	WE03 2.1.31 K/A is met. The first question is acceptable if Operations requires their ROs to have this value memorized. The second question appears trivial. Knowing the switch number does not seem to be of great importance. Perhaps knowing what position those switches should be in would be acceptable and still meet the K/A. The other bank question that this was derived from looks pretty good. drl 2/10/16 Could we move "2NC-34A **OR**" into the stem of the question to make discerning the differences in the

Q	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. Source (B/ M / N)	7. Status (U /E /S)	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist	Partial	Job-Link	Minutia	# / Units	Back ward	Q – K/A	SR O Only			
																answers easier. Drl 3/2/16 Revised question is SAT. drl 3/2/16
65	H	2												B	S	WE15 EA2.2 K/A is met. drl 2/10/16
66	F	2					X							B	S	GEN2.1 2.1.2 K/A is met. Could C be correct? It only says to borate to reduce power. Additionally, I don't see a prohibition from use of Emergency Boration. drl 2/10/16 After further review this question is SAT. drl 3/2/16
67	F	3												B	S	GEN2.1 2.1.36 K/A is met. drl 2/10/16
68	F	2												B	S	GEN2.1 2.1.45 K/A is met. drl 2/10/16
69	F	2				X								M	S	GEN2.2 2.2.1 K/A is met. Change the words in question 2 from "immediately and directly threatened is' to "in a reduced condition is". The two options would be YELLOW or RED. With YELLOW as the correct answer. drl 2/10/16 Make all first answer Mode x and below. Instead of RED would ORANGE be more plausible? drl 3/2/16 Revised question is Sat.drl 3/3/16
70	H	2				X								M	S	GEN2.2 2.2.38 K/A is met. The answers for question 2 needs to be re-written. As written, it drives the applicant to within 1 hour because it would be impossible to restore it to operable status immediately. So you will need to use the long version of the action as shown in the question that this was modified from. .drl 2/10/16 Revised question is SAT. drl 3/2/16
71	F	2												B	S	GEN2.3 2.3.13 K/A is met. drl 2/10/16
72	H	2												B	S	GEN2.3 2.3.4 K/A is met. drl 2/10/16
73	H	3												N	S	GEN2.4 2.4.11 K/A is met. drl 2/10/16
74	F	2												M	S	GEN2.4 2.4.25 K/A is met. drl If Operations agrees that the ROs are required to memorize these setpoints, this question is SAT. drl 2/10/16 After further review, this question is SAT. drl 3/2/16

Q	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. Source (B/ M / N)	7. Status (U /E /S)	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist	Partial	Job-Link	Minutia	# / Units	Back ward	Q – K/A	SR O Only			
75	H	3												B	S	GEN2.4 2.4.31 K/A is met. Potential overlap with question 64. drl 2/10/16 Revised Question is SAT. drl 3/2/16
SRO ONLY																
76	H	2												N	S	SYS012 A2.01 K/A is met. drl 2/11/16
77	H	3												B	S	SYS013 A2.06 K/A is met. drl 2/11/16
78	H	3		X		X								B/M	S	SYS061 2.4.31 K/A is met. It seems that it would be logical to declare the pump inoperable when closing either valve. It would be nice to be able to test the TS knowledge that this surveillance is not applicable below 10% RTP. However, procedurally you have to declare the pump inoperable no matter what the power level is. Could we change the power to *%, provide them with TS 3.7.5.1 and change question 2 to read “Based upon the actions taken to reduce the temperature of the check valve, TS 3.7.5.1 requires the U1 TD CA pump to be declared _____.”? The revised question looks SAT as written. We just need to verify that Operations would expect the SROs to know this without the TS as a reference. drl 3/3/16 After further review, question is SAT. drl 3/11/16
79	H	2												M	S	SYS076 2.2.44 K/A is met. drl 2/11/16
80	H	3		X										B/M	S	SYS078 A2.01 K/A is met. Could we modify this one slightly? Add that the pressure is at 58 psig. For question 1 Ask which Enclosure should be entered 7 or 5. drl 2/11/16 I’m pretty certain that the first question should ask what the MAXIMUM VI Header pressure which …. As pressure is lowering, we want to know what the first pressure is that it is required. Otherwise we would alays pick the lowest to get the minimum. drl 3/3/16 Revised question is SAT. drl 3/11/16
81	H	3										X		N	S	SYS014 2.2.25 K/A is almost met. Question 2 doesn’t really hit the K/A mark as written. Why not ask what the bases for the TS is. The

Q	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. Source (B/ M / N)	7. Status (U /E /S)	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist	Partial	Job-Link	Minutia	# / Units	Back ward	Q – K/A	SR O Only			
																distractor could be fuel burnup distributions (TS 3.1.6). drl 2/11/16 Revised question is SAT. drl 3/3/16
82	H	3												N	S	SYS016 A2.02 K/A is met. Does I&E place anything in TRIP? drl 2/11/16 After further review, this question is SAT. drl 3/3/16
83	H	3						X				X		M	S	SYS035 2.2.42 K/A is mostly met. Although SLC item were formerly TS items, this particular item is bordering on minutia. How often will the operators find themselves in this condition? This is not very operationally valid. Perhaps TS 3.7.4 can be used instead. Revised question is SAT. drl 3/3/16
84	H	2												N	S	APE015/017 2.4.45 K/A is met. This is SAT as long as Operations agrees that their SROs are required to know the bearing temperature setpoints. drl 2/11/16 After further review, this question is SAT. drl 3/3/16
85	F	2												N	S	APE027 AA2.15 K/A is met. drl 2/11/16
86	H	3												B	S	EPE029 EA2.09 K/A is met. drl 2/11/16
87	H	2												N	S	EPE038 2.2.22 K/A is met. drl 2/11/16
88	F	2												B	S	EPE011 2.2.38 K/A is met. drl 2/11/16
89	H	2												B	S	WE11 EA2.1 K/A is met. drl 2/11/16
90	H	3		X										B	S	APE005 AA2.04 K/A is met. There is not a lot of difference between the two (as compared to the original question). Is this data take from the simulator during a stuck rod event? If so, it is fine. Otherwise, I'd like to verify the data to make sure it is what the applicants would see. drl 2/12/16 Revised question is SAT. drl 3/3/16
91	H	2	X											N	S	APE024 2.1.7 K/A is met. Second question is mildly related to the 1rst question. Think about deleting the second question and have the answers look something like: A. NV from BAT after locally aligning 269 and

Q	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. Source (B/ M / N)	7. Status (U /E /S)	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist	Partial	Job-Link	Minutia	# / Units	Back ward	Q – K/A	SR O Only			
																267 because it is the preferred flow path. B. NV from FWST because it is the preferred flow path. C. NV from FWST because the BAT is inoperable. D. NI from FWST because it is the preferred flowpath with an inoperable BAT. drl 2/12/16 Revised question is SAT.drl 3/4/16
92	H	2												N	S	WE08 2.1.7 K/A is met. drl 2/12/16
93	H	2		X										B	S	WE16 EA2.2 K/A is met. I know this was previewed. But… I'm having trouble as to why one would choose to go to I.3. I see the words about confusing inventory and integrity. Perhaps we could give them some more cues that might at least consider I.3. drl 2/12/16 Revised question is SAT. drl 3/4/16
94	F	3		X										B	S	GEN2.1 2.1.35 K/A is met. Question: Can a single individual really approve something like this? I want to ensure that there are no other procedural requirements out there that would require the Refueling SRO to get some kind of concurrence from another SRO that this is the right thing to do. If that requirement exists then C might be correct too. drl 2/12/16 Revised question is SAT. drl 3//16
95	F	2					X							B	S	GEN2.1 2.1.40 K/A is met. The second question needs a little editing to ensure there are no subset issues. Part 20m is more restrictive than Part 100, therefore technically both answers are correct. So if you specify that the design basis for a total system failure …, you will ensure only Part 100 is correct. drl 2/12/16 Revised question is SAT. drl 3//16
96	H	3					X							B	S	GEN2.2 2.2.21 K/A is met. Answer 1 should be "have" or "have not" automatically tripped. Based upon the way the question is written, it appears that the heaters are inoperable due to the malfunction and need to be returned to service within 7 days of the failure. You could go into TS 5.6.6 requirements. drl 2/12/16 Revised question is SAT. drl 3//16

Q	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. Other		6. Source (B/ M / N)	7. Status (U /E /S)	8. Explanation
			Stem Focus	Cues	T/F	Cred. Dist	Partial	Job-Link	Minutia	# / Units	Back ward	Q – K/A	SR O Only			
97	F	2												N	S	GEN2.2 2.2.6 K/A is met. drl 2/12/16
98	F	2												N	S	GEN2.3 2.3.12 K/A is met. drl 2/12/16
99	H	2												M	S	GEN2.3 2.3.14 K/A is met. drl 2/12/16
100	F	2												N	S	GEN2.4 2.4.44 K/A is met. Change “suspend” to “recommend suspending” in question 2.drl 2/12/14 Revised question is SAT. drl 3//16

ES-403	Written Examination Grading Quality Checklist	Form ES-403-1

Facility: **McGuire** Date of Exam: **April, 2016** Exam Level: RO ■ SRO ■

Item Description		Initials a	Initials b	Initials c
1.	Clean answer sheets copied before grading		N/A	
2.	Answer key changes and question deletions justified and documented			
3.	Applicants' scores checked for addition errors (reviewers spot check > 25% of examinations)			
4.	Grading for all borderline cases (80 ±2% overall and 70 or 80, as applicable, ±4% on the SRO-only) reviewed in detail			
5.	All other failing examinations checked to ensure that grades are justified	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			

	Printed Name/Signature	Date
a. Grader	NEWTON LACY	4/20/2016
b. Facility Reviewer(*)	N/A	N/A
c. NRC Chief Examiner (*)	David Laney	5/2/2016
d. NRC Supervisor (*)	Gerald McCoy	5/2/2016

(*) The facility reviewer's signature is not applicable for examinations graded by the NRC; two independent NRC reviews are required.

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December 15, 2015
Serial No. MNS-15-106

Regional Administrator, Region II
U. S. Nuclear Regulatory Commission
Marquis One Tower
245 Peachtree Center Ave., NE Suite 1200
Atlanta, Georgia 30303-1257

Subject: Duke Energy Carolinas, LLC
McGuire Nuclear Station, Units 1 and 2
Docket Nos. 50-369, 50-370
Reactor and Senior Reactor Operator Initial Examinations
05000369/2016301 and 05000370/2016301

Pursuant to the requirements of NUREG-1021, "Operator Licensing Standards for Power Reactors", the enclosed information provides the outline of the McGuire licensed operator examinations scheduled in April of 2016. The information is submitted as agreed upon with the Chief Examiner in accordance with the official NRC notification letter (150-Day Letter) and request for information in support of the examinations dated November 20, 2015.

Specific items provided in response to this request:

ES 201-2, Examination Outline Quality Checklist
ES 201-3, Examination Security Agreement
ES 301-1, Administrative Topics Outline (RO and SRO positions)
ES 301-2, Control Room/In-Plant Systems Outline (RO, SRO-U, and SRO-I positions)
ES 301-3, Operating Test Quality Checklist
ES 301-4, Simulator Scenario Quality Checklist
ES 301-5, Transient and Event Checklist
ES 401-2, PWR Examination Outline (Electronic)
ES 401-3, Generic Knowledge and Abilities Outline (Tier 3) (Electronic)
ES 401-4, Record of Rejected K/As (Electronic)
ES-D-1, Scenario Outlines (4) (Electronic)
Exam Reference Material Package (Electronic)

The McGuire Operations Facility Representative has reviewed and approved the proposed examination material per NUREG-1021, Section 201. The completion of this action is documented in the attached letter dated December 6, 2015.

Questions or comments should be directed to Kay Crane at (980) 875-4306 or Steven Mosteller at (980) 875-5981.

for
Steven D. Capps

Mr. Gerald J. McCoy, Chief
U.S. Nuclear Regulatory Commission
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Mr. David R. Lanyi
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245 Peachtree Center Ave., NE Suite 1200
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bxc: RGC File
EC050-ELL

December 6, 2015

To Whom It May Concern

Pursuant to 10 CFR 55.40(b)(3), an authorized representative of the facility licensee must approve the examination outline(s) and the proposed examination(s) before they are submitted to the NRC regional office for review and approval. The outline(s) and examinations(s) must be forwarded to the NRC regional office with a cover letter signed by the facility representative.

As a McGuire facility representative, I have reviewed and approved the NRC Operating Examination outlines for the examinations to be administered in April of 2016. I have determined that the outlines are accurate, operationally valid and ready for NRC review.

Scott Warren
McGuire Operations

January 20, 2016

To Whom It May Concern

Pursuant to 10 CFR 55.40(b)(3), an authorized representative of the facility licensee must approve the examination outline(s) and the proposed examination(s) before they are submitted to the NRC regional office for review and approval. The outline(s) and examinations(s) must be forwarded to the NRC regional office with a cover letter signed by the facility representative.

As the McGuire facility representative, I have reviewed and approved the NRC examinations to be administered in April 2016. I have determined that the examination is accurate, operationally valid and ready for NRC review.

Scott Warren
McGuire Operations

Steven D. Capps
Vice President
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January 26 , 2016
Serial No: MNS-16-011

Catherine Haney, Regional Administrator, Region II
U. S. Nuclear Regulatory Commission
Marquis One Tower
245 Peachtree Center Ave., NE Suite 1200
Atlanta, Georgia 30303-1257

Subject: Duke Energy Carolinas, LLC
McGuire Nuclear Station, Units 1 and 2
Docket Nos. 50-369, 50-370
Reactor and Senior Reactor Operator Initial Examinations
05000369/2016301 and 05000370/2016301

Pursuant to the requirements of NUREG-1021, "Operator Licensing Standards for Power Reactors", the enclosed information provides the full examinations for the McGuire licensed operator examinations scheduled in April of 2016. This information is submitted as agreed upon with the Chief Examiner in accordance with the official NRC notification letter (150-Day Letter) and request for information in support of the examinations dated November 20, 2015.

Specific items provided in response to this request:

- Simulator Scenarios - (ES-D-1, Scenario Outline for each Scenario)
- Simulator Scenarios - (ES-D-2, Required Operator Actions for each Scenario)
- Administrative Topics - (ES-301-1, Administrative Topics Outline)
- Job Performance Measures - (ES-301-2, Control Room Systems and Facility Walk-through Test Outline)
- Job Performance Measures - (ES-C-1, Job Performance Measure Worksheets for each JPM)
- ES 201-2, Examination Outline Quality Checklist
- ES 201-3, Examination Security Agreement
- ES 301-3, Operating Test Quality Checklist Form
- ES 301-4, Simulator Scenario Quality Checklist Form
- ES 301-5, Transient and Event Checklist Form
- ES 301-6, Competencies Checklist Form
- ES 401-4, Record of Rejected K/As
- ES 401-6, Written Examination Quality Checklist
- Reactor Operator and Senior Reactor Operator Written Questions (Clean Student Copy), Keys, Reference Packages, and Exam with Distracter Analysis
- Senior Reactor Operator Written Examination Student Copy with Reference Package
- Reference Materials including System Designator List

The McGuire Operations Facility Representative has reviewed and approved the proposed examination material per NUREG-1021, Section 201. The completion of this action is documented in the attached letter dated January 20, 2016.

Questions or comments should be directed to George Murphy at (980) 875-5715 or Steven Mosteller at (980) 875-5981.

Steven D. Capps

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April 19, 2016
Serial No: MNS-16-034

10 CFR 55.40

Catherine Haney
Regional Administrator, Region II
U. S. Nuclear Regulatory Commission
Marquis One Tower
245 Peachtree Center Ave., NE Suite 1200
Atlanta, Georgia 30303-1257

Subject: Duke Energy Carolinas, LLC
McGuire Nuclear Station, Units 1 and 2
Docket Nos. 50-369, 50-370
Reactor and Senior Reactor Operator Initial Examinations
05000369/2016301 and 05000370/2016301

The enclosed information is provided per the requirements of NUREG-1021 (Operator Licensing Standards for Power Reactors) Section ES-501 (Initial Post-Examination Activities) Part C.1, related to submission of post-examination documentation.

Specific items provided include:

- Student answer sheets and exam cover pages
- Master copy of the RO and SRO Examinations and answer keys
- Student questions during the Written Examination and proctor responses
- Student Seating Chart
- ES 201-3, Examination Security Agreement
- Post-Examination Comments

Questions or comments should be directed to George Murphy at (980) 875-5715 or Steven Mosteller at (980) 875-5981.

Steven D. Capps

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bxc: Vickie McGinnis
RGC File