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September 19, 2005

RER-05-00027

Mr. Mark Haire, Chief Examiner
U.S. Nuclear Regulatory Commission
611 Ryan Plaza Drive, Suite 400
Arlington, TX 76011-8064

SUBJECT: Initial License – Written Examination Results for ANO, Unit 1 (B&W)

Dear Mr. Haire,

The written examination results for the Initial License Written Examination administered on September 9, 2005, are complete. All ES-403 required forms and attachments are enclosed.

The examination analysis and post-examination review caused two changes to the examination. Question number 16 contained two correct answers; therefore credit was given to candidates who chose either answer. Question number 73 did not have a correct answer and therefore was dropped from the examination totals.

There was one examination failure.

An examination review that included a discussion of missed questions was conducted with all candidates. There are no requested appeals of the examination grading from the candidates.

All examination materials shall be withheld from public disclosure until after examination administration is complete. Please call me at 479-858-6844 if you have any questions.

Sincerely,

Randal K. Martin
Facility Representative
Supervisor, Unit One Operations Training
Arkansas Nuclear One

Attachments
cc w/o attachments: Sherrie Cotton
Brad Berryman
Andrew Clinkingbeard
ANO-DCC
Tom Mayfield
Steve Pullin
Dan Smith
CMS File
Bob Byford
John Cork
Dale James

ANO - Unit 1
2005 RO/SRO License Exam Analysis

QID #	RO	A	B	C	D	% MISS
608	1	A				0.00%
324	2	A		4		50.00%
368	3			C	2	25.00%
198	4	A				0.00%
609	5	1		C	1	25.00%
610	6				D	0.00%
611	7		B		3	37.50%
7	8		1	C		12.50%
395	9		B			0.00%
612	10	A	2		1	37.50%
551	11	A		1		12.50%
552	12		B			0.00%
553	13			C		0.00%
339	14		B	1		12.50%
613	15	A				0.00%
554	16	A		8		100.00%
555	17				D	0.00%
614	18		B			0.00%
557	19		B		1	12.50%
495	20			C		0.00%
216	21		B			0.00%
25	22	A				0.00%
606	23			C	1	12.50%
558	24		4		D	50.00%
162	25	A				0.00%
380	26	A			1	12.50%
421	27	A				0.00%
615	28		1	C	2	37.50%
432	29		B			0.00%
91	30	1	B			12.50%
560	31		B	1		12.50%
197	32		B			0.00%
71	33		B			0.00%
561	34		1		D	12.50%
294	35		B			0.00%
562	36	3	B			37.50%
72	37				D	0.00%
306	38	1			D	12.50%
307	39	A		1		12.50%
266	40	A				0.00%
564	41	1		C	2	37.50%
135	42			C		0.00%
444	43			C		0.00%
314	44			C		0.00%
565	45	1	B			12.50%
195	46			C		0.00%
566	47			C		0.00%
140	48	A				0.00%
616	49		B			0.00%
617	50	4		1	D	62.50%
568	51			C		0.00%
89	52	A				0.00%
211	53				D	0.00%
227	54		B			0.00%
569	55		B		2	25.00%
262	56				D	0.00%
604	57	A				0.00%
571	58			C		0.00%
572	59		1	C	2	37.50%
573	60		B	1	3	50.00%

QID #	SRO	A	B	C	D	% MISS		Both
608	1	A				0.00%		0.00%
324	2	A		4		80.00%		**61.54%**
368	3			C		0.00%		15.38%
198	4	A				0.00%		0.00%
609	5			C	1	20.00%		23.08%
610	6				D	0.00%		0.00%
611	7		B			0.00%		23.08%
7	8			C		0.00%		7.69%
395	9		B			0.00%		0.00%
612	10	A	1			20.00%		30.77%
551	11	A				0.00%		7.69%
552	12		B			0.00%		0.00%
553	13			C		0.00%		0.00%
339	14		B			0.00%		7.69%
613	15	A				0.00%		0.00%
554	16	A		2		40.00%		**76.92%**
555	17				D	0.00%		0.00%
614	18		B			0.00%		0.00%
557	19		B			0.00%		7.69%
495	20			C		0.00%		0.00%
216	21		B			0.00%		0.00%
25	22	A				0.00%		0.00%
606	23			C	1	20.00%		15.38%
558	24		2		D	40.00%		46.15%
162	25	A				0.00%		0.00%
380	26	A				0.00%		7.69%
421	27	A				0.00%		0.00%
615	28			C	2	40.00%		38.46%
432	29		B			0.00%		0.00%
91	30	1	B			20.00%		15.38%
560	31		B	1		20.00%		15.38%
197	32		B	1		20.00%		7.69%
71	33		B			0.00%		0.00%
561	34		1		D	20.00%		15.38%
294	35		B			0.00%		0.00%
562	36	1	B			20.00%		30.77%
72	37				D	0.00%		0.00%
306	38				D	0.00%		7.69%
307	39	A	1			20.00%		15.38%
266	40	A				0.00%		0.00%
564	41	1		C	1	40.00%		38.46%
135	42			C		0.00%		0.00%
444	43			C		0.00%		0.00%
314	44			C		0.00%		0.00%
565	45		B			0.00%		7.69%
195	46			C		0.00%		0.00%
566	47			C		0.00%		0.00%
140	48	A				0.00%		0.00%
616	49	1	B			20.00%		7.69%
617	50				D	0.00%		38.46%
568	51	1		C		20.00%		7.69%
89	52	A				0.00%		0.00%
211	53				D	0.00%		0.00%
227	54		B			0.00%		0.00%
569	55		B		3	60.00%		38.46%
262	56	1			D	20.00%		7.69%
604	57	A				0.00%		0.00%
571	58			C		0.00%		0.00%
572	59			C	2	40.00%		38.46%
573	60		B		1	20.00%		38.46%

ANO - Unit 1
2005 RO/SRO License Exam Analysis

QID #	RO	A	B	C	D	% MISS
201	51			C		0.00%
574	52		B			0.00%
575	53			C		0.00%
196	54		1	C	1	25.00%
619	55			1	D	12.50%
620	56		1	C		12.50%
79	57				D	0.00%
576	58		B			0.00%
116	59			C		0.00%
621	70		B			0.00%
390	71				D	0.00%
605	72			C	4	50.00%
579	73	2		C		25.00%
580	74			1	D	12.50%
128	75	A			2	25.00%
		Tot A's	Tot B's	Tot C's	Tot D's	
	75	17	22	23	13	

QID #	SRO	A	B	C	D	% MISS		Both
201	51			C		0.00%		0.00%
574	52		B			0.00%		0.00%
575	53			C		0.00%		0.00%
196	54			C		0.00%		15.38%
619	55				D	0.00%		7.69%
620	56			C		0.00%		7.69%
79	57				D	0.00%		0.00%
576	58		B			0.00%		0.00%
116	59			C	1	20.00%		7.69%
621	70		B			0.00%		0.00%
390	71				D	0.00%		0.00%
605	72			C		0.00%		30.77%
579	73	3		C		60.00%		38.46%
580	74				D	0.00%		7.69%
128	75	A			1	20.00%		23.08%
581	76	A			1	20.00%		
331	77			C		0.00%		
584	78		B			0.00%		
586	79				D	0.00%		
587	80	A				0.00%		
588	81	1	B			20.00%		
589	82	2	1	1	D	**80.00%**		
590	83		B	2	1	**60.00%**		
591	84		1	C		20.00%		
592	85	1	B			20.00%		
594	86	A		1		20.00%		
607	87		1	C		20.00%		
596	88		B			0.00%		
597	89		B			0.00%		
598	90			C		0.00%		
570	91	A				0.00%		
599	92				D	0.00%		
600	93	1	1	C		40.00%		
601	94			C		0.00%		
252	95		B			0.00%		
409	96	A			1	20.00%		
119	97		B			0.00%		
120	98	1		C		20.00%		
123	99				D	0.00%		
602	100			C		0.00%		
		Tot A's	Tot B's	Tot C's	Tot D's			
	100	22	30	31	17			

2005 ANO NRC RO/SRO Written Examination
Analysis and Post-Exam Comments

#2 RO and SRO QID #0324

8/13 missed (61.54%), all chose "C"

The question gives conditions that place RCS subcooling margin as inadequate. Thus, HPI flow can not be throttled as in answer "C". The wording of the RCS pressure condition states "pressure rising rapidly" and the candidates assumed that subcooling margin would soon be restored. However, per the rules of examination administration the candidates should only assume the conditions as given and not how they would be in the future. No change to the key was made. Although the question is technically correct as written, we will revise this question prior to further use.

#16 RO and SRO QID #0554 (RO Tier 1 Group 1)

10/13 missed (76.92%), all chose "C"

Following further review of the reference material, it was determined there are two correct answers to this question, "A" and "C". The question reference, 1203.028 step 10.A, refers to the primary reason for slowly restoring SW to the DH cooler (i.e., water hammer), but it also refers to thermal shock as a secondary concern in the note. Credit will therefore be given to all who chose "A" or "C". The question will be corrected prior to future use.

#73 RO and SRO QID #0579 (RO Tier 3)

After class review of the exam, it was determined that there was no correct answer due to a typo. The typo was in the correct answer "C" which states "HPI" vs. the system in the reference, 1202.010 step 13, which is "LPI". The question was therefore dropped from the exam. The question will be corrected prior to future use.

#82 SRO QID #0589

4/5 missed (80.0%), 2 chose "A", one each chose "B" and "C"

The distribution of incorrect answers leads us to believe the question does not have any construction problems. We also believe there are no training deficiencies.

#83 SRO QID #0590

3/5 missed (60.0%), 2 chose "C", one chose "D"

The distribution of incorrect answers leads us to believe the question does not have any construction problems. We also believe there are no training deficiencies.

#94 SRO QID #0601 (SRO Tier 3)

No misses, however, a comment was made on this question during the exam. The comment suggested that since the Tech Spec 3.2.4, Required Action A.1.2.2, states $\geq 2\%$, then both "C" and "D" are correct. Answer "C" was listed as the correct answer as the QPT given exceeds the limit by 3% and 3 x 2 = 6. However, answer "D" is also correct since 8% is greater than 6%. The question will be corrected prior to future use.

SECTION 4 -- LOSS OF SERVICE WATER FLOW

10. WHEN SW is regained,
THEN restore SW flow to DH cooler as follows:

A. Station operator at cooler to listen for evidence of water hammer during next step.

> **NOTE**
> If SW side of DH cooler has reached saturation temp, slowly cutting in SW will minimize thermal shock and water hammer.

B. Slowly open applicable SW Inlet to E-35A or E-35B DH Cooler manually:

E-35A	E-35B
CV-3822	CV-3821

1) **IF** water hammer is observed,
THEN open SW Inlet more slowly.

C. **WHEN** SW valve is fully open,
THEN close associated supply breaker:

CV-3822	CV-3821
B-5182	B-6183

END

INSTRUCTIONS | **CONTINGENCY ACTIONS**

NOTE

Aligning Pressurizer AUX Spray to LPI system before going on sump recirc reduces personnel exposure should the lineup be required for boron precipitation mitigation at a later time. Transfer to RB Sump suction must commence when BWST level reaches 6', even if this alignment is not complete.

13. **Dispatch an operator to align Pressurizer AUX Spray to LPI system using Decay Heat Removal Operating Procedure (1104.004), "DH System AUX Spray Alignment Prior to RB Sump Recirc" section.**

    A. **IF** BWST level reaches 6' before alignment is complete,
    THEN notify dispatched operator to exit the Aux Bldg, regardless of alignment status, until transfer to RB sump suction is complete and radiation levels can be determined.

3.2 POWER DISTRIBUTION LIMITS

3.2.4 QUADRANT POWER TILT (QPT)

LCO 3.2.4 QPT shall be maintained less than or equal to the steady state limits specified in the COLR.

APPLICABILITY: MODE 1 with THERMAL POWER > 20% RTP.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. QPT greater than the steady state limits specified in the COLR.	A.1.1 Perform SR 3.2.5.1.	Once per 2 hours
	OR	
	A.1.2.1 Reduce THERMAL POWER ≥ 2% RTP from the ALLOWABLE THERMAL POWER for each 1% of QPT greater than the steady state limit.	2 hours OR 2 hours after last performance of SR 3.2.5.1
	AND	
	A.1.2.2 Reduce nuclear overpower based on Reactor Coolant System flow and AXIAL POWER IMBALANCE trip setpoint ≥ 2% RTP from the ALLOWABLE THERMAL POWER for each 1% of QPT greater than the steady state limit.	10 hours OR 10 hours after last performance of SR 3.2.5.1
	AND	