

2014-2 as-given analysis

	As-Given	Missed	
1		100%	50%
2			25%
3			25%
4			25%
5			25%
6			25%
7			25%
8			25%
9	D	50%	38%
10			25%
11	B	100%	50%
12	A	50%	38%
13		50%	38%
14		50%	38%
15			25%
16			25%
17			25%
18		50%	38%
19			25%
20	A	50%	38%
21			25%
22			25%
23		50%	38%
24			25%
25			25%
26			25%
27	B	100%	50%
28			25%
29			25%
30			25%
31			25%
32		50%	38%
33			25%
34			25%
35	D	50%	38%
36			25%
37			25%
38			25%
39	A	50%	38%
40	D	50%	38%
41			25%
42			25%
43			25%
44			25%
45			25%
46			25%
47			25%
48			25%
49	B	50%	38%
50			25%
51		50%	38%
52	B	50%	38%
53	A	50%	38%
54			25%
55		50%	38%
56			25%
57			25%
58			25%
59			25%
60			25%
61			25%
62			25%
63	A	50%	38%
64		50%	38%
65	A	100%	50%
66		50%	38%
67			25%
68			25%
69			25%
70	D	50%	38%
71			25%
72			25%
73			25%
74	A	50%	38%
75			25%
76			50%
77	B	100%	75%
78			50%
79	C	100%	75%
80	B	100%	75%
81			50%
82			50%
83	B	100%	75%
84			50%
85			50%
86	D	100%	75%
87	B	100%	75%
88			50%
89			50%
90			50%
91	A	100%	75%
92			50%
93			50%
94			50%
95			50%
96			50%
97	A	100%	75%
98			50%
99	A	100%	75%
100			50%
	80.0	77.0	
	As-Given	64.0	SRO
	80.0	81.3	RO

2014 Initial RO/SRO Exam Analysis and Comments

Analysis performed based on the preliminary grading results. Based on the preliminary grading, both the RO and SRO applicant's obtained a borderline grade as defined on ES-403-1. Each of the exams was reviewed to determine any specific system or topic knowledge gaps for the individual. No significant knowledge gaps in a specific area or topic were identified. The SRO Upgrade applicant did not have any significant RO knowledge gaps, therefore no further remediation or training required for his current RO license.

Since only 2 applicants, one RO and one SRO, took the exam the sample size for group exam analysis data is limited. There were 4 questions in the RO section that both applicants missed and are evaluated below.

There were 3 questions (11, 79, 80) identified to challenge for potential key changes prior to final grading. These challenges with justification are submitted on a separate sheet.

A training action (TEAR-ANO-2014-370) was submitted to document actions taken as a result of this exam analysis. All missed exam items were reviewed with the applicants during the post-exam review, including explanation of why the distracters were incorrect.

The common missed questions with recommendations are listed in the following table.

Exam Q#	Bank QID	Comment:	Recommendations/Actions:
1	2073	Both applicants picked the same wrong distracter (B). There was one question logged by the RO applicant regarding this exam question during administration of the exam. During the debrief the applicants commented that they could remember that the reactivity section of SPTAs had a separate sub-step for checking SUR, however, there is not a justifiable reason to select a thermal power (Core Delta T) to monitor Reactor Power after a trip. Core power would be a fractional percent of power (<1E-3%).	<p>Applicant Training Discussed correct responses and why the distracters were incorrect during exam review with applicants. No further training action for the applicants recommended.</p> <p>Program Changes None identified.</p> <p>Exam Bank No changes recommended.</p>
11	2083	Both applicants picked the same wrong distracter (B). There were no questions logged by applicants regarding this exam question during administration of the exam. During the debrief the applicants had the following comments:	<p>Applicant Training Discussed correct responses and why the distracters were incorrect according to the exam key during exam review with applicants. No knowledge gap identified.</p>

2014 Initial RO/SRO Exam Analysis and Comments

Exam Q#	Bank QID	Comment:	Recommendations/Actions:
		<ul style="list-style-type: none"> Used CET value for MTS determination because they assumed RCPs were not running. Differential between CET and Thot seemed too large for RCPs running 	<p>Program Changes None identified.</p> <p>Exam Bank Recommend adding more information to clearly indicate RCP status. Verify other parameters support RCP status. [TEAR-ANO-2014-370]</p>
27	2099	<p>Both applicants picked the same wrong distracter (B). There were no questions logged by applicants regarding this exam question during administration of the exam. During the debrief the applicants had the following comments:</p> <ul style="list-style-type: none"> Did not pick ‘D’ because the phrase “until RVLMS level 1 indicates WET” seemed too specific compared to the other distracters. Did not remember anything about RVLMS level 1 as criteria for void elimination in the EOP attachment. Picked ‘B’ because stopping the cool down would stop depressurization. (<i>this is an incorrect assumption</i>) 	<p>Applicant Training Discussed correct responses and why the distracters were incorrect during exam review with applicants. No further training action for the applicants recommended.</p> <p>Program Changes None identified.</p> <p>Exam Bank Review QID and consider truncating the D response or adding more specifics to B distractor. [TEAR-ANO-2014-370]</p>
65	2137	<p>Both applicants picked the same wrong distracter (A). There were no questions logged by applicants regarding this exam question during administration of the exam. This question topic involves knowledge of design changes in the fuel oil vault fire protection system. There were also some knowledge gaps identified during validation of this exam item. Both applicants knew that the sprinkler system was an open head deluge design, but did not remember the new (greater than a year old) detection logic and manual actuation change.</p>	<p>Applicant Training Discussed correct responses and why the distracters were incorrect during exam review with applicants. No further training action for the applicants recommended.</p> <p>Program Changes Evaluate initial training program to verify related materials include new system and that a process is in place to ensure plant changes during class are communicated/trained properly. [TEAR-ANO-2014-370]</p> <p>Exam Bank No exam bank changes recommended.</p>

Suggested Changes to the 2014 ANO Unit 2 Initial RO/SRO Retake Exam

Exam Q#	Bank QID	Comment:
11	2083	<p>Question is lacking sufficient initial data in the stem regarding RCP status.</p> <p>This question had a 100% miss rate. Both the RO and SRO applicant selected the same wrong distractor which was B: Margin to Saturation (MTS). The question topic is on ECCS throttling criteria during a SGTR. The criterion is listed in SGTR EOP 2202.004 floating step 17. The correct answer discriminates from the list of given parameters that the applicant can remember these criteria. The question design was based on the assumption that RCPs were still running during this event and the given data would indicate that the parameters for the unaffected SG make it unavailable for RCS heat removal. Post exam analysis of this question reveals that there is not enough information in the given parameters to completely determine the status of the RCPs. Although the question design assumption was for RCPs to be running, the given differential temperature between core exit temperature (CET) and T_{hot} is indicative that forced circulation is no longer in progress. This gives the question the potential for two correct answers (B and C) as CETs are used for MTS calculation without RCPs in operation and T_{hot} temperatures are used for MTS with RCPs in operation. Using the given conditions, MTS using CETs vs RCS pressure is at the 30F MTS limit and degrading while the T_{hot} is well above the 30F criteria of the EOP for throttling ECCS flow.</p> <p>Recommend accepting choices B and C in the final grading of this exam.</p>
79	2151	<p>Question is lacking sufficient initial data in the stem regarding MTS trend.</p> <p>The SRO applicant selected the correct mitigating procedure in the 2-part choices but the basis selected was wrong according to the intended design of the question. The question topic is based on parameters used to discriminate between a LOCA event and an ESD (Excess Steam Demand or steam line rupture). The choices for the basis of procedure selection are between the margin to saturation (MTS) trend and containment pressure. This question was revised after submittal to improve the distracter choices and replaced containment radiation as a discriminator to MTS trend as a choice. MTS trend is correct as a discriminator between these events; however, the initial data was not revised to positively identify the trend. The initial data gives a lowering RCS temperature and pressure but the rates of change or any other parameters are not given to positively conclude that MTS is lowering. Post exam review with the applicant determined that the RCS parameters compared to the containment parameters were adequate for determining the event, however, since the MTS trend</p>

		<p>could not be distinguished from the given parameters and there was positive indication of “containment pressure” trend, MTS trend was excluded as a possible choice.</p> <p>Recommend accepting choices C and D in the final grading of this exam.</p>
80	2152	<p>Question initial data does not positively indicate that the reported steam leak is isolated by the manual actions.</p> <p>The SRO applicant selected the correct mitigating action in the 2-part choices but the procedure selected was wrong according to the intended design of the question. The question design assumed that the reported steam leak was isolated with the given manual action to close the MSIVs. Question revision after submittal attempted to improve the indications regarding leak isolation as this is the discriminator between the 2 procedure choices, however, post exam review reveals that it was still not explicit. Since the steam leak could still be assumed active through the end of SPTAs, two events would be diagnosed and the Functional Recovery EOP would be the correct choice. Securing all RCPs is the correct mitigating action regardless of the procedure selected. This makes both A and B credible choices.</p> <p>Recommend accepting choices A and B in the final grading of this exam.</p>